Review of BT's network charge controls

Explanatory statement and Notification of proposals on BT's SMP status and charge controls in narrowband wholesale market

Consultation

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Closing Date for Responses: **1 June 2005**

Section 1

Summary

1.1 Wholesale narrowband interconnection services provided over BT's core network have been one of the key enablers for competition in the UK telecoms market. We are currently approaching the end of the second of two four-year charge control periods (known as the network charge controls ("NCCs")) using the widely acknowledged RPI-X mechanism. These controls have managed to ensure that the UK remains one of the lowest cost interconnect regimes in Europe while at the same time incentivising BT to continue to improve the efficiency of its core network.

1.2 This document is a consultation on the revision of the RPI-X controls which are proposed to be effective for a four-year period commencing on 1 October 2005. It also proposes revisions to the assessment of BT's market power in two specific interconnection economic markets, and, as a result, proposes to deregulate and reduce regulation respectively in those markets. The proposals are in accordance with the principles set out the in Second Phase of the Telecoms Strategic Review ("TSR").

Proposed new charge controls

1.3 NCCs limit BT's ability to set charges in wholesale markets in which it has a dominant position, also known as Significant Market Power ("SMP"). The NCCs are a remedy imposed on BT owing to its SMP in the markets covered in this document. BT's dominance in those markets was last assessed in 2003 by Oftel, in accordance with the requirements of the legal framework of EC Directives.

1.4 Ofcom proposes that the following NCCs imposed on BT should run for four years from 1 October 2005.

<table>
<tr><th>Service</th><th>Current controls 2001-5</th><th>Proposed controls 2005-9</th></tr>
<tr><td>Call termination</td><td>RPI – 10%</td><td>RPI - (2.25–6.25)%</td></tr>
<tr><td>Call origination</td><td>RPI – 10%</td><td>RPI - (0.5–4.5)%</td></tr>
<tr><td>Single transit</td><td rowspan="2">RPI – 13%

for combined basket</td><td>RPI - (11–14)%</td></tr>
<tr><td>Local-tandem conveyance</td><td>Safeguard cap of

RPI – 0%</td></tr>
<tr><td>Interconnection circuits (ISB)</td><td rowspan="2">RPI – 8.25% for combined basket; RPI + 0% sub-caps for each of

ISB & PPP</td><td>RPI - (1.5–5.5)%</td></tr>
<tr><td>Product management, policy and planning</td><td>RPI - (2.5–6.5)%</td></tr>
</table>

(PPP)		
DLE FRIACO	RPI – 7.5%	RPI - (7.5–11.25)%
Single Tandem FRIACO	RPI – 8.75%	RPI - (8.5–12.25)%
Inter-tandem conveyance and Inter-tandem transit	Safeguard cap of RPI – 0%	No control as no SMP

1.5 For the proposed NCCs, Ofcom is consulting on a range of values - rather than a single value - because some relevant issues are still being resolved. These issues include the determination of an appropriate cost of capital as part of the NCC cost base, on which Ofcom is currently consulting separately. Ofcom proposes that the final values take into account the results of the consultation on the cost of capital. The ranges of X also incorporate the basic features of our proposals as described in this document.

1.6 Some of the proposed values of X are considerably below current levels. This is due to, among other things, lower BT starting super-normal profits for these services (which means a lower value for X will be sufficient to eliminate super-normal profits) and forecast falls in traffic volumes on BT's network (which means a lower value for X because BT's average unit costs will be higher).

1.7 Ofcom's proposal that the charges run for a period of four years minimises regulatory risk and promotes an environment in which communications providers can make forward-looking decisions. This is consistent with proposals in the TSR to allow regulated businesses and the wider market to plan against a predictable regulatory environment for the period in question.

1.8 The TSR also proposed Ofcom's main considerations when regulating the returns BT makes from providing wholesale access to different parts of its network. These are: the incentives to invest; the likelihood of competition; and the need for direct consumer protection where competition is not effective or sustainable. The NCCs proposed in this document will apply to a period of transition including the migration of BT from its current public switched telephone network ("PSTN") to its proposed 21st Century Network ("21CN"). Ofcom's analysis is therefore designed to meet these considerations on a forward looking basis.

1.9 In order to achieve this, Ofcom has adopted a technology neutral model to determine the average unit costs of narrowband PSTN services over the period to 2009. This is a way to cope with the uncertain speed of traffic migration to the 21CN, and to incentivise efficient migration of that traffic. It also has the effect of using hypothetical levels of PSTN capital expenditure during a period when it is expected that BT will move from PSTN to IP investment as part of its proposed 21CN deployment. Ofcom has assumed that BT will continue to improve its PSTN efficiency levels in line with historical experience and international benchmarks and as such has attempted neither to forecast efficiency gains that BT might reap from its 21CN deployment nor to take into account BT's forecast parallel running costs of running down its PSTN capability while migrating to 21CN. It is expected that 21CN efficiency gains will be considered if and when Ofcom is required to determine a price for 21CN interconnect services and

in any future NCC in the period from 2009 onwards. In adopting this approach Ofcom has sought to make a forward-looking trade off between incentivising efficient investment, promoting competition and passing on cost savings to consumers.

1.10 For three markets – call origination, call termination and single transit - Ofcom is satisfied that there has been no material change in those markets and that the degree of change is not sufficient to warrant the level of analysis that Ofcom has performed for the two markets set out below. In such circumstances, Ofcom is proposing to use its powers under the Communications Act 2003 ("2003 Act") to set all the proposed SMP services conditions to impose the new NCCs by publishing its Notification (see Annex 5) for consultation in the UK as well as at a European level (to the European Commission and other national regulatory authorities).

De-regulation

1.11 In the TSR Ofcom proposed a number of principles including that Ofcom should withdraw from regulation as soon as competitive conditions allowed. In performing its initial assessment of changes in market conditions, Ofcom observed that in two economic markets (inter-tandem conveyance and transit, and local-tandem conveyance and transit) there was prima facie evidence that BT's level of market power has been reducing. Ofcom therefore has conducted in-depth analysis on these two markets, using the same processes followed in 2003.

1.12 This document explains where Ofcom's proposed market definitions for those markets differ from those in the *European Commission's Recommendation* on relevant product and service markets. In assessing SMP, Ofcom has also taken due account of the European Commission's *Guidelines on market analysis and the assessment of SMP ("SMP Guidelines").*

1.13 Based on evidence available, Ofcom proposes that:

- BT no longer has SMP in the market for inter-tandem-conveyance and inter-tandem transit in the UK (excluding the Hull Area); and
- BT still has SMP in the market for local-tandem conveyance and local-tandem transit in the UK (excluding the Hull Area).

1.14 As a result of its proposal that BT does not have SMP in inter-tandem conveyance and inter-tandem transit, Ofcom is proposing that all obligations on BT in relation to that market to be revoked. This is a legal requirement that follows from the proposal that BT does not have SMP in this market. The current NCCs for this market are 'safeguard caps' (i.e. BT is restricted to raising prices for these services by RPI-0%).

1.15 In the market for local-tandem conveyance and local-tandem transit, Ofcom considers at present that there is sufficient potential for competition over the period of the proposed NCCs due to the demonstrated ability of other operators to interconnect with BT's local exchanges, either using their own infrastructure, or by leasing dedicated transmission capacity from BT. On this basis Ofcom therefore proposes to reduce regulation, by moving to a safeguard cap on BT's charge increases, to no more than inflation. Also for that market, Ofcom proposes that BT should be able to change its charges at 28 days notice, rather than the current 90 days as this is more in keeping with competitive market conditions.

1.16 As Ofcom proposes that BT still has SMP in local-tandem conveyance and transit, Ofcom has considered all of the other SMP remedies that relate to BT's SMP in that market, such as network access, and proposes to re-set all those remedies (except for

the proposed change to the notification period for charges, terms and conditions, as mentioned above).

Implementation

1.17 When Ofcom has considered representations made within the period to 1 June 2005, including any made by the European Commission, we may give effect to our proposals, with or without modifications. Ofcom will do this by publishing a further Notification accompanied by a final Explanatory Statement. Thereafter, the identified services markets, market power determinations and the regulatory remedies that are imposed will be reviewed by Ofcom at appropriate intervals.

Section 2

Introduction

Structure of this document

2.1 This document is divided into three main Sections:

- Section 2 describes the purpose of this document, the role of the NCCs, related legal requirements, and key issues affecting Ofcom's proposals;
- Section 3 covers Ofcom's review of BT's market power status for two economic markets that are relevant to the services covered by the NCCs (and in which BT currently has SMP); and
- Section 4 summarises Ofcom's proposals for new NCCs, the key factors affecting those proposals, and the legal processes for implementing them.

2.2 The main Sections are accompanied by a number of annexes, including:

- Annex 4 which sets out the legal and economic framework for setting NCCs and other SMP remedies;
- Annex 5 which contains a Notification under the 2003 Act of Ofcom's main proposals set out in this document; and
- Annex 8 which contains a detailed explanation of how Ofcom's proposed NCCs were calculated.

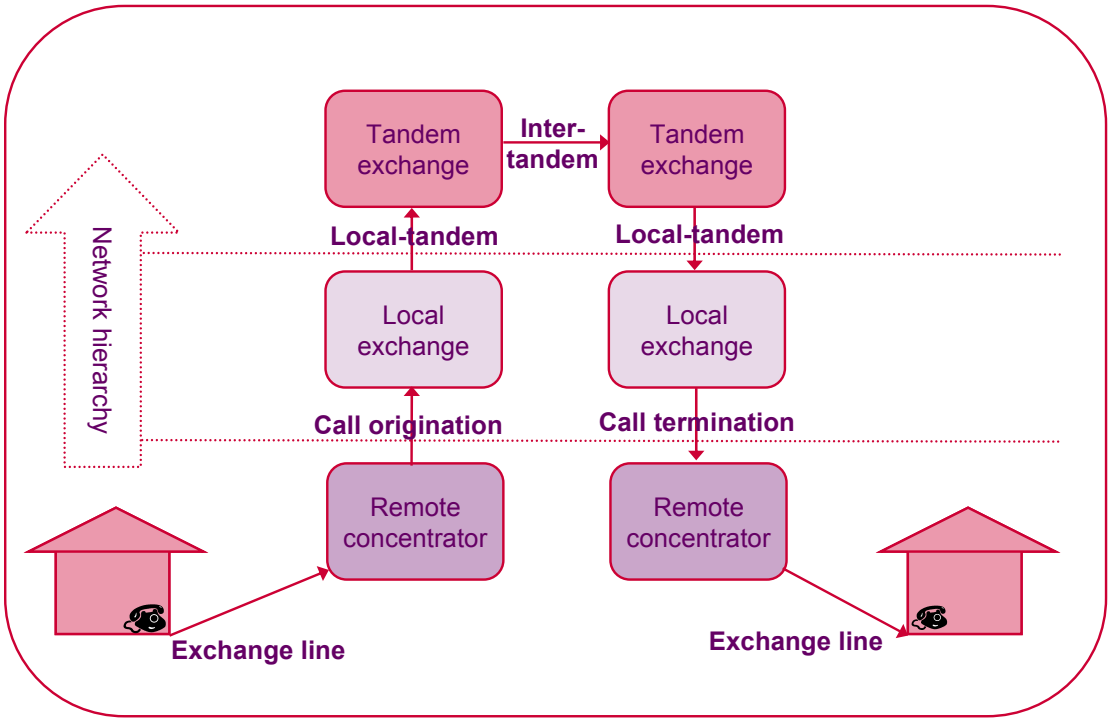
Purpose of this document

2.3 The key purpose of this document is to make proposals for the appropriate regulation of BT, in particular the limits on what it can charge, in relation to a number of wholesale services provided over its fixed public narrowband network. Wholesale services are ones that are sold and purchased by communications providers rather than end-users of communications services. The services covered by this document, described further below, are:

- call origination;
- call termination;
- single transit;
- local-tandem conveyance ("LTC") and local-tandem transit ("LTT");
- inter-tandem conveyance ("ITC") and inter-tandem transit ("ITT");
- interconnection circuits (interconnect-specific basket, or ISB, services);
- product management, policy and planning (PPP);
- DLE FRIACO; and
- single tandem FRIACO.

2.4 Such fixed public narrowband networks can be broken down into segments, such as exchange lines and call origination. In order to provide a complete communications service, such as a call, to end-users, providers do not have to build entire communications networks, but instead can purchase segments from other communications providers. This segmentation is illustrated in Figure 2.1.

Figure 2.1 The segmentation of current wholesale narrowband services



2.5 The following five services are economic markets that relate to particular parts of BT's core network:

- **call origination** is the conveyance of a call originating on a customer's exchange line from the remote concentrator to and over the local exchange;
- **call termination** is the conveyance of a call terminating on a customer's exchange line over and from the local exchange to the remote concentrator;
- **single transit** is the service a transit operator provides at a single tandem exchange to switch a call from one network to another when a call originates and terminates on networks other than its own;
- **local-tandem conveyance and local-tandem transit** are services that convey traffic between a local and a tandem exchange; and
- **inter-tandem conveyance and inter-tandem transit** are services that convey traffic between tandem exchanges.

2.6 In all of the five markets in which the above services fall, BT is currently determined as having a dominant position or, in other words, SMP. Those determinations were made in November 2003 after a number of 'market reviews ("the Narrowband Market Reviews")[1].

2.7 Regulation of interconnection circuits ("ISB services") derives from their status as a 'technical area', in which Ofcom can apply remedies as part of the overall solution for obligations to address SMP in relevant economic markets. Remedies for these services were also imposed in November 2003.

2.8 Regulation of product management, policy and planning ("PPP") derives from its status as a component of the services in which BT has SMP. PPP services were last

[1] http://www.ofcom.org.uk/consult/condocs/narrowband_mkt_rvw/nwe/fixednarrowbandstatement.pdf & http://www.ofcom.org.uk/consult/condocs/narrowband_mkt_rvw/Eureviewfinala1.pdf

assessed in July 2004, when Ofcom tightened the charge control on PPP services by imposing a sub-cap of RPI+0% on a revised charge for PPP (as well as a separate RPI+0% sub-cap for ISB) within the combined cap on ISB and PPP[2].

2.9 Flat-rate internet access call origination ("FRIACO") is a wholesale unmetered Internet access service which BT is obliged to provide, which supports competitors in offering unmetered narrowband internet services to end users. BT's competitors can interconnect their networks to get this service at either local exchanges ("DLE FRIACO") or tandem exchanges (Single Tandem, or "ST, FRIACO"). BT's obligation to offer FRIACO is one of the remedies for BT's SMP in call origination and, for ST FRIACO only, BT's SMP in LTC and LTT.

2.10 For all of the above-mentioned services, there are currently controls on how much BT can charge. The current NCCs were initially set in 2001, to run from 1 October 2001 to 30 September 2005. This document makes proposals on the justification for controls to continue after September 2005, and their appropriate level, so that new controls can be implemented as necessary before the current ones end.

The role, history and impact of the NCCs

2.11 The NCCs limit BT's ability to set charges excessively in wholesale markets in which it has SMP. In many cases, market power at the retail level translates into wholesale level market power: most retail customers are connected to BT (about 80%), and competitors need access to these customers to allow them to offer a competing retail service. Regulation requiring access to these services, at appropriate charges, limits BT's ability to use its market power to discourage entry and force exit.

2.12 Without controls on its charges, BT might have incentives to set excessive wholesale charges, as this would increase its overall profitability and increase its competitors' costs. At the wholesale level, whilst complying with obligations against undue discrimination on charges, BT could charge excessively to its competitors and to its own retail arm. But this would not harm BT's retail competitiveness as BT's retail division would be paying the same as its competitors for BT's wholesale products. Ultimately, such excessive wholesale charges would reduce competition to BT and so have a negative impact on consumers.

2.13 Until 1997, BT's wholesale charges were determined annually, based on the actual costs that BT had incurred. This system did ensure that BT could only earn its reasonably incurred costs (including a return on capital employed), but it did not give BT much incentive to increase its efficiency, as by doing so it would not increase its profitability at the wholesale level. By moving in 1997 to setting NCCs on BT's charges, using the RPI-X type of controls, BT was given incentives to increase its wholesale efficiency, as it was able to retain the profits created by increasing efficiency by more than expected.

2.14 The precise impact of the NCCs is hard to quantify, as it is hard to know what the alternative scenario would have been. However, the NCCs have reduced BT's wholesale charges and this has encouraged entry and price competition at the retail level. For example, controls on call termination and call origination charges are over 40% lower in nominal terms than they were in 1997.

Question 1: *Do you agree that the NCC regime has been generally successful as a means of effective regulation of BT's wholesale narrowband interconnection charges?*

[2] http://www.ofcom.org.uk/consult/condocs/rev_bt_pm/statement/statement.pdf

2.15 BT's wholesale charges for the services considered in this document also compare favourably by comparison with its equivalents in other EU countries. It is evident from published European Commission comparisons[3] that BT's charges are in general amongst the lowest, if not the lowest, for call origination and call termination. BT has also shared with Ofcom other studies by independent third parties which corroborate this benchmarking against other EU countries. It is also arguable that BT should be compared more favourably for double-tandem services than suggested by the Commission's document (which uses data for BT's longest-distance, and therefore most expensive, service).

2.16 Further information on the rationale for charge controls is provided in Annex 4.

Current charge control performance

2.17 The current NCCs were set by Oftel in February 2001 for the four years from 1 October 2001 to 30 September 2005[4]. The NCCs were then re-imposed by Oftel in November 2003 in the form of SMP services conditions (replacing conditions of BT's licence under the Telecommunications Act 1984).

2.18 One of the key determinants of the levels of X for the NCCs is the level of super-normal profit (i.e. the surplus after taking account BT's cost of capital) forecast at the beginning of the charge control period. The NCCs are set so as to reduce BT's super-normal profits on the price controlled baskets to zero in the final year of the control, whilst those of safeguard caps would be expected to decrease towards zero with increased competition. Large super-normal profits at the end of a control period might indicate loose charge controls, large losses might indicate restrictive ones. An alternative interpretation of super-normal profits at the end of a charge control period is that the charge controls have been effective in providing BT with incentives to cut costs through greater than expected efficiency improvements.

2.19 Figure 2.2 demonstrates that the opening super-normal profits for the charge controlled services in the current period were significant and were a significant reason for the current levels of X. It also shows how BT's performance has compared to that forecast over the period. A key element to the analysis is that BT super-normal profits are expected to reduce to zero by the end of the current NCCs[5].

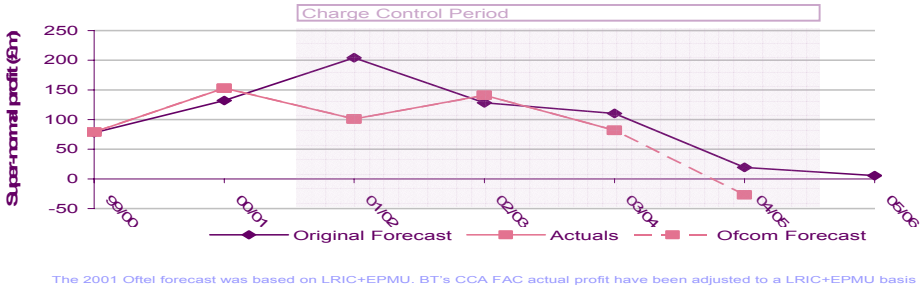
2.20 Whilst overall super-normal profits are forecast to have tracked the original forecasts reasonably well, there have been significant variances between individual forecast assumptions and actual outcomes. For example, actual volumes were much lower than forecast, as were BT's actual costs compared to forecast. This suggests that BT has been able to reduce unit costs in line with forecasts despite lower volumes.

3 http://www.europa.eu.int/information_society/topics/ecomm/doc/all_about/implementation_enforcement/annualreports/10threport/sec20041535VOL2en.pdf

4 See http://www.ofcom.org.uk/static/archive/oftel/publications/pricing/pcr0101.pdf. They were subsequently amended by the statement entitled Modifications to BT's SMP services conditions AA4, BA4 and PA1, published on 10 February 2005. This is available at http://www.ofcom.org.uk/consult/condocs/bt_smp/amend_ccc/btsmp_amend_ccc.pdf

5 See information on Ofcom's use of audited regulatory financial information, and the duty of care of the auditor, at www.ofcom.org.uk/consultations/past/fin_reporting/pwc_doc.

Figure 2.2 Performance during current NCC regime compared to forecast for origination, termination, FRIACO and tandem layer baskets



Legal and regulatory framework for setting Network Charge Controls

2.21 The key requirements to be considered when setting NCCs are contained in a set of EC Communications Directives, implemented into UK law by the 2003 Act. Annex 4 sets out details of those Directives, the requirements in the 2003 Act and the other legal and regulatory considerations for Ofcom to consider when setting NCCs.

2.22 Price controls are one type of obligation that Ofcom can impose under the EC Communications Directives to address the situation where a communications provider has SMP in an identified services market. Therefore, section 87(9) of the 2003 Act provides that, subject to satisfying the 'tests' in Section 88, Ofcom may set SMP service conditions to impose price controls, such as the NCCs. Other SMP remedies considered in this document, such as the requirement to notify charges (Condition AA6(a)), may also be imposed by Ofcom under the EC Communications Directives and the 2003 Act.

2.23 As explained further at Annex 4, the EC Communications Directives and the 2003 Act require that Ofcom must carry out analyses of identified services markets (known as 'market reviews') at certain intervals. One such interval is where the European Commission updates its recommendation on relevant product and service markets adopted on 11 February 2003 (the "Recommendation"). For reasons set out in Annex 4, a review of the Recommendation is not expected to be launched by the European Commission until the end of 2005.

2.24 Another trigger for carrying out a market review is where Ofcom considers it an appropriate interval to do so for the purposes of reviewing market power determinations made on the basis of an earlier analysis, or deciding whether to make proposals to modify SMP conditions set by reference to a market power determination made on such a basis (section 84(2) of the 2003 Act).

2.25 In particular, in deciding whether to make proposals to modify SMP services conditions (such as the NCCs) set by reference to a market power determination in respect of BT considered in this document, Ofcom considers it an appropriate interval, at present, to carry out market reviews for two of the (economic) services markets identified by Oftel in November 2003, namely: LTC and LTT, and ITC and ITT.

2.26 The main reason for this is that BT's dominance could be argued, in Ofcom's view, to be less strong and enduring in these two markets as compared to the other identified services markets considered in this document. In November 2003, Oftel emphasised

that Ofcom would closely monitor developments and, should it appear that market conditions change significantly, it may be necessary to conduct a market review. In particular, in its prospective forward look assessment in August 2003, Oftel noted BT's declining market share in the provision of ITC and ITT services and that competition was continuing to develop as operators built out to more tandem exchanges and were able to substitute BT services with their own or a third party purchase, and also as competition in retail markets developed. A further reason for Ofcom considering that it is now an appropriate interval to carry out a market review in respect of these two identified services markets is that certain stakeholders have already requested that Ofcom reduce regulation in these markets.

2.27 In the light of those reasons, and in keeping with Ofcom's strategic approach to lift regulation when appropriate, Ofcom does not consider it appropriate to delay carrying out a review of these two markets until such time that the European Commission has updated its Recommendation. Section 3 of this document therefore sets out the results of Ofcom's analyses of the two markets. As the outcome of those analyses is to make proposals to identify services markets that differ from those defined in the Recommendation and to make market power determinations, Ofcom is required to notify the European Commission and national regulatory authorities (NRAs) of every other Member State of these matters.

2.28 On the other hand, Ofcom does not consider it appropriate, at present, to carry out similar market analyses in respect of each of the other three (economic) services markets referred to in paragraph 2.5 (i.e. call origination, call termination and single transit). As explained further in Annex 4, Ofcom is empowered under section 86 of the 2003 Act to modify existing SMP services conditions, or to set new such conditions without carrying out a market review. To do so, Ofcom must be satisfied that, in making its proposals to set new SMP services conditions for the NCCs, there has been no material change in those markets since the respective market power (SMP) determinations were made (in November 2003). Ofcom is satisfied that there has been no such material change, having examined the key features in respect of each of these markets, and the state of competition therein (see Annex 7). Some major stakeholders have also indicated support for Ofcom's view on the degree of change in these markets.

2.29 As well as the NCCs, a range of other SMP obligations are currently imposed on BT. These obligations include requirements on notifying charges, the basis of charges (i.e. cost orientation), and the specific requirement to provide FRIACO. Ofcom's consideration of these obligations is covered in more detail in Section 4 and Annex 6 of this document.

2.30 For the purposes of this document, Ofcom is not considering the geographical area of Hull for call origination on fixed public narrowband networks in which Kingston Communications (Hull) plc ("Kingston") is the only provider determined to have SMP. No services markets have been defined in the geographical area of Hull in respect of LTC and LTT, ITC and ITT and single transit on fixed public narrowband networks. Nor is Ofcom considering fixed geographic call termination provided by Kingston in which it has been determined to have SMP. As regards Kingston's SMP in call origination, no SMP services condition imposing NCCs has been set. Therefore, one driver for reviewing competition for Kingston in the same way as Ofcom is doing for BT does not apply. Kingston's SMP status in narrowband markets was last reviewed in November 2003, and will be reviewed in accordance with Ofcom's broader plans and requirements to keep regulation under review.

Ofcom's approach to the regulation of network charges

2.31 As part of the TSR Ofcom proposed seven principles for the regulation of telecoms markets, including that Ofcom should:

- focus regulation on the deepest levels of infrastructure where competition will be effective and sustainable;
- ensure equality of access at those levels; and
- as soon as competitive conditions allow, withdraw from regulation at other levels.

2.32 This consultation document details both the opportunities to withdraw from and/or reduce levels of regulation in the relevant markets and the remedies necessary to promote effective and sustainable competition whose benefits are passed on to the citizen consumer.

2.33 In the TSR, Ofcom also set out the main considerations when regulating the returns BT makes from providing wholesale access to different parts of its network – the incentives to invest, the likelihood of competition and the need for direct consumer protection where competition is not effective or sustainable. Ofcom recognises that the NCCs constitute a trade-off: the higher the regulated return, the less risk that regulation will disincentivise efficient investment by BT; the lower the regulated return, the more the benefits from these cost savings can be passed on to consumers.

2.34 The implications of these considerations are described in detail in the body of this document. Taken together, this consultation document and the TSR should provide industry and stakeholders with a consistent view of Ofcom's regulatory approach to NCCs.

Key issues affecting Ofcom's proposals

2.35 The NCCs described in this document are proposed to be imposed during a period of transition where a number of significant market developments will raise important questions for Ofcom in reviewing competition and the NCCs. The most significant of these is the 21CN - BT's plans to upgrade its current core networks to 'next generation' technology over the duration of the proposed new charge control period and beyond.

2.36 BT set out its initial plans for the 21CN last year. BT has stated that it will replace all of its existing networks with a single multi-service network. BT's stated aims for the programme included cash savings expected to amount to £1 billion per annum by 2008/09, improve speed to market for new services, and improved customer experience. BT's planned move to the 21CN raises many questions and issues for existing regulated products, including the definition of the relevant markets. Major technology changes, which occur naturally in competitive as well as regulated markets, can disrupt existing models of competition. Ofcom has issued a separate consultation document that covers the issues of BT's 21CN introduction more generally[6].

2.37 In setting the proposed NCCs, Ofcom has also to consider the degree to which BT will realise cost savings due to the 21CN during the next charge control period, and how any such savings should be taken into account. Ofcom also has to consider what impact such a major change should have on the duration of the next NCCs, and which BT services should be covered by those controls.

[6] See http://www.ofcom.org.uk/consult/condocs/ngn/ngn.pdf

2.38 In addition to the 21CN, other changes are occurring in the markets covered by the NCCs. The volumes of traffic using BT's network are expected to change, due to a number of factors but mainly because more traffic is moving on to mobile networks, broadband and e-mail. Competitive conditions are also changing, in some markets more than others. It is important that Ofcom both anticipates such developments whilst maintaining as far as possible the consistent and transparent approach to regulation described in the TSR.

2.39 Ofcom's proposals on NCCs also need to be consistent with other decisions that Ofcom is taking or proposing. The main pending regulatory decisions that are relevant to Ofcom's NCC proposals are:

- Valuing copper access - whilst the NCC services concern BT's core network rather than its access network, it is important that Ofcom takes a coherent and consistent approach to both decisions. Ofcom is currently consulting on the valuation of copper access[7]; and
- Cost of capital - Ofcom is currently consulting on the appropriate return on BT's capital investment[8], including options for varying the cost of capital for different parts of BT's business. In the meantime, Ofcom has used a range of possible outcomes on cost of capital in making its NCC proposals.

[7] http://www.ofcom.org.uk/consult/condocs/copper/value2/copper2.pdf

[8] **http://www.ofcom.org.uk/consult/condocs/cost_capital/condoc.pdf**

Section 3

Review of BT's market power

3.1 As explained in Section 2, Ofcom is analysing two markets in depth within this document in order to be clear whether the current NCCs continue to be appropriate to competitive conditions in those markets. These markets are:

- local-tandem conveyance and local-tandem transit; and
- inter-tandem conveyance and inter-tandem transit.

3.2 Within this Section, Ofcom identifies these two economic markets in accordance with competition law principles, for the purpose of assessing competition and imposing appropriate regulatory remedies. Ofcom's analysis also explains how its approach on market definitions and SMP analysis follows legal requirements, and how it compares with the analysis set out by Oftel in November 2003, when these markets were last assessed.

3.3 In Annex 4, Ofcom provides details on the legal and economic framework relevant for these reviews, including the three stages of a market review. This includes a summary of Ofcom's approach to market definition. In Annex 7, Ofcom outlines the continuing basis for charge controls for the other services covered by this document:

- call origination;
- call termination;
- single transit;
- interconnection circuits (interconnect-specific basket, or ISB, services);
- product management, policy and planning (PPP); and
- flat rate Internet access call origination (FRIACO).

Background to market definitions and market power analysis: BT's 21CN

3.4 It is important to understand that, in this document, Ofcom is proposing market definitions and determinations of market power in the context of major changes that are due in BT's network architecture during the period of the next NCCs. BT set out its plans for its 21CN in June 2004, stating that it will replace all of BT's existing networks with a single multi-service network. BT's stated aims for the programme were to reduce cash costs (by £1 billion per annum by 2008/09), improve speed to market for new services, and improve the customer experience.

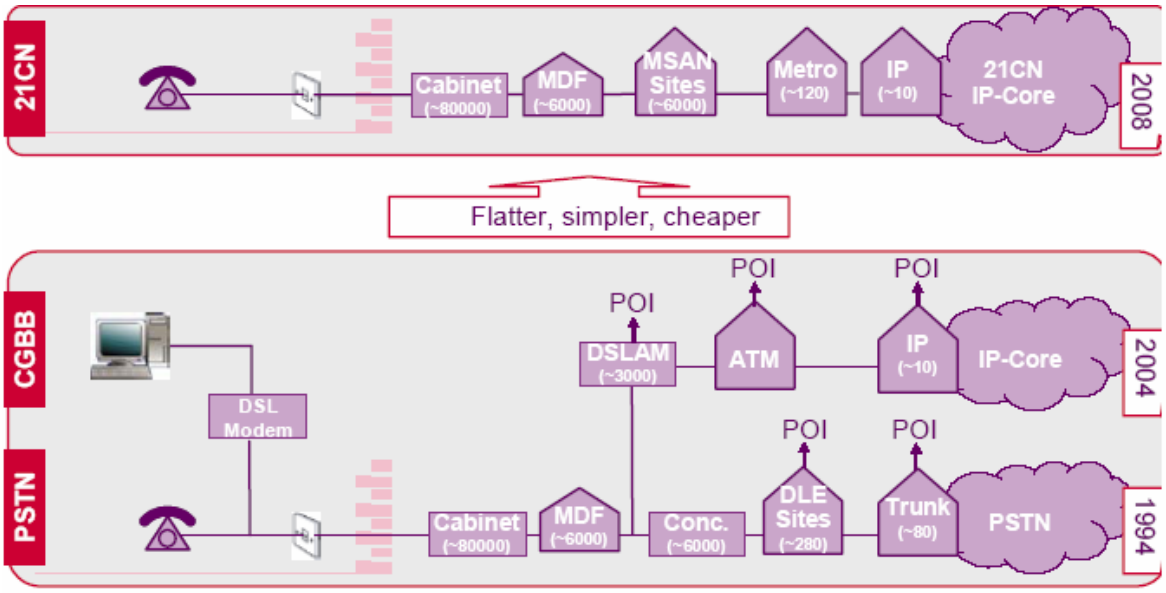
3.5 At that time BT also set out several key milestones for its programme, which included:

- 99.6% of UK homes and businesses to be connected to a broadband-enabled exchange by summer 2005;
- subsequent growth in broadband services to be met by a new 'Multi-Service Access Node' (MSAN) platform;
- the mass migration of customers from the PSTN expected to start in 2006, and reach more than 50% by 2008; and

- broadband dial tone expected to be available to most customers in 2009.

3.6 As set out in Figure 3.1 below, the proposed new network has a much simpler and flatter structure than much of BT's existing networks, with just three main levels to the network. There are about 5600 sites at which main distribution frames (MDFs) and MSANs are located, about 120 metro nodes, and about 10 core nodes.

Figure 3.1 Comparison of existing BT voice and broadband networks within 21CN

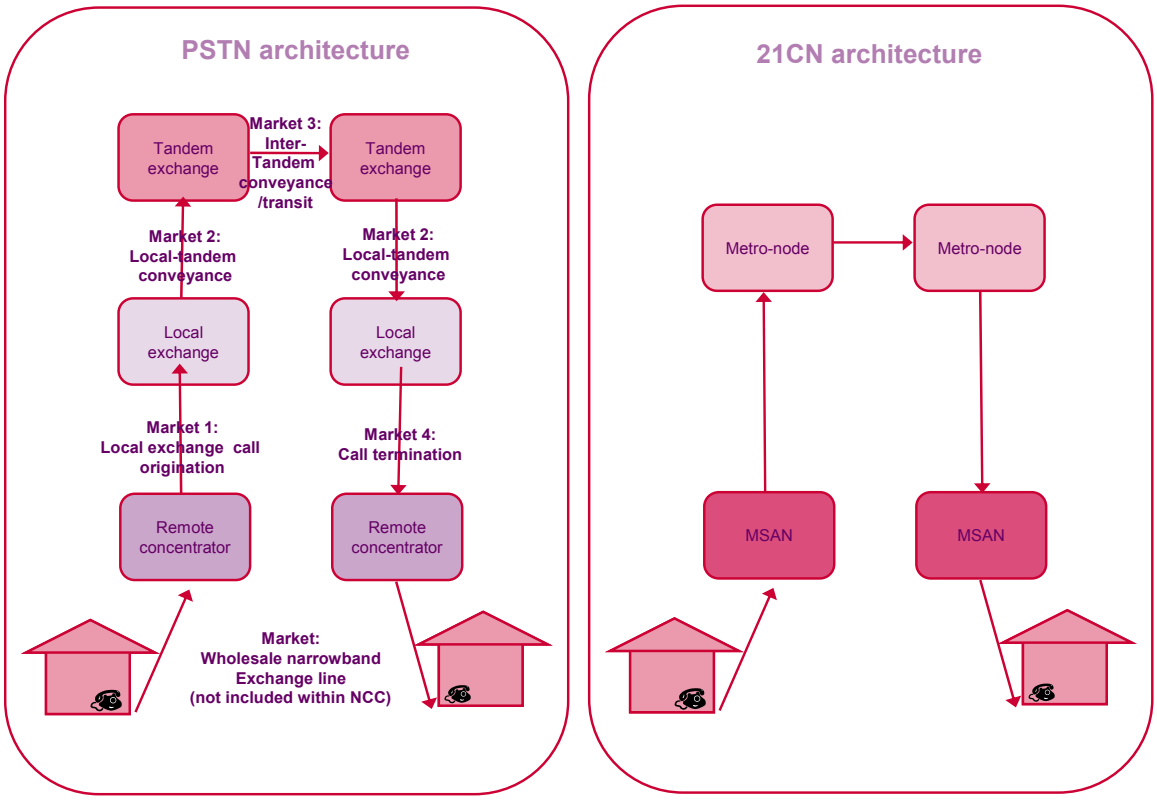


Key:

PSTN	Public Switched Telephone Network	Conc	Concentrator
CGBB	Current generation broadband	DSLAM	DSL Access Module
21CN	BT's 21st Century Network	DLE	Digital Local Exchange
MDF	Main distribution frame	MSAN	Multi Service Access Node

3.7 BT's planned move to 21CN raises many questions and issues for the existing regulated products, including the definition of the relevant markets. Major technology changes, which occur naturally in competitive as well as regulated markets, are always likely to disrupt existing models of competition. Ofcom believes that the move to 21CN should also be viewed as creating the first ever opportunity to ensure that access and interconnection to an incumbent's network supports competition from the outset, thereby creating an environment where regulation can be focused on key bottlenecks and rolled back elsewhere. It is too early to judge at what levels of the 21CN any interconnection products may be available and what these products might look like. However, during the period of the proposed new NCCs, new 21CN interconnection products may become available at metro nodes and MSANs. Therefore it is necessary for Ofcom to consider what changes the possible interconnections on the 21CN may have on the definitions of the markets discussed above. Figure 3.2 provides a simple illustration of the current markets on the PSTN and 21CN architecture.

Figure 3.2 Current market definitions and 21CN architecture[9]



3.8 BT has suggested to Ofcom that within the duration of the proposed new NCCs (ie October 2005 – September 2009), it expects that at least 50% of the relevant traffic will be routed through the new network by 2008.

3.9 With the introduction of 21CN, there is a possibility of there being four types of wholesale services offered by BT:

a) narrowband services provided wholly through the PSTN at DLEs and tandem exchanges with a PSTN (i.e. C7) interface;

b) narrowband services provided partly through 21CN at DLEs and tandem exchange sites with a PSTN interface;

c) narrowband services delivered wholly through 21CN at metro nodes using IP or PSTN interfaces (metro node origination services); and

d) narrowband services delivered wholly through 21CN at MSANs either at layer 2 (e.g. ATM or Ethernet interfaces) or layer 3 (e.g. IP interfaces)

3.10 The services currently provided are narrowband services provided wholly on the PSTN (see 3.9(a) above). The following section first discusses the market definition for two of the current services: local-tandem conveyance and transit (LTC/LTT) and inter-tandem conveyance and transit (ITC/ITT). It then discusses the impact of 21CN by examining how the services in 3.9 (b), 3.9 (c) and 3.9 (d) above might impact on the market definition.

[9] The two architectures do not exactly overlap. Single tandem origination= LECO+ITC. Metro node interconnection is not equal to single tandem interconnection because there is one less switching stage

Market power in local-tandem conveyance/transit

Service definitions

3.11 Local-tandem conveyance (LTC) is the service that an originating or terminating operator provides to convey calls between a local exchange and a tandem exchange. Figures 3.3 and 3.4 describe two different ways in which LTC can be provided on the PSTN.

Figure 3.3 LTC I

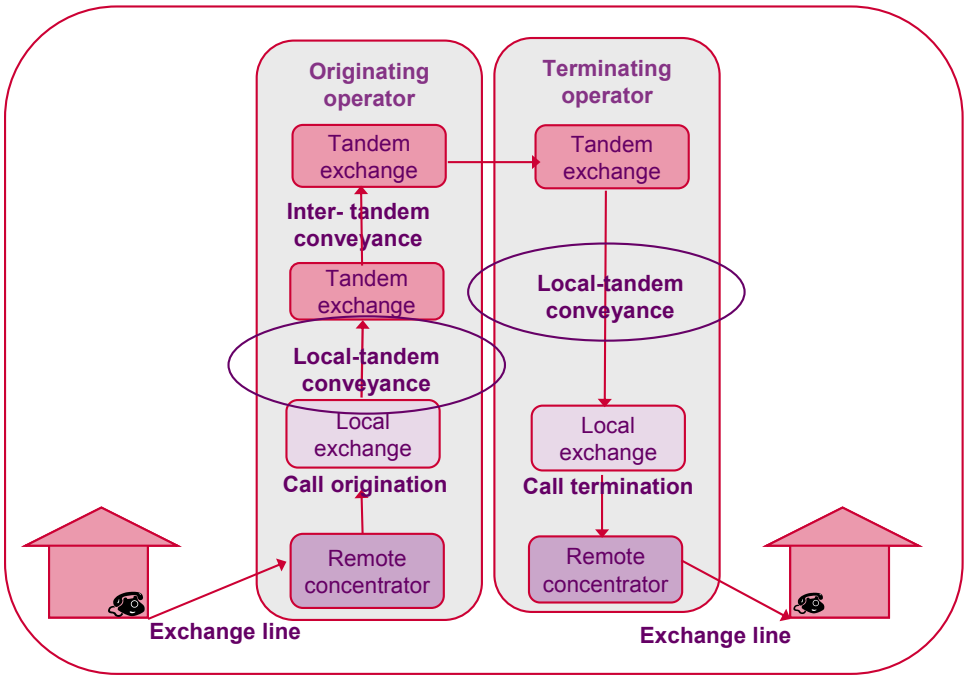
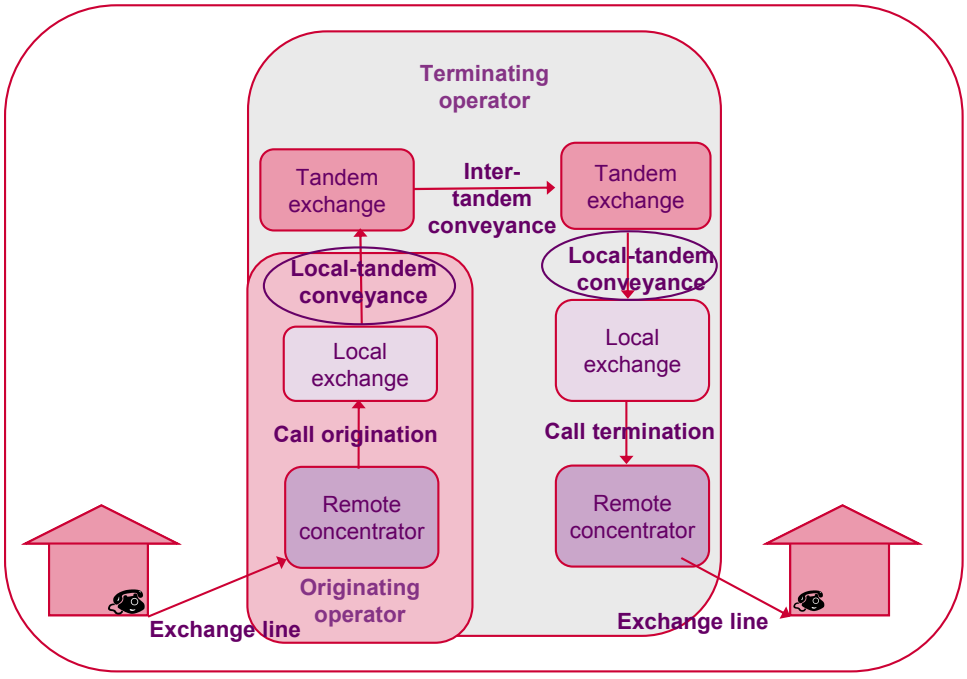
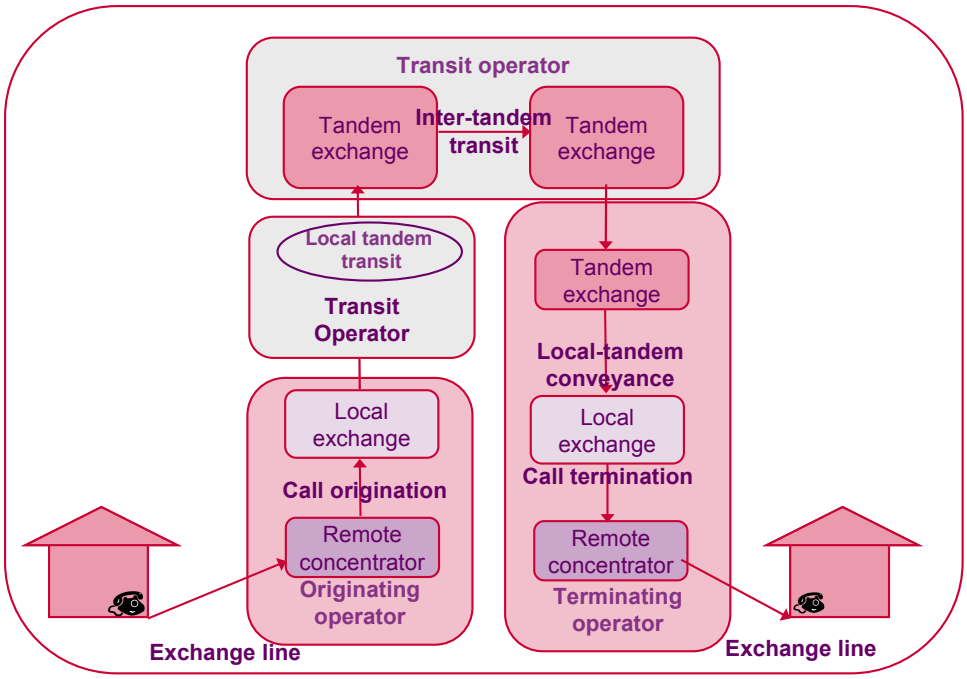


Figure 3.4 LTC II



3.12 Local-tandem transit (LTT) is a service a transit operator provides to convey calls between a local exchange and a tandem exchange when a call originates and terminates on a network other than its own.

Figure 3.5 LTT



Market definition

3.13 In the light of the above service definition, the purpose of paragraphs 3.14 to 3.44 below is to define the relevant wholesale market(s) in which the assessment of market power (SMP) is to be undertaken. Annex 4 sets out further detail of this first stage of a market review, including details of the two European Commission documents of which Ofcom must take due account, Ofcom's as well as the European Commission's approaches to market definitions, the relationship between the wholesale and retail markets, and current market definitions for fixed narrowband markets identified by Oftel in November 2003.

3.14 As discussed in Annex 4, market boundaries are defined by identifying the price setting behaviour of firms within the competitive constraints of demand side and supply side substitution. The concept of the 'hypothetical monopolist test' is a useful tool to identify close demand side and supply side substitutes. A product is considered to constitute a separate market if a hypothetical monopoly supplier could impose a small but significant, non-transitory price increase (SSNIP) above the competitive level without losing sales to such a degree as to make this unprofitable. If such a price rise would be unprofitable, because consumers would switch to other products, or because suppliers of other products would begin to compete with the monopolist, then the market definition should be expanded to include the substitute products.

3.15 Ofcom's approach to market definition is discussed in Annex 4. Since consideration of the retail levels logically precedes the analysis of markets at the wholesale level, Ofcom has undertaken analysis of the retail level markets in Annex 7.

Local-tandem conveyance vs local-tandem transit

Demand side

3.16 If a hypothetical monopolist supplier raised the price of LTC, an operator purchasing LTC could switch to purchasing LTT if the cost of the two services were similar. Both services involve the cost of transmission of traffic and the switching cost at the tandem exchange. However, LTT is likely to involve the costs of additional switching and additional interconnect links, as the call is conveyed through another party. These costs are likely to be less significant with larger volumes of traffic and therefore LTT could constrain the price of LTC.

3.17 In the event of a hypothetical monopolist supplier raising the price of LTT services, an operator could switch to purchasing LTC from the originating or terminating operator or could itself build out to the local exchange and self-provide LTC, although this would only be justified at larger volumes of traffic.

Supply side

3.18 If an operator connects to an originating operator's local exchange and self provides LTC, it would be able to provide LTT if it had a connection with the terminating operator. As already stated above, LTT is likely to involve extra costs as a result of additional switching and interconnect links, although these costs are likely to be less significant for operators with larger volumes of traffic.

3.19 An operator providing LTT services could provide LTC for calls that originate and terminate on its network.

3.20 Therefore LTC and LTT are, in Ofcom's view, part of the same market.

Impact of 21CN

Is LTC provided wholly on the PSTN in the same market as LTC provided using 21CN?

3.21 As long as single tandem call origination is purchased, the LTC element is necessary to convey the calls to the tandem switch. However, BT may provide the single tandem call origination service by routing it on the 21CN network. In order to provide the single tandem call origination service, BT could, for example, route the call from the metro node to the tandem switch. In doing so, it would be providing a service similar to local to tandem conveyance. The choice of routing is made by BT and not the customer. As long as the customer receives the single tandem service, the customer would be indifferent to the technology through which it is delivered. Therefore, on the demand side, both the services are equivalent since the customer is receiving exactly the same service and does not need to make any modifications to its network in order to receive the service. On the supply side, the costs of both types of services may differ. However, since the customer receives the same service at the same price, the issue of supply side substitutability is not relevant.

3.22 Hence, LTC provided on the PSTN only and conveyance provided partly through 21CN are the same services and therefore are, in Ofcom's view, in the market for LTC/LTT.

Is LTC provided wholly on the PSTN in the same market as metro node origination services provided wholly on the 21CN?

3.23 Since a similar narrowband service on the 21CN would be a metro node origination service, it must be considered whether LTC is in a different market to metro node origination. There is a question of whether there is substitutability between metro node origination and LTC such that they can be considered as part of the same market.

3.24 The above analysis has focussed on the fact that, in providing a service either wholly through the PSTN or partly through the 21CN, it is BT that is making the choice of routing the call and hence purchasers have no choice between the two types of services. However, it is possible that some of those purchasing single tandem call origination are willing to substitute it with a product such as metro node call origination (with an IP interface) even when others continue purchasing single tandem call origination (i.e. DLE call origination and LTC). In other words, it is possible that a situation exists such that both types of call origination, single tandem call origination and metro node call origination are offered at different prices at the same time.

3.25 Therefore, rather than considering that single tandem call origination will be replaced by metro node call origination, this scenario is based on a hypothesis that single tandem call origination and metro node call origination are potentially two products that providers *can choose to purchase*.

3.26 On the demand side, anybody purchasing single tandem call origination (and hence purchasing LTC), could be faced with the following factors linked to purchasing metro node origination:

a) based on early provisional information on metro node locations, it seems likely that many metro nodes will be in different geographical locations than the existing tandem exchanges and hence building out to the new locations will involve significant cost;

b) the technical interfaces available at metro nodes are expected to be different to those available at existing switches. In particular, it is currently anticipated that there would be an IP voice interconnect and C7 (ISUP) interfaces available at metro nodes, but not IUP[10]. To effectively utilise an IP interface an interconnecting operator will either need an IP voice network of their own. If the operator does not already have an IP voice network, then implementing this solely to use metro node interconnect is likely to be a very significant cost. Currently a relatively small number of operators have a core IP voice network that could be used for IP voice interconnection. However, this situation seems likely to change over the coming years as more operators implement next generation networks; or

c) alternatively, interconnecting operators may be able to use a C7 interface at the metro node. However, this is likely only to support the ISUP variant of C7, and several operators currently using IUP may need to incur significant costs to change to ISUP.

3.27 In summary, for many operators, i.e. those currently without a core IP voice network or using IUP, the cost of switching interface may be significant in relation to a 5-10% rise in the price of LTC on the PSTN.

3.28 As mentioned above, supply side considerations are not very relevant since BT is the only provider that can currently provide both PSTN LTC and 21CN interconnect services.

10 http://www.btwholesale.com/content/binaries/our_business/media_information/21c/working_groups/legacy_interconnect/21cn_legacyinterconnection_work_group.ppt

3.29 Therefore, it can be argued that metro node call origination with an IP interface is unlikely to act as an effective substitute to those already interconnected at the first tandem switch and currently purchasing LTC.

3.30 However, a SSNIP test of LTC and metro node origination is only possible if the relative prices of both services are known. In the absence of relevant costs and prices for metro node origination, Ofcom cannot carry out a full formal SSNIP test.

Is LTC provided wholly on the PSTN in the same market as an interconnection service provided wholly through 21CN at MSANs?

3.31 Since MSAN interconnection is likely to be provided much deeper into the network than tandem exchanges, each MSAN interconnection would provide an interconnecting operator with fewer potential end-users than a tandem exchange where the traffic is more concentrated. In order to be able to achieve the same scale of traffic as at tandem exchanges, interconnecting providers would have to interconnect at a proportionately larger number of MSANs. This would involve significant cost and hence cannot be regarded as a substitute to purchasing LTC.

3.32 In principle, there could be a common constraint at the retail level between PSTN based services and 21CN-based services which might justify treating the wholesale equivalent of both these types of services as part of the same market. However, since both types of services would be offered only by BT, this would not really affect the analysis of market power for which the definition of the relevant market is required. In view of this, Ofcom does not consider them as part of the same market for the purposes of this review. When new interconnection products are introduced, the inclusion of those products within the markets proposed in this review will be considered, or new markets will be defined at that point.

Conclusion

3.33 Ofcom's provisional conclusion is that the relevant market is the market for local-tandem conveyance and local-tandem transit on fixed public narrowband networks.

3.34 To clarify, the market definition refers to services provided at the existing narrowband PSTN interfaces, irrespective of whether BT delivers the service through the PSTN only or partly through the 21CN (see also paragraphs 3.21-3.22).

Geographic market

3.35 Ofcom's approach to defining geographic markets is set out in Annex 4.

3.36 A strict definition of markets using the hypothetical monopolist test could lead to a proliferation of markets unless local-tandem conveyance between pairs of exchanges could be regarded as substitutes. This, when considered along with the dynamic nature of communications markets, would be likely to mean that the boundary between areas where there are different competitive pressures would be unstable and change over time, rendering the market definition obsolete. It is not clear that determining ex-ante where the boundary would be is an exercise that can be carried out with any degree of accuracy. For instance, the level of connectivity at certain DLEs may be higher than others (see also paragraph 3.56), thereby suggesting that such areas might be more competitive; however such connectivity might be for the purposes of providing data traffic (particularly FRIACO), and providers might face constraints in using them for voice traffic. On the other hand, there may be areas that have uniform competitive conditions (such as cable companies providing a retail constraint on BT),

but it may not be possible to find a suitable aggregator for such areas. For all these reasons, Ofcom believes that it is reasonable to consider there to be a national market, albeit with differing local conditions.

Conclusion

3.37 Ofcom provisionally concludes that the scope of the geographic market for local-tandem conveyance and local-tandem transit is the UK (excluding the Hull area).

Question 2: *Do you agree that the relevant market for consideration is the national market for local-tandem conveyance and transit on fixed public narrowband networks in the UK excluding the Hull area?*

Provisional conclusions on the relevant market

3.38 For the reasons set out above, Ofcom considers that the relevant market to be identified as a services market for the purposes of making a market power determination is local-tandem conveyance and transit (that is to say, LTC and LTT) on fixed public narrowband networks in the UK excluding the Hull area. This is the same definition that was identified by Oftel in November 2003. To clarify, the market definition refers to services provided at the existing narrowband PSTN interfaces, irrespective of whether BT delivers the service through the PSTN only or partly through the 21CN (see also paragraphs 3.21-3.22).

Forward look

3.39 Ofcom considers that, on the basis of currently available information, it has fully taken into account likely competitive and technical developments that might affect the market definition over the period of the proposed NCCs. On this basis, any development of services wholly on 21CN considered here do not appear to be part of the above market during the period of the proposed NCCs; however Ofcom will continue to monitor developments in this area.

Relationship between the market definition and the Commission's Recommendation

3.40 When analysing markets, Ofcom must define relevant markets appropriate to national circumstances, provided that it takes due account of the markets listed in the Recommendation (see further in Annex 4).

3.41 The European Commission has, in its Recommendation (point 8 of the Annex to the Recommendation), defined the following as a relevant market in accordance with Article 15(3) of the Framework Directive:

> *"Call origination on the public telephone network provided at a fixed location. For the purposes of this Recommendation, call origination is taken to include local call conveyance and delineated in such a way as to be consistent with the delineated boundaries for the markets for call transit and for call termination on the public telephone network provided at a fixed location".*

3.42 Ofcom is proposing a different market definition and, in doing so, has given careful consideration to the Commission's definition and the three criteria set out in the Explanatory Memorandum to the Recommendation (section 3.2), namely:

- barriers to entry and the development of competition;
- 'dynamic aspects', i.e. whether the market has characteristics that will tend towards effective competition; and
- the relative efficiency of competition law and complementary ex ante regulation.

3.43 fcom has, in proposing its market definition, given particular consideration to the first two criteria. While the Commission has identified a single market that includes both call origination and LTT and LTC, Ofcom considers that it is necessary to define separately the call origination market and the LTC and LTT market because of the different competitive conditions that are present in each of the markets in the UK. The local exchange is the closest point to an end-user that operators can connect to a network. By connecting at the local exchange, operators are able to provide LTC or LTT themselves. Therefore, in the LTC and LTT market, there is more potential for competition from both alternative direct access networks and those operators connecting to other networks and providing LTC or LTT themselves. The distinction is important because, in the UK, operators have built their networks to the local exchange, making competition possible in the provision of LTC and LTT. As discussed in Annex 7, the only competition in call origination is from alternative direct access networks and competition is therefore much more limited.

3.44 The relative efficiency of competition law and complementary ex ante regulation is discussed in detail in Annex 4.

Assessment of SMP in the market for LTC and LTT in the UK excluding the Hull area

3.45 As explained above, Ofcom considers provisionally that the identified services market should be local-tandem conveyance and transit on fixed public narrowband networks in the UK excluding the Hull area. Paragraphs 3.46 to 3.70 below therefore set out Ofcom's assessment of SMP in that wholesale market. The SMP analysis is based on the evidence currently available to Ofcom. In particular, this analysis will focus on single firm dominance, particularly in the light of the current relevant market power determination made in respect of BT in November 2003.

3.46 Annex 4 sets out further detail of this second stage of a market review, including details of the approach used to assess SMP. In Ofcom's view, the main criteria for the assessment of SMP in the above-mentioned market are:

- market shares;
- ease of market entry;
- economies of scale;
- overall size of the undertaking;
- pricing and profitability;
- absence of or low countervailing buyer power;
- easy or privileged access to capital markets/financial resources.

Market shares

3.47 Ofcom has obtained from BT data on LTC volumes on its own network, and LTC (or its equivalent) on other networks has been derived using the following assumptions:

- inclusion of the equivalent of LTC provided over interconnection extension circuits ("IECs");
- inclusion of the equivalent of LTC on other fixed networks; and
- the same proportion of call types using LTC on BT's network will use LTC on other networks.

3.48 From these data, Ofcom estimates BT's market share of LTC minutes currently to be in the region of 63%. Table 3.1 shows BT's market share in LTC over the last 3 years. BT's market share has been declining, although the rate of decline has slowed in 2003/04. One of the main reasons for the decline in 2001/02 and 2002/03 market shares was the take-up of DLE FRIACO to meet the demand for retail narrowband unmetered internet access.

Table 3.1 BT's share of LTC minutes

	2001/02	2001/02	2001/02	2001/02	2002/03	2002/03	2002/03	2002/03
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
LTC/LTT	79.4%	76.2%	73.8%	71.4%	69.2%	68.1%	65.2%	66.6%
	2003/04	2003/04	2003/04	2003/04	2004/05	2004/05		
	Q1	Q2	Q3	Q4	Q1	Q2		
LTC/LTT	65.9%	65.5%	65.1%	64.2%	63.7%	63.4%		

Source: Ofcom estimate using BT data

3.49 It must be noted that although LTT is being offered by some other providers, particularly C&W, the volumes are not high enough to change the market shares significantly.

3.50 Ofcom has considered whether BT's market share is likely to be eroded further. In Ofcom's view, the reduction of BT's market share will depend on three main factors:

- the take-up of FRIACO;
- the ability of competing downstream providers to compete with BT; and
- the ability of other originating providers to increase their share of end-to-end calls.

3.51 Ofcom believes that the retail demand for FRIACO based products has not only stabilised, but has started to decline as consumers move to broadband internet access[11]. Therefore, the prospect of FRIACO products reducing BT's market share in LTC/LTT is limited.

3.52 Although some downstream competing providers have been able to build out their networks to the DLEs, no other providers are able to have similar scale advantages as BT and hence they are unable to compete on a national level with BT. Additionally, with the likely introduction of the 21CN, it appears unlikely that any provider would expand their fixed network further to more DLEs to compete with BT. If any additional investment were to be made, it is more likely to be made to new interconnect locations on the 21CN.

3.53 Another possible manner in which BT's share in LTC might be reduced is if other direct access providers increased their market shares in call origination such that they could not only provide the equivalent of LTC to their own retail customers, but were also in a position to provide LTC for calls terminating on their network. However, the cable

[11] See Ofcom's publication on "The Communications Market – Quarterly Update October 2004", pages 33-34 (http://www.ofcom.org.uk/research/industry_market_research/m_i_index/cm/qu_10_2004/cm_qu_10_2004.pdf)

companies, which are the main alternative direct access providers, have not been able to increase their market share at BT's expense (see Annex 7 for BT's market share in call origination) and there is no reason to believe that this situation will change for the proposed duration of the next NCCs.

3.54 Ofcom therefore considers that BT's market share indicates that BT has market power in the provision of LTC and LTT services.

Ease of market entry

3.55 There are two ways in which providers can provide LTC or LTT in competition with BT: either using their own direct access network or by connecting to BT's local exchanges and providing LTC or LTT for BT-originated calls. However, there are significant sunk costs associated with providing an alternative direct access network.

3.56 While there are a number of providers that connect to BT's local exchanges, the majority of providers do not and therefore are dependent on BT (or possibly on those providers who are interconnected at the DLE) for conveyance to the tandem exchanges where they are located. In the Narrowband Market Reviews, Oftel stated that there were 746 BT local exchanges and only three providers connect to more than 500 local exchanges, whilst nine providers connected to more than 100 of them. Many of these connections were for data traffic (FRIACO) and therefore the majority of voice traffic, particularly other operator's ingress traffic, used BT-provided LTC. Since the Narrowband Market Reviews, Ofcom is aware of three more voice providers who are connected to a large number of exchanges; however, no provider has been able to enter the market on a scale that compares with BT.

3.57 The capital costs of building out to BT's local exchanges are significant. It may be commercially viable to connect to some local exchanges where the volume of scale justifies it, but in most cases the volume of traffic to any one exchange is small. Comparatively few providers have actually built out their own networks to many of BT's local exchanges and many only do so where these local exchanges are co-located with BT's tandem exchanges. Alternatively, providers interconnect by purchasing IECs. Over long distances and smaller volumes of traffic, the cost of IECs is considerable in relation to the margins providers can expect to make.

3.58 Therefore, although there has been some successful entry in this market, Ofcom considers that entry barriers are still significant.

Economies of scale

3.59 There are significant economies of scale that characterise fixed communications networks, where total costs can be minimised at large levels of volume.

3.60 In order to compete successfully against BT, providers would at least need to provide a near-national service (i.e. have comparable average traffic flowing per local exchange circuit) as BT does in order to be able to achieve similar economies of scale to BT. Building out to a high number of local exchanges in the face of uncertainty regarding capture of some of BT's traffic means that such costs are a considerable barrier to entry in this market.

Overall size of the undertaking

3.61 BT's network is spread over approximately 5,600 local exchange concentrators and 746 local exchange processors. BT's fully meshed national network of 106 tandem

exchanges provides national connectivity. It has the majority of exchange lines to retail consumers and 79% of calls originate on its network. A significant number of these calls are BT-to-BT calls where the call does not leave BT's network and BT provides all the wholesale conveyance services necessary to convey the call, including ITC.

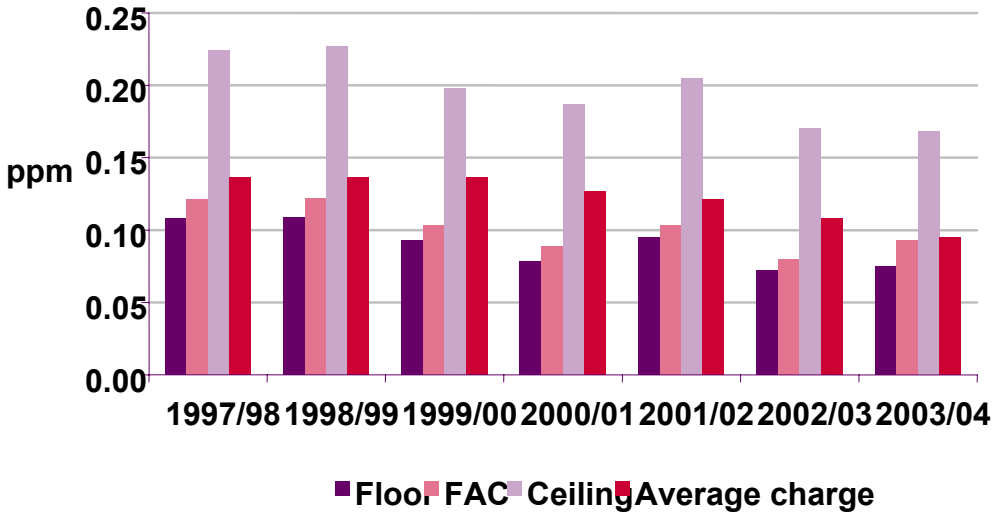
3.62 Ofcom's view is that BT's market size and ubiquity are key factors in BT's continuing level of market power in the LTC and LTT market.

Pricing and profitability

3.63 In the Narrowband Market Reviews, Oftel stated that, although there were sufficient margins between BT's prices for LTC and its cost, in the event that prices fell further, it would consider this issue during the setting of the charge control.

3.64 The following graph illustrates BT's charges for LTC.

Figure 3.6 BT's costs and charges for LTC



Source: BT's Regulatory Financial Statements[12]

3.65 The above figure shows that BT's charges for LTC have been declining during the current NCCs period. Although until 2003/04, prices were well above the fully attributed cost (FAC)[13], they have tended to converge towards FAC in 2003/04.

3.66 For the 2001-5 NCCs, BT's LTC service is in a basket along with single transit ("ST") and the overall basket cap is currently RPI-13%. In complying with the cap, BT has reduced LTC prices, although it has raised the prices of ST. A case could be made that BT has responded to competition by reducing the price of the more competitive service and hence this is an indication of competitive pressure on LTC service prices. However, since the current cap of 13% on the basket is binding, it cannot be concluded that LTC is effectively competitive.

[12] BT defines the Floor as a Distributed Long-Run Incremental Cost (LRIC) – i.e., the Floor is the LRIC + intra-core common costs. BT defines the Ceiling as the distributed Stand Alone Cost (SAC)
[13] , the regulated charge should be compared with the Long-Run Incremental Cost (LRIC) + share of the common costs of the network borne by LTC. However, a LRIC +

Absence of or low countervailing buyer power

3.67 BT's retail activities continue to be the largest purchaser of LTC services and therefore BT is the only provider that theoretically would be able to exert countervailing buyer power. However, it clearly would not do so in practice. Hence BT's LTC prices are not likely to be constrained by countervailing buyer power.

Easy or privileged access to capital markets/financial resources

3.68 BT is a large and well-established company with a long track record and a relatively diversified business and is perceived to have stable cash flows. It has a good credit rating and investors are likely to view the company as a less risky proposition than many relatively newer entrants. It is therefore likely that BT would face lower borrowing premiums than its competitors. Ofcom is of the view that BT continues to be seen as a more stable organisation than its competitors.

Forward look

3.69 Ofcom has considered developments in this market since November 2003 and, in particular, the provision of LTT service by operators who have connected to BT's local exchanges. The growth of CPS traffic will provide more scope for operators to offer LTT services. However, although volumes of CPS have increased, this increase has not been at a level that could significantly change BT Retail's market share[14]. Since BT Retail is likely to continue purchasing LTC from BT's wholesale business, BT's SMP is likely to continue to hold. With the likelihood of 21CN interconnection products being available during the period of the proposed new NCCs, Ofcom believes that there is even less scope for competitive pressure to be exerted on LTC/LTT prices, because providers are unlikely to invest in fixed narrowband PSTN connections while BT might migrate its entire traffic onto its 21CN. However, the take-up of LLU services could potentially mean competition to BT in call origination and LTC.

Provisional conclusions on SMP

3.70 For all the reasons set out in this section, Ofcom believes that BT continues to have SMP in the market for local-tandem conveyance and local-tandem transit in the UK excluding the Hull area. Therefore Ofcom proposes to confirm that BT has SMP in that market by making a market power determination to that effect (see the statutory notification at Annex 5).

Question 3: *Do you agree with Ofcom's provisional conclusion that BT has SMP in the national market for local-tandem conveyance and transit on fixed public narrowband networks?*

Market power in inter-tandem conveyance/transit

Service definitions

Inter-tandem conveyance

3.71 Inter-tandem conveyance ("ITC") is the service an originating or terminating operator provides to convey calls between tandem exchanges. It also includes the conveyance

[14] between 2002 and 2004, BT's share relative to IA/CPS providers changed from 79% to 74%, based on Ofcom's market intelligence

of calls between a tandem exchange and a specific type of tandem exchange called an International Switching Centre ("ISC") for international calls.

Figure 3.7 ITC provided by an originating operator

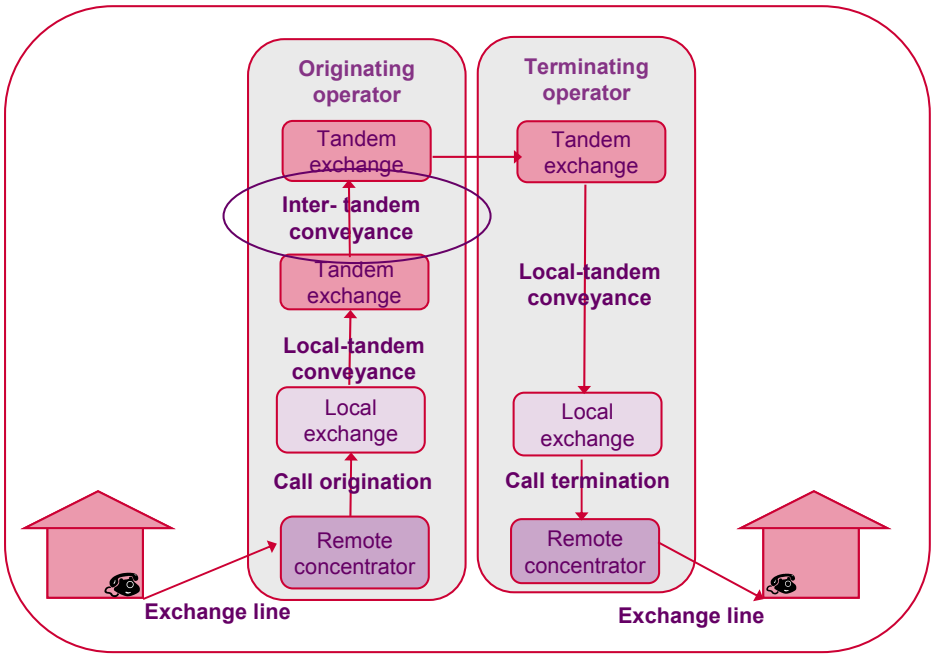
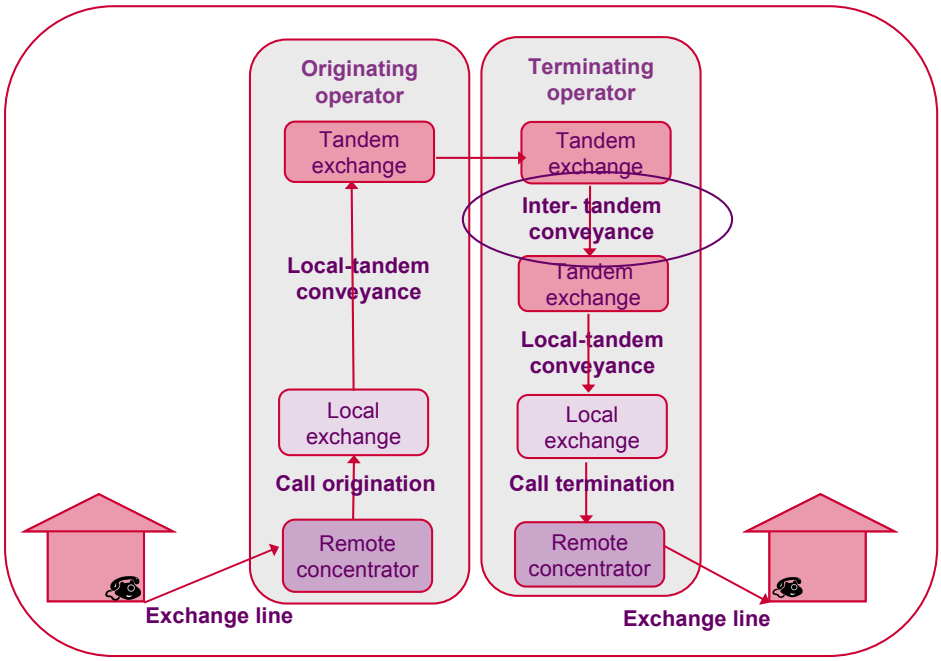


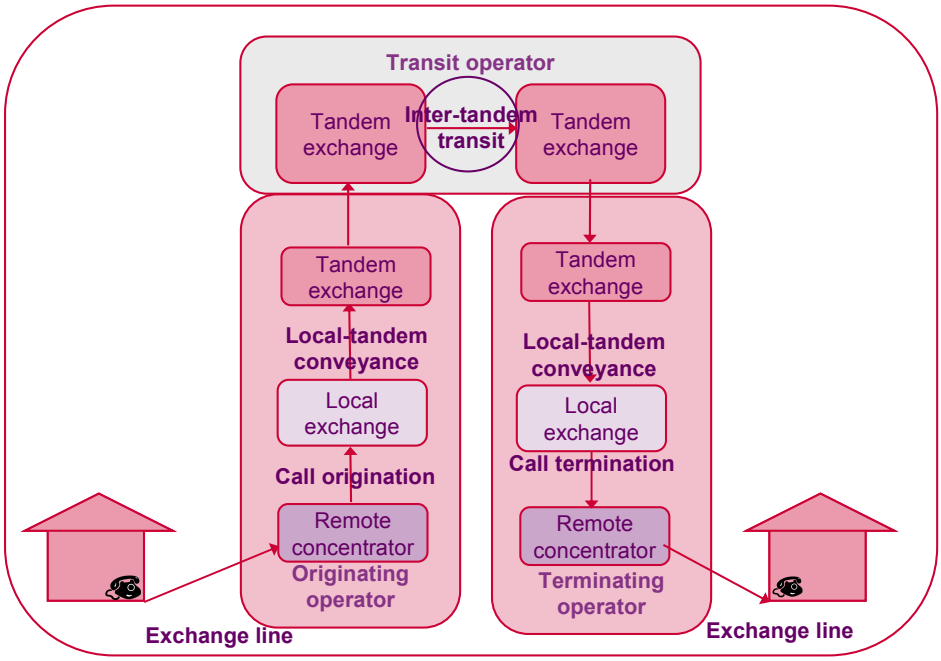
Figure 3.8 ITC provided by terminating operator



Inter-tandem transit

3.72 Inter-tandem transit (ITT) is the service an operator provides to convey calls between its tandem exchanges when a call originates and terminates on networks other than its own.

Figure 3.9 Inter-tandem transit



Market definition

3.73 In the light of the above service definition, the purpose of paragraphs 3.74 to 3.101 below is to define the relevant wholesale market(s) in which the assessment of market power (SMP) is to be undertaken. Again, as mentioned above, it is to be noted that Annex 4 sets out further detail of this first stage of a market review.

Demand side

3.74 If a monopolist supplier of ITT increased its price, a terminating (or originating) operator would be able to switch to purchasing ITC from the originating (or terminating) operator or provide ITC itself. In order to do either, there must be a connection (through an interconnect link) present between the terminating and originating operator. It is quite likely that an ITT supplier was initially chosen because such a connection was not present. The economic viability of building interconnect links between two providers is dependent on the volume of traffic that is expected to flow between them. At large volumes of traffic, this cost is justified and ITC could therefore act as a constraint on the pricing of ITT services. As ITC involves one less switching stage, it is likely to be cheaper than ITT over the same distance and traffic volumes.

3.75 If a monopolist supplier of ITC (eg the terminating operator) increased its price, an originating operator could switch to purchasing ITT if a transit operator was directly connected to both itself and the terminating operator. However, as ITT involves an additional switching stage, ITT involves higher costs for the same distance and traffic volumes. These costs are unlikely to be significant over larger volumes and longer distances.

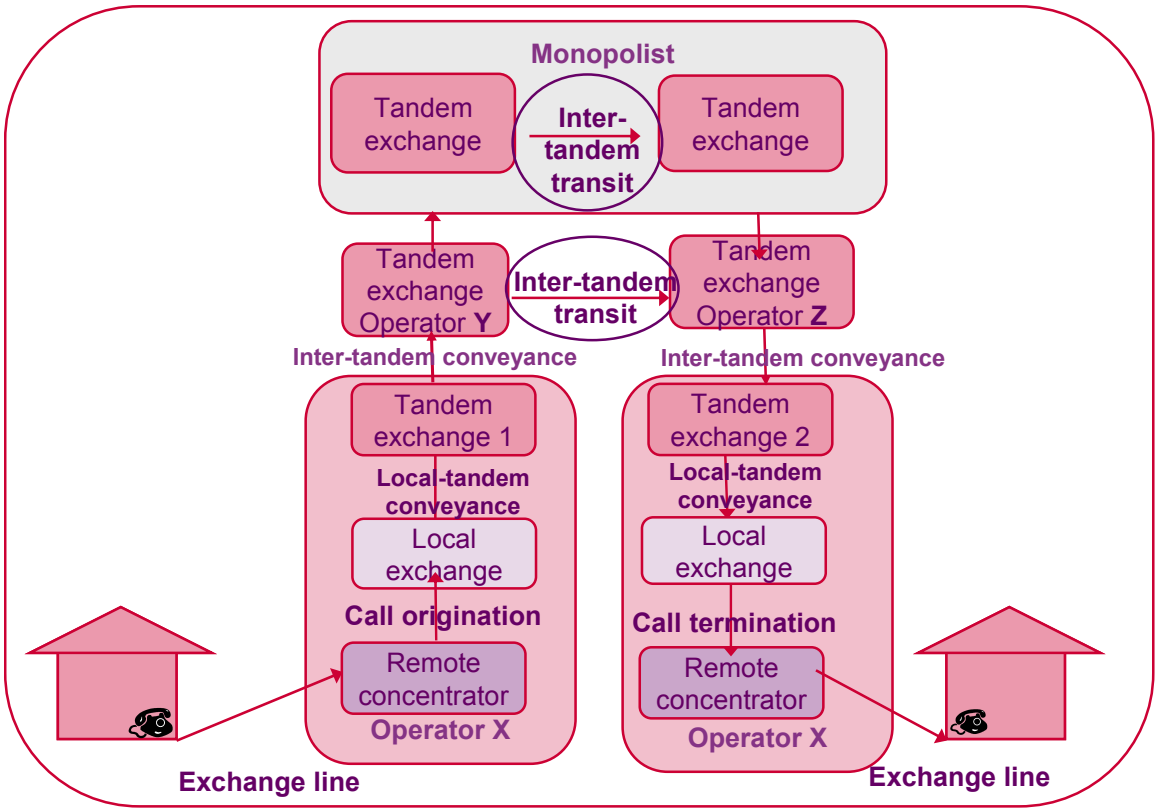
3.76 ITT is an effective substitute for ITC if it allows a small operator to gain access to the economies of scale of a large operator. Consider, for example, a call originating on one operator's network in London, and terminating on another operator's network in Edinburgh. These providers might interconnect directly, in which case one of them will provide the ITC service. However, the cost of building a link from London to Edinburgh may be too high for the volume of traffic. Therefore, it may be cheaper to buy ITT from

a larger operator, such as BT, who is present at those exchanges. In this case, economies of scale offset to a degree the costs associated with the additional switching stage.

Supply side

3.77 To understand if an operator supplying ITC services not currently offering ITT could supply substitute in the event of a monopoly supplier of ITT services raising its price, it is useful to consider the following example. Assuming a monopolist was providing ITT for the transmission of traffic between providers Y and Z, if an originating operator X was providing ITC to providers Y and Z at different tandem exchanges, it would also be in a position to provide ITT between those tandem exchanges for traffic between Y and Z, see Figure 3.10.

Figure 3.10 Supply-side substitution from ITT to ITC



3.78 An operator offering ITT would easily be able to provide ITC for calls originating and terminating on its own network. Alternatively, in response to a rise in price of ITT, the originating operator purchasing ITT could decide to provide ITC itself, if the cost of building a direct connection with the terminating operator was justified by the volume of traffic. However, such supply side substitution is not likely to provide an additional constraint to that already identified by the analysis of the demand side.

3.79 Even if there is no strict supply or demand side substitution, two closely related products can be considered to be part of the same market if the terms of competition between the two are similar. Ofcom is of the view that the terms of competition are similar in both ITT and ITC and hence ITT and ITC services can be regarded as part of the same market.

Impact of 21CN on the market definition of ITC/ITT

Is ITC/ITT provided wholly on the PSTN in the same market as that provided partly on the 21CN?

3.80 Since ITT and ITC are respectively transit and conveyance between two tandem exchanges, how these services are routed to the tandem exchanges is likely to be immaterial to the providers who purchase conveyance and transit at these exchanges, if the charges for such delivery and routing are not any different from a traditional PSTN routing. Hence, on the demand side, ITC/ITT on the PSTN is likely to be in the same market as an equivalent service that is partly provided through 21CN. On the supply side, the costs of both types of services may differ. However, since the customer receives the same service at the same price (i.e. is indifferent), the issue of supply side substitutability is not relevant.

Is ITC/ITT provided wholly on the PSTN in the same market with inter-metro node conveyance?

3.81 If conveyance and transit were now provided on the IP network, the ITT can be roughly comparable to inter-metro node conveyance. Whether the two can be substitutes for each other will on the demand side, depend on whether metro nodes are co-located with existing tandem exchanges and the interfaces used to interconnect at the metro nodes.

3.82 On the demand side, a communications provider purchasing ITC or ITT is faced with the same factors as set out in paragraph 3.26 in relation to metronode origination.

3.83 In summary, for many operators, i.e. those currently without a core IP voice network or using IUP, the cost of switching interface may be significant in relation to a 5-10% rise in the price of ITT/ITC on the PSTN.

3.84 As mentioned above, supply side considerations are not very relevant since BT is the only provider that can provide both ITT/ITC and inter-metro node conveyance and transit.

3.85 Therefore, it can be argued that inter-metro node conveyance or transit with an IP interface is unlikely to act as an effective substitute to those already interconnected at different tandem switches and currently purchasing ITT/ITC.

3.86 However, a SSNIP test of ITC/ITT and inter-metro node conveyance or transit is only possible if the relative prices of both services are known. In the absence of relevant costs and prices for 21CN based services, Ofcom cannot carry out a full formal SSNIP test.

3.87 Therefore, on the basis of the current information available to Ofcom about the likely nature of metronode interconnection, Ofcom is of the view that ITC and ITT are in a separate market to inter-metro node conveyance.

3.88 In principle, there could be a common constraint at the retail level between PSTN based services and 21CN-based services which might justify treating the wholesale equivalent of both these types of services as part of the same market. However, since both types of services would be offered only by BT, this would not really affect the analysis of market power for which the definition of the relevant market is required. In view of this, Ofcom does not consider them as part of the same market for purposes of this review.

Conclusion

3.89 Ofcom's provisional conclusion is that the relevant market is inter-tandem conveyance and inter-tandem transit on fixed public narrowband networks. To clarify, the market definition refers to services provided at the existing narrowband PSTN interfaces, irrespective of whether BT delivers the service through the PSTN only or partly through the 21CN (see also paragraph 3.80).

Mobile substitution

3.90 The Narrowband Market Reviews discussed that, although mobile providers are now increasingly building direct interconnections instead of purchasing traffic from BT, there was no evidence that this would constrain the prices of fixed transit by a hypothetical monopolist on fixed networks. BT has recently reiterated that it believes mobile-to-mobile traffic should be considered as part of the market since mobile providers were switching from fixed transit to direct interconnections.

3.91 Although the bigger mobile providers may have switched to direct interconnections, these interconnections are only justified where providers have the required scale of traffic that will make such direct interconnection cost effective. Providers with smaller scale need to depend on the transit services offered by fixed network providers. On the demand side, there is no evidence, nor has BT provided any, to suggest that such switching away by some large providers can constrain prices to the competitive level. On the supply side, a mobile communications provider can only enter the market for fixed transit at some cost, which includes the cost of the network (especially configuring the switches to carry fixed traffic), systems for dealing with wholesale customers, including billing and management. Additionally, a mobile provider may need to have sufficient spare capacity on its own network in order to be able to provide third party transit; even if it were so, there may simply not be sufficient traffic that may make returns on the investment worthwhile. Finally, given the differential between the current charges for carrying fixed traffic and the charges for mobile traffic, it is unlikely that mobile operators will have a commercial incentive to start supplying fixed transit.

3.92 Ofcom retains the view held in the Narrowband Market Reviews that there is not sufficient demand or supply side substitution from mobile to fixed conveyance and transit to constrain the price of a hypothetical monopolist in ITT/ITC or single transit.

Geographic markets

3.93 The Narrowband Market Reviews defined a national market for ITT/ITC based on the argument that it was difficult to establish the boundary of areas with different competitive pressures and that BT's uniform pricing of ITT/ITC was a reasonable argument for defining a national market. BT responded to this by saying that it believed that competition varied widely among different geographical areas within the UK and it was therefore essential to take into account the geographic dimension in analysing UK markets.

3.94 Ofcom has analysed the competitive conditions between different areas based on the connectivity of different providers to BT's tandem exchanges and has found that, for a majority of inter-tandem routes, there were more than five different communication providers connected and there are almost no routes where fewer than three communications providers were connected. Ofcom therefore concludes provisionally that the competitive conditions are fairly homogenous among different geographic areas within the UK.

3.95 Ofcom is of the view that this homogeneity across regions provides a reasonable case for considering that there are similar competitive conditions across regions which means that all the regions can be considered to be part of the same market. Ofcom believes that the market for ITT/ITC is a national market and the relevant market is ITT/ITC in the UK excluding the Hull area.

Provisional conclusions on the relevant market

3.96 For the reasons set out above, Ofcom considers that the relevant market to be identified as a services market for the purposes of making a market power determination is inter-tandem conveyance and inter-tandem transit on fixed public narrowband networks in the UK excluding the Hull area. This is the same definition that was identified by Oftel in November 2003.

3.97 To clarify, the market definition refers to services provided at the existing narrowband PSTN interfaces, irrespective of whether BT delivers the service through the PSTN only or partly through the 21CN (see also paragraph 3.80).

Question 4: *Do you agree that the relevant market for consideration is the national market for inter-tandem conveyance and transit on fixed public narrowband networks in the UK excluding the Hull area?*

Forward look

3.98 Ofcom considers that, on the basis of currently available information, it has fully taken into account likely competitive and technical developments that might affect the market definition in paragraphs X to X over the period of the proposed NCCs. On this basis, any development of services wholly on 21CN do not appear to be part of the above market during the period of the proposed NCCs; however Ofcom will continue to monitor developments in this area.

Relationship between this market definition and the Commission's Recommendation

3.99 The European Commission has, in its Recommendation (point 10 of the Annex), defined the following as a relevant market in accordance with Article 15(3) of the Framework Directive:

> "Transit services in the fixed public telephone network. For the purposes of this Recommendation, transit services are taken as being delineated in such a way as to be consistent with the delineated boundaries for the markets for call origination and for call termination on the public telephone network provided at a fixed location"

3.100 Ofcom is proposing two different market definitions for transit services and in doing so has given careful consideration to the Commission's definition and the three criteria set out in the Explanatory Memorandum to the Recommendation (section 3.2), namely:

- barriers to entry and the development of competition;
- 'dynamic aspects', ie whether the market has characteristics that will tend towards effective competition; and
- the relative efficiency of competition law and complementary ex ante regulation.

3.101 In proposing market definitions, Ofcom has given particular consideration to the first two criteria. While the Commission has identified a single market that includes all

transit services, Ofcom considers that it is necessary to define separately the ITC/ITT market and the single transit market, because it is of the view that different competitive conditions are present in the supply of these services in the UK. Competitive conditions differ in these two markets because entry barriers are much higher in the single transit market due to the high level of connectivity necessary to supply single transit services. This also means that it is less likely to have 'dynamic aspects' and tend towards competition. The relative efficiency of competition law and complementary ex-ante regulation is discussed in Annex 4.

Assessment of SMP in the market for ITC/ITT

3.102 As explained above, Ofcom considers provisionally that the identified services market should be inter-tandem narrowband conveyance and narrowband transit on fixed public narrowband networks in the UK excluding the Hull area. Paragraphs 3.103 to 3.129 below therefore set out Ofcom's assessment of SMP in that wholesale market. The SMP analysis is based on the evidence currently available to Ofcom. In particular, this analysis will focus on single firm dominance, particularly in the light of the current relevant market power determination made in respect of BT in November 2003.

3.103 Again, it is to be noted that Annex 4 sets out further detail of this second stage of a market review, including details of the approach used to assess SMP. In Ofcom's view, the main criteria for the assessment of SMP in the above-mentioned market are:

- market shares;
- ease of market entry;
- economies of scale;
- pricing and profitability;
- overall size of the undertaking;
- absence of or low countervailing buyer power;
- easy or privileged access to capital markets/financial resources; and
- switching costs.

Market shares

3.104 Ofcom has been provided market share information by BT, and used that to calculate the following market shares.

Table 3.2 BT's market share of ITC and ITT minutes

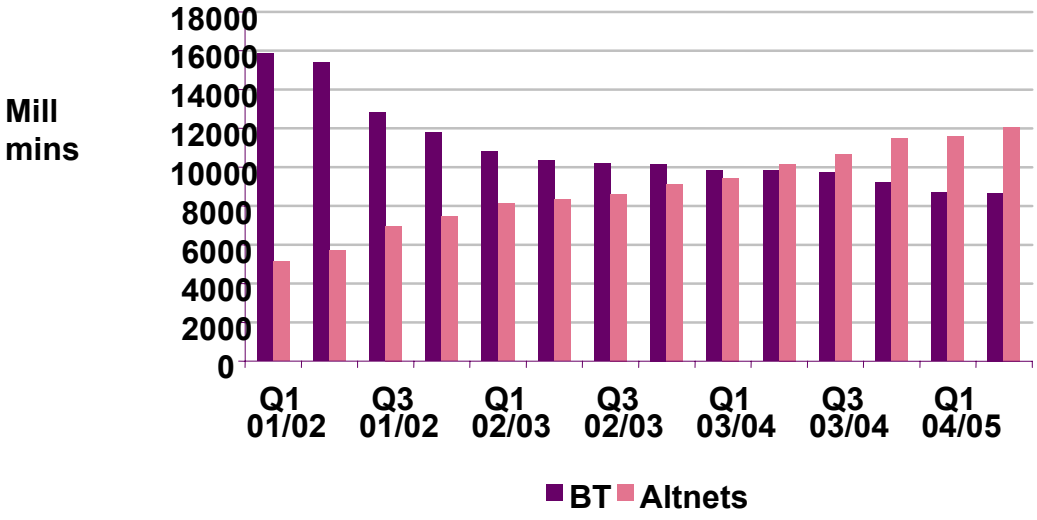
	2001/02	2001/02	2001/02	2001/02	2002/03	2002/03	2002/03	2002/03
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
ITC/ITT	75.5%	73.0%	64.8%	61.3%	57.1%	55.5%	54.2%	52.7%
	2003/04	2003/04	2003/04	2003/04	2004/05	2004/05		
	Q1	Q2	Q3	Q4	Q1	Q2		
ITC/ITT	51.0%	49.2%	47.7%	44.6%	42.9%	41.8%		

Source: Ofcom estimate using BT's data

3.105 Over time, many providers have built out to BT's tandem exchanges and are providing ITC themselves or providing ITT to third parties. As can be observed in Figure 3.11 below, BT's share of ITC/ITT has been falling since the beginning of the current charge control period. This is reflected in the fact that the size of the transit market has

reduced considerably, as providers have now built out connections to BT's tandem exchanges and therefore need to rely less on transit from BT of third party providers. This has not only reduced the total volume of transit, but also meant that providers who used to purchase conveyance from BT were able to substitute with their own conveyance, thereby reducing the volume of conveyance traffic as well.

Figure 3.11: Wholesale volumes of ITC and ITT



Source: Ofcom estimate of BT data

3.106 According to BT the increase in ITT in the first two quarters of 2004/05 is due to two developments:

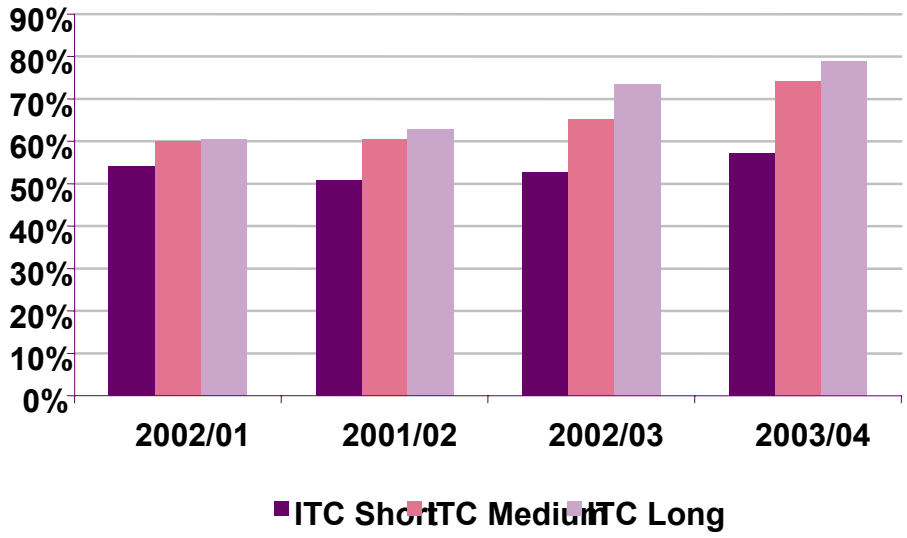
a) Mobile operator Hutchison 3G (UK) Limited ("H3G") is currently using BT for transit. The existing mobile operators have fully interconnected networks, so have less need for BT-provided transit. However, as H3G is relatively new, the same level of interconnection is not available. In conjunction with H3G's recent marketing campaigns, that have caused an increase in take-up, this has led to the need for more transit volumes. It seems unlikely that this will continue into the future as H3G will probably increase its direct interconnection over time.

b) One particular provider is offering an international service to a large number of countries, based on number translation services ("NTS"). A customer from a fixed line or a mobile will dial the NTS number, then dial the international number to be connected worldwide. This new service, which started almost a year ago, has lead to an increase in transit traffic. Based on past experience with other such providers, once providers achieve a certain scale, they are likely to replace transit with conveyance over their own network.

3.107 Ofcom is of the view that the above points made by BT carry some merit and that it is reasonable to assume that the growth in BT's ITT volumes is unlikely to persist. In addition, the size of the conveyance market has reduced because providers of non-fixed networks, particularly mobile networks have now chosen to establish direct interconnections rather than purchase transit through fixed networks. This is the case with the larger mobile providers who have achieved a scale of traffic that has made possible the establishing of direct interconnections among themselves. This can be observed from the following figure, where the major share of ITC provided by BT's

wholesale division is for the use of BT's retail division. This figure shows that in addition to BT's share of the ITC/ITT market reducing, much of the ITC sold by BT is to itself (or BT Wholesale to BT Retail), particularly for long distances.

Figure 3.11 BT's Retail's share of ITC sold by BT Wholesale



Source: BT

3.108 Ofcom's view is that the information on market shares suggests that BT's market power has been reducing in this market. This suggests that competition has been more effective in this part of the market.

Ease of market entry

3.109 Ofcom believes that there are fewer entry barriers in the market for ITC/ITT than in the LTC/LTT market, because there are fewer tandem exchanges than local exchanges (106 tandem exchanges versus 746 local exchanges) to which providers have to connect to.

3.110 There are a number of providers with a high level of connectivity to BT's tandem exchanges. As discussed in 3.94 above, there are hardly any routes where fewer than three communication providers are present. These providers have typically built out to those tandem exchanges for the transmission of their own traffic in order to self-provide ITC rather than purchasing it from BT.

3.111 The Narrowband Market Reviews discussed that establishing direct connections with other providers involves significant investment and is only justified where there is sufficient flow of traffic between the two providers, and that achieving sufficiently high volumes is in practice inhibited by the fact that BT originates and terminates the largest volume of calls. Therefore, most traffic will flow to and from BT's network and not between other providers' networks.

3.112 However, a number of providers have built out connections to BT, even if they have not built out connections to other providers. This means that they are able to replace purchasing conveyance from BT with their own conveyance as long as the traffic flows between their networks and BT's network. However, where traffic originates and terminates on networks other than BT, there is lack of sufficient interconnection between such networks and providers have to purchase transit from BT. Ofcom

believes that such transit is purchased from BT, but this is now single transit and not ITT. That is, where most providers are connected to BT at the same tandem exchange but not to each other, providers will need to purchase single transit to connect with each other. Therefore, some part of ITT has been replaced by single transit (see Annex 7).

Economies of scale

3.113 There are significant economies of scale that characterise fixed communications networks, where total costs can be minimised at large levels of volume. In particular, for providers to exploit economies of scale, they must be able to achieve a high utilisation of their interconnect links which is only possible with large volumes of traffic.

3.114 Apart from a few large providers, most providers that are present at the tandem exchanges are of smaller size and carry smaller volumes of traffic. Therefore, they cannot benefit from the same economies of scale as BT. However, despite this fact, providers have built out to the tandem exchanges for purposes of carrying traffic originated or terminated from BT and some other large providers.

Pricing and profitability

3.115 The ITC/ITT market was subject to a safeguard cap of RPI+0% in the first NCCs (1997-2001) and this regulation was continued for the current NCCs (2001-2005). As discussed above, the level of connectivity that different providers have achieved with respect to BT's network has been substantial. It is therefore useful to consider if the participation of other providers in downstream services has been at the level that might constrain BT's prices to competitive levels.

3.116 This can be examined by considering if the RPI+0% cap on BT is binding. BT offers ITC and ITT services at prices differentiated by distance. Therefore, both ITC and ITT are sold by short distance (less than 100 km), medium distance (100-200 km) and long distance (200 km and above). BT is required to comply with a safeguard cap of RPI+0% for each of the services within ITC and ITT. As can be observed from the following tables for 2002/03, 2003/04 and 2004/05, BT's charges for both ITC and ITT have been binding in 2003/04, but have reduced in ITT in 2002/03 and in ITC for 2004/05. BT's prices show that at some point in the charge control, it has reduced prices well below the cap and met with the cap for the other periods. In general, it appears as if BT has responded to competition by lowering prices.

Table 3.3 BT Price changes in ITC and ITT

ITT - Price changes 2001/02 - 2002/03 (RPI = 1.04%)			
	Daytime	Evening	Weekend
Short	-7.69%	-7.76%	-7.71%
Medium	0.00%	0.00%	0.00%
Long	0.00%	0.00%	0.00%

ITC - Price changes 2002/03 - 2003/04 (RPI = 2.9%)			
	Daytime	Evening	Weekend
Short	2.88%	2.88%	2.85%
Medium	2.91%	2.92%	2.83%
Long	2.90%	2.88%	2.84%

ITT - Price changes 2002/03 - 2003/04 (RPI = 2.9%)			
	Daytime	Evening	Weekend
Short	2.88%	2.93%	2.88%
Medium	2.90%	2.90%	2.86%
Long	2.89%	2.87%	2.89%

ITC - Price changes 2003/04 - 2004/05 (RPI = 3%)			
	Daytime	Evening	Weekend
Short	0.04%	-0.09%	0.00%
Medium	0.00%	-0.05%	0.00%
Long	0.02%	-0.03%	0.04%

ITT - Price changes 2003/04 - 2004/05 (RPI = 3%)			
	Daytime	Evening	Weekend
Short	3.03%	2.99%	2.98%
Medium	3.03%	3.02%	3.05%
Long	3.04%	3.05%	3.02%

Source: Ofcom

3.117 In addition, the size of the market is reducing as ITT is being replaced by single transit (see also Annex 7). The size of the conveyance market is also reducing because larger customers, such as mobile communications providers, have chosen to build direct interconnections. In both ITC and ITT, BT's market share is being eroded. Therefore on the basis of these criteria, the ability of BT to exploit the market power in a manner that is detrimental to competition and to end-users will be limited.

3.118 Whilst BT's profits have been higher than the regulated return on capital in the circumstances of this market, Ofcom is of the view that this can encourage entrants to compete away these profits.

Overall size of the undertaking

3.119 BT's network is spread over approximately 5,600 local exchange concentrators and 746 local exchange processors. BT's fully meshed national network of 106 tandem exchanges provides national connectivity. It has the majority of exchange lines to retail consumers in the UK and 79% of calls originate on its network. A significant number of these calls are BT-to-BT calls where the call does not leave BT's network and BT provides all the wholesale conveyance services necessary to convey the call, such as LTC and ITC.

3.120 However, BT's ubiquity has not prevented it from losing market share in the ITC/ITT market and the increased connectivity of other providers will limit BT's ability to raise prices significantly above the competitive level.

Absence of or low countervailing buyer power

3.121 BT's retail activities continue to be the largest purchaser of ITC services and therefore BT is the only provider that theoretically would be able to exert countervailing buyer power in areas such as ITC long.

3.122 However, for ITC short and medium and ITT, the fact that many operators are already using their own connections rather than purchasing from BT shows that their decisions can exert some constraining influence in BT's ability to set excessive charges. Therefore, there may be some buyer power.

Easy or privileged access to capital markets/financial resources

3.123 BT is a large and well-established company with a long track record and a relatively diversified business and is perceived to have stable cash flows. It has a good credit rating and investors are likely to view the company as a less risky proposition than many relatively newer entrants. It is therefore likely that BT would face lower borrowing premiums than its competitors. Ofcom is of the view that BT continues to be seen as a more stable organisation than its competitors.

Switching costs

3.124 Switching costs (i.e. costs of changing to another operator) are particularly relevant to ITT. Since most operators are already connected at BT's switches at the tandem level, connecting to other operators who are also present at the same tandem exchange is not a high cost for a reasonably large scale of traffic. However, since the majority of traffic either originates or terminates on BT's network, no two operators (other than BT) are likely to have a large scale of traffic between themselves. Therefore, anybody wishing to switch from ITC to ITT would need to purchase single transit in order to be able to connect to the third operators' switches. This might impose some costs on switching providers.

In addition, there may be smaller providers who either are connected only in remote areas where there is little alternative connection, or for whom building a link to other operator is not effective.

Forward look on the SMP assessment in the ITC/ITT market

3.125 The Narrowband Market Reviews stated the view that BT continued to have SMP in the market for ITC/ITT. Therefore, it was considered that a safeguard cap was an appropriate regulatory measure to prevent BT from exercising its market power.

3.126 However, Ofcom is of the view that not only has BT's market share in ITC/ITT reduced, but that volumes have been significantly reduced as communications providers build out direct interconnections rather than purchasing conveyance/transit from third party providers (as discussed in 3.105). Further into the period of the new proposed NCCs, the volume of ITT/ITC is only likely to reduce as providers may reduce their dependence on BT. Ofcom is of the view that by the end of the new proposed NCCs period, the size of the ITT/ITC market will be relatively small. Additionally, the safeguard cap has not been binding in some years, and prices have been well under the cap.

3.127 Given this, Ofcom is of the view that BT's ability to raise prices will be reduced further as BT loses market share in a dwindling market. Continuing moves to self-provision by mobile operators on mobile networks can act as a constraining influence on BT's ability to raise prices profitably. Ofcom therefore believes that on a forward look basis, BT is unlikely to have SMP in the market for ITC/ITT.

Provisional conclusions on SMP

3.128 As shown from the above, Ofcom has analysed SMP in the ITT/ITC market under the criteria set out in the Commission's Recommendation. Ofcom believes that there are few entry barriers in this market and that several providers have achieved significant connectivity at BT's tandem exchanges. For this reason, BT's market share has been falling and now stands at around 41%. Ofcom is of the view that BT has in the past responded to competition in this market by lowering prices of ITT and ITC (short), and will continue to do as providers choose to self-provide after achieving a required level of scale. Based on its analysis, Ofcom is of the view that BT does not now have SMP in the market for ITC/ITT.

3.129 As a result Ofcom proposes to make a market power determination to the effect that BT no longer has SMP in this market (see the statutory notification at Annex 5).

Question 5: *Do you agree with Ofcom's provisional conclusion that BT does not have SMP in the national market for inter-tandem conveyance and transit on fixed public narrowband networks?*

Summary of provisional conclusions on market power

3.130 Having conducted full market definitions and market analyses in accordance with legal and regulatory requirements, Ofcom proposes that:

- in the market for inter-tandem conveyance and inter-tandem transit, the market definition is unchanged since the market was last reviewed in November 2003. However, BT no longer has SMP in that market, and on a forward-looking basis Ofcom does not expect this to change; and
- in the market for local-tandem conveyance and local-tandem transit, the market definition is also unchanged since the market was last reviewed in November 2003. Also, BT continues to have SMP in that market, which Ofcom expects to continue to be the case for the duration of the proposed new NCCs, although there are prospects for competition (see Section 4).

3.131 The other services markets subject to NCCs – call origination, call termination and single transit - are considered by Ofcom in Annex 7. Ofcom does not consider that there has been a material change in those markets since they were last assessed in

November 2003. Ofcom is therefore proposing revised NCCs for the relevant services based on existing market power determinations.

Section 4

Charge controls and other market power remedies

Introduction

4.1 This Section covers the following issues:

- summary of Ofcom's proposed approach to existing SMP services conditions;
- key features of the charge control regime;
- Ofcom's approach to the key issues in setting these charge controls;
- proposed changes to the structure of the controls;
- proposed levels for the charge controls - values of X;
- other proposals on BT's charges;
- legal implementation of the proposals; and
- a note on fixed call termination obligations for providers other than BT.

4.2 As set out in Section 3, Ofcom proposes that:

- BT continues to have SMP in the market for local-tandem conveyance and transit in the UK (excluding the Hull Area); and
- BT no longer has SMP in the market for inter-tandem conveyance and transit in the UK (excluding the Hull Area).

4.3 The other fixed narrowband markets to which charge controls currently apply are considered in Annex 7. For reasons set out in that annex, Ofcom is satisfied that there has not been a material change in any of those three markets, and therefore considers that BT continues to have SMP in each of them. Those markets are:

- call origination (in the UK excluding the Hull Area);
- single transit (in the UK excluding the Hull Area); and
- call termination on the BT network (in the UK).

4.4 The legal background to imposing SMP remedies, including charge controls, is set out in full in Annex 4, but the key issues are as follows. Where SMP is confirmed, Ofcom is under an obligation to impose at least one appropriate SMP condition. However, there are a number of legal tests, as specified in the 2003 Act and EC Communications Directives, which must be met for Ofcom to impose SMP conditions. It is Ofcom's view that the proposed SMP remedies satisfy these tests. Annex 6 sets out those proposed remedies, the reasoning behind them, and how they meet the legal tests.

4.5 The following remedies currently apply to the markets covered by this document:

- charge controls;
- requirement to notify charges;
- basis of charges (i.e. cost orientation);

- requirement to provide Network Access on reasonable request;
- requests for new Network Access;
- requirement not to unduly discriminate;
- requirement to publish a Reference Offer;
- requirement to notify technical information;
- transparency as to quality of service;
- requirement to provide Carrier Pre-selection (CPS);
- requirement to provide Indirect Access (or 'Carrier Selection');
- requirement to provide NTS Call Origination;
- requirement to provide Flat Rate Internet Access Call Origination (FRIACO); and
- requirement to have cost accounting systems and accounting separation.

4.6 Charge controls relating to these markets also cover the following BT services (described further in Annex 7):

- interconnection circuits, which are designated as 'technical areas' that are regulated as part of an overall solution to BT's SMP in the call origination and local-tandem conveyance and transit markets; and
- product management, policy and planning (PPP), which is regulated due to its status as a component of the services in which BT has SMP.

4.7 Most of these obligations were set in the form of SMP services conditions by Oftel in November 2003 after a number of 'market reviews'[15]. PPP was reviewed in 2004[16], and cost accounting systems and accounting separation were reviewed in July 2004[17].

Summary of Ofcom's proposed approach to existing SMP conditions

4.8 For inter-tandem transit and conveyance, Ofcom proposes to remove all of BT's SMP obligations, including the current RPI+0% safeguard cap on charges. Under section 84(4) of the 2003 Act, Ofcom is obliged to revoke all SMP services conditions following a finding of no SMP. This is discussed further in paragraphs 4.35 to 4.37.

4.9 For local-tandem conveyance, Ofcom proposes to maintain the relevant obligations listed in paragraph 4.5. However, Ofcom proposes to make two changes to those obligations. Ofcom firstly proposes to reduce the period of price notification, and secondly to change the specific level of the charge control. These changes are discussed further in this Section. The legal tests for the obligations on LTC are considered in Annex 6.

4.10 The SMP services conditions currently applying to call termination, call origination, single transit, interconnection circuits and PPP (see Annex 7) will continue unchanged, except that Ofcom is proposing changes in the specific levels of the charge controls for those services. Those proposed new conditions derive from Ofcom's charge control modelling (see Annex 8). Further background on those SMP remedies that are continuing unchanged is available in the Narrowband Market Review documents referenced at paragraph 4.7.

[15] http://www.ofcom.org.uk/consult/condocs/narrowband_mkt_rvw/nwe/fixednarrowbandstatement.pdf & http://www.ofcom.org.uk/consult/condocs/narrowband_mkt_rvw/Eureviewfinala1.pdf
[16] http://www.ofcom.org.uk/consult/condocs/rev_bt_pm/statement/statement.pdf
[17] http://www.ofcom.org.uk/consult/condocs/fin_reporting/fin_report_statement/finance_report.pdf

4.11 As Ofcom is making proposals on SMP services conditions in this document, it is publishing a formal statutory notification of those proposals under sections 48(2), 80(1) and 86 of the 2003 Act. The Notification is published at Annex 5.

Key features of the charge control regime

4.12 The key aims of the NCCs are to prevent BT setting excessive charges in wholesale markets where it has SMP, whilst providing incentives for BT to increase its efficiency. The way in which this is done is to control BT's charges so that, by the end of a pre-determined period, BT's forecast excess ('super-normal') profits for those services should be reduced to zero, which is the level they would tend to in a competitive market.

4.13 To calculate the controls on BT's charges (values of 'X') Ofcom needs to bring forecast revenues in line with forecasts costs in the last year of the charge control period. It thus reflects both expected cost reductions and the elimination of any super-normal profits existing at the start of the charge control period. On the basis of this calculation, Ofcom requires BT to reduce charges by a pre-defined percentage (X%) annually, in real terms, for each service (or 'basket' of services that are subject to similar competitive conditions), the values of X varying between services.

4.14 The controls also allow BT to adjust prices for inflation, as measured by the retail price index (RPI), as inflation is out of BT's control. This, when added to the requirement on BT to cut charges by X% per year, produces an obligation that limits BT's price increases to a level of RPI-X%. This means that a given BT charge (or an average charge, where a number of charges are controlled a 'basket' of services) will fall in nominal terms as long as inflation does not exceed the value of X set for that charge.

4.15 The forecast of BT's costs and revenues over the period of the control involves many detailed calculations and assumptions, which are described further in Annex 8. Among the more important inputs to this calculation are a forecast of the traffic using BT's network (more traffic will reduce BT's average, or unit, cost of providing services) and a view on how much more efficient BT should be expected to become in the control period (higher efficiency will cut BT's costs).

4.16 The modelling of BT's future costs and revenues cannot be expected to be wholly accurate, as many changes in markets can affect the accuracy of the assumptions made at the time when the NCCs are set. However, by setting controls for a fixed period, the NCC regime does provide a period of certainty on charges that is beneficial to all providers. The system also gives BT incentives to increase its wholesale-level efficiency, by allowing it to keep any super-normal profits that it earns by increasing its efficiency (and therefore cutting its costs) by more than expected in the model.

Ofcom's approach to the key issues in proposing these charge controls

4.17 The key issues determining the nature of the NCCs from October 2005 are:

- Which services should be within the scope of the controls?
- Which markets need regulating?
- For how long should the controls last?
- What efficiency gain should be expected for BT during this period?

4.18 All of these questions are greatly complicated by BT's move to its 21CN. Other factors, like forecast volumes, BT's starting profits, and BT's cost of capital are also important for the level of controls, but they are more issues of detailed modelling methodology that follow after an understanding of the broad approach to these 21CN-related questions.

The technology neutral model

4.19 Ofcom's proposed market definitions and SMP findings, covered in Section 3, represent Ofcom's view on the services that should be controlled and the markets that need to be regulated for the purpose of this charge control. A key feature of those proposals is that the services covered by the charge controls should be only those ones delivered using PSTN interconnection interfaces.

4.20 However, the issue of the scope and duration of the controls is complicated by the forthcoming migration of traffic, as services move from being delivered fully or partially over the PSTN to being delivered solely over the 21CN, using as yet unknown IP interconnection services. Potentially, a significant proportion of this migration will occur during the next four years. To cope with this, Ofcom has developed a 'technology-neutral model', which it proposes to apply to these charge controls. The key features of this model have been discussed with BT and some other providers.

4.21 Given the economies of scale in BT's network, the value of X is very sensitive to the volume of traffic projected to use the network (which affects BT's unit costs). A four year cap applied, as before, to PSTN interconnection services only would require an accurate forecast of the rate of migration from the PSTN to the 21CN. However, the scale and timing of this migration in the next several years is very uncertain. This creates a risk that forecasts of PSTN traffic would be significantly wrong, causing the charge controls to be either too loose or too tight.

4.22 There are several options for addressing this problem:

- an interim review during the charge control period, with adjustments to the values of X were volumes to be significantly different from forecast levels;
- a shorter than normal control period, so limiting the degree to which charges could fall out of line with BT's costs;
- a 'technology-neutral model', in which the value of X is set as though all traffic continued to be carried over the PSTN. Within this hypothetical PSTN model, cost savings arising from partial use of the 21CN to deliver services could potentially be reflected by tightening BT's controls, were it thought that BT's partial use of the 21CN would lower its costs during this charge control period; or
- some combination of these options.

4.23 Both an interim review and a shorter control period would ensure that, were volume forecasts to be very wrong, charges did not move too far out of line with costs. However, there are also potential disadvantages. The main one is that, were only PSTN traffic volumes to be taken into account under either options, BT could have incentives to migrate traffic at an inefficiently rapid pace from the PSTN to the 21CN. Also, if PSTN charges and 21CN charges were allowed to vary, BT would also have an incentive to forecast high migration to the 21CN. This incentive could arise because, by forecasting reduced traffic on the PSTN, BT's forecast PSTN unit costs would rise, suggesting that lower values of X were needed to erode BT's excess profits on PSTN-provided services. At the same time, traffic would be moving to a 21CN whose regulation and cost profile might be more favourable to BT.

4.24 There are two other disadvantages of the first two options. Firstly, there would be a generally lower incentive on BT to reduce its costs. This is because a longer control period, and one that is not subject to interim reviews, provides a longer period within which BT could 'outperform' the charge control, and keep the resulting profits. Four years has been established as an appropriate duration for many charge controls set by Oftel and Ofcom, as it balances incentive properties for the controlled provider and a fair distribution of increased efficiency through reductions in charges. Another disadvantage of these options is that they would not eliminate the problem of forecasting the pattern of traffic migration.

4.25 By contrast, the technology neutral model has some key advantages. Firstly, it provides BT with good incentives to migrate traffic efficiently, since the values of X would not depend on the rate of migration. It provides BT with an incentive to use the least-cost network, as BT would be charging the same for all services delivered using PSTN interfaces, regardless of whether or not the service is delivered through partial use of the 21CN. Because those charges would be the same irrespective of how calls are conveyed, BT's wholesale customers should be indifferent about precisely how the service is provided. The model also avoids the need for an accurate projection of the rate of traffic migration to the 21CN (by including 21CN volumes in the forecast for modelling purposes). Ofcom's approach also seems to properly reflect its legal duties on technology neutrality (see the fourth Community requirement in section 4(6) of the 2003 Act, which implements Article 8 of the Framework Directive). Finally, this approach has received broad support from BT and UKCTA (the body representing many of BT's main fixed line competitors) as a way of coping with the uncertainties generated by migration to BT's new network.

4.26 Ofcom considers that the advantages of the technology neutral model are strong, and it has therefore used this approach in developing the charge controls proposed in this document.

4.27 For the avoidance of doubt, the use of the technology neutral model does not imply that new 21CN interconnection products introduced during the proposed period of the NCCs would be covered by the proposed charge controls. The proposed NCCs would only apply to products delivered over the existing narrowband PSTN (i.e. C7) interfaces. The regulation of new products will be considered as such products are introduced.

Question 6: *Do you agree with Ofcom's chosen approach – the technology neutral model – in developing the charge controls proposed in this document?*

Charge control period and mid-term reviews

4.28 As discussed above, it would be possible to have a shorter control period than the standard four years, or a mid-term review, in combination with the technology neutral model. These are valid considerations, given the potential for significant change in UK communications markets during 2005-9.

4.29 These options would tend to reduce the degree to which BT's costs and charges fall out of line. However, the importance of this factor depends on how significant BT's 21CN efficiency savings are expected to be. As explained in paragraphs 4.34 to 4.35, these savings are not expected to be significant during 2005-9. Also, the potential disruptive influence on BT's modelled costs of traffic migration to the 21CN can already be addressed by use of the technology neutral model, so that migration is not a reason for a shorter control or mid-term review.

4.30 It could be argued that, in about two years, more accurate information would be known with which to set NCCs, as there would be better information about 21CN services, costs and volumes. However, it is not clear that markedly better information would be available then with which to determine costs, as at that time there could be significant dual running of the PSTN and the 21CN, making it difficult to get a clear view of costs for the relevant services.

4.31 The widely acknowledged efficiency incentives of a longer and fixed term cap have already been noted at paragraph 4.24. Such certainty would also provide a better platform for BT and other providers to invest in next generation networks in the coming years. Whilst opening a control mid-term would make it possible to revise charges based on more up to date market and cost data, it has some significant disadvantages. It is a key element of RPI-X price controls that the regulator should not intervene within the charge control period to reset the value of 'X', unless changes in market conditions are of such magnitude as to threaten the regulated provider's ability to finance its activities. If the regulated provider believed that the regulator would intervene to reset a higher value of 'X', (were profits to be higher than expected), it would have a reduced incentive to seek cost reductions. Ofcom believes that it is highly desirable to avoid re-opening charge controls in mid-period due to these incentive effects, unless it is clear that the charge controls are operating in such a way as to distort competition.

4.32 Ofcom believes that the arguments support its proposal to set a four year price cap from 1 October 2005 to 30 September 2009. BT and UKCTA also both support this position, given the use of the technology neutral model to mitigate the potentially largest uncertainty for setting charge controls across this period.

4.33 It should however be noted that Ofcom is subject to legal duties (under section 84 of the 2003 Act – see Annex 4) that might cause it to re-examine the markets to which these charge controls apply, and therefore to reconsider the controls themselves, before the four year period has ended. The circumstances in which a review of the markets would be needed are:

- if Ofcom considers it an appropriate interval to formally review the markets, for example as next generation products are introduced; and
- if the European Commission makes recommendations that might alter the basis of the previous market analysis. Ofcom notes that the Commission has announced plans to review its Recommendation of markets in which ex ante regulation may be warranted. This review is scheduled for launch at the end of 2005 (although a completion date is not yet known). NRAs, such as Ofcom, are obliged to review the markets listed in the Recommendation 'as soon as reasonably practicable' after it is updated.

Question 7: *Do you agree that it is appropriate to set the next NCCs to last for four years?*

21CN efficiencies during the next charge control period

4.34 The use of a technology neutral model for determining the relevant costs for the proposed charge controls for 2005 to 2009 is described above. These costs will necessarily be hypothetical - for example the level of capital expenditure (capex) for PSTN equipment will be generated from assumptions in the model. BT's actual spend on PSTN equipment will be expected to be significantly lower, as it extends the operational life of existing PSTN equipment to avoid spend that would be made redundant by 21CN equipment. The model therefore does not attempt to forecast BT's actual expenditures in providing PSTN services over the period 2005-9.

4.35 Ofcom has considered whether it would be appropriate to include within the model assumptions the efficiency gains derived from lower capital and operating costs that BT is expected to benefit from in moving to its 21CN platforms. There are two reasons why this would not be appropriate for the purpose of setting the next NCCs. Firstly, Ofcom is already proposing to factor in expected increases in efficiency - see paragraphs 4.64 to 4.66. In addition, it is not yet clear from the information BT has been prepared to share with Ofcom, what levels of efficiency might be achieved from 21CN by the end of the of 2009. Indeed, the information BT has shared with Ofcom indicates that the initial savings to be accrued by 21CN are more than outweighed by the initial duplication of costs of running down the PSTN.

Question 8: *Do you agree with Ofcom's proposed approach to efficiency as regards BT's 21CN in proposing these charge controls?*

Proposed changes to the structure of the controls

Inter-tandem conveyance and transit

4.36 For these services (in the UK excluding the Hull area), Ofcom proposes that BT no longer has SMP (see Section 3). The legal position given such a finding is very clear. That position is that, under section 84(4) of the 2003 Act, Ofcom must revoke existing SMP services conditions (including charge controls) when it is found that a provider no longer has SMP. Ofcom therefore proposes, as a direct consequence of its proposal that BT no longer has SMP in that market, to remove the current RPI+0% control on BT's charges for inter-tandem conveyance and inter-tandem transit.

4.37 As well as removing the charge control, all BT's other SMP services conditions in relation to inter-tandem conveyance and inter-tandem transit must be revoked if the proposal of no SMP is confirmed. This includes the requirement to provide the service at all, given that the network access SMP services condition would be revoked. Ofcom acknowledges that not all providers will be in an equally strong position to compete in the absence of regulation of ITT/ITC. Some smaller providers do not have the necessary scale that might justify direct interconnections and some of them might be dependent on BT for transit in some areas (although Ofcom's analysis of the geographic market suggests that this will apply to very few routes).

4.38 However, Ofcom's decision to remove SMP, and by extension to lift all regulation, has to be made based on an overall view of competitive forces in the market identified. Whilst the removal of the SMP finding might cause some concern about the lack of an obligation on BT to provide the service at competitive prices, any general increase in BT's prices may well be met by competition from other providers, which would reduce BT's market share even further.

4.39 Ofcom's current view is that over the period of the proposed new NCCs, BT will continue not to have SMP in the ITT/ITC market. In keeping with its views as outlined in Phase 2 of the TSR, Ofcom proposes that this market has no enduring bottlenecks, and any ex-ante regulation would be disproportionate. However, Ofcom will monitor the ITT/ITC services provided by BT, and any residual concerns of market power can be addressed ex-post through the Competition Act 1998.

4.40 If Ofcom's proposed market power determination of no SMP is confirmed for this market, BT's obligations for ITT/ITC, with regard to charge controls as well as other SMP services conditions, would be revoked with immediate effect. Also at that time, an

existing Direction on credit vetting[18] will be formerly disapplied in relation only to BT's SMP designation in the market for ITT/ITC. The draft notification disapplying the credit vetting obligation is included in Annex 5, and in Annex 6 Ofcom considers this proposal further, against the relevant legal tests.

Local-tandem conveyance and transit

4.41 In Section 3, Ofcom proposes that, whilst BT still has SMP in the market for local-tandem conveyance and transit (in the UK excluding the Hull area), there are more prospects for competition than when the market was last analysed in November 2003. In these circumstances, Ofcom could impose a modelled RPI-X charge control or an RPI-0% 'safeguard' control on local-tandem conveyance.

4.42 There would be a good case for continuing with a modelled RPI-X charge control were there limited prospects for competition in this market, in combination with prices that were not at a competitive level. By contrast, in a market with reasonable prospects for competition, and where prices are already close to a competitive level, it could be argued that a modelled RPI-X charge control diminishes the incentives for investment and market entry, and therefore inadvertently forecloses the market to competition. The Narrowband Market Reviews in 2003 indicated that it was appropriate to closely monitor this market, to consider the suitability of moving to a 'safeguard' RPI-0% control.

4.43 Section 3 describes how charges for LTC prices converged in 2003-4 with the fully allocated cost (FAC) of the service, having been considerably over that level beforehand. In 1999-2001, the last two years of the 1997-2001 NCCs, charges were about 30-40 percent higher than the FAC. The recent convergence with cost has been underpinned by a tight RPI-13% charge control for LTC (combined with single transit) in 2001-5. It appears that the current NCCs will be successful in eroding BT's excess profits for LTC by the end of the control period.

4.44 Despite BT's high market share in this market, and the relatively limited prospects for a significant decline in that share, a number of large competitors are in a position to compete with BT in this market. They are able to do this by interconnecting at BTs local exchanges, either using their own infrastructure, or by leasing transmission capacity from BT, typically in the form of Interconnect Extension Circuits. When the LTC market was assessed in the Narrowband Market Reviews, one of these companies, Cable and Wireless (C&W), suggested that there is only transitory dominance in this market and that either there should be no charge control or only a safeguard cap on services within this market. C&W expressed concern that the RPI-13% charge control was diminishing incentives for market entry and therefore inadvertently foreclosing the market to competition. BT and C&W have recently reiterated the view that the LTC market may be potentially more competitive than in the past.

4.45 Ofcom considers that, given the movement of BT's prices to a competitive level - as indicated by the erosion of its LTC profits in 2001-5 and the convergence of LTC charges with costs (FAC) - and given the potential competition to BT in this market, it would on balance be appropriate to impose a safeguard cap of RPI-0% on BT for LTC, rather than a modelled RPI-X control. This should increase incentives for competition in this market.

4.46 In the course of its analysis of LTC, Ofcom has been modelling an RPI-X control. It is worth noting that were Ofcom instead proposing that a modelled RPI-X control be

[18] http://www.ofcom.org.uk/consult/condocs/narrowband_mkt_rvw/nwe/fixednarrowbandstatement.pdf

applied rather than an RPI-0% control, the proposed value of X would anyhow be very close to zero.

4.47 The proposed charge control covers LTC but not local-tandem transit. This simply reproduces the approach taken in the 2001-5 NCCs. As discussed in Section 3, local-tandem conveyance and local-tandem transit are in the same market, and regulation of one service should constrain the price of the other. As LTC forms the bulk of the market, Ofcom considers that LTC should be charge-controlled but that it is not necessary to control the charges for local-tandem transit.

4.48 It should be noted that this proposed move to a safeguard cap is predicated on the continuing commercial viability of direct interconnection at BTs local exchanges. It is this form of interconnection that allows other operators to enter the LTC market, by substituting conveyance provided over their own network for conveyance provided by BT. It is not yet clear precisely what form of local interconnection will be provided on 21CN, but Ofcom currently expects that some form of local interconnection will be made available, and that this will be an adequate replacement for the current form of local interconnection with BTs PSTN. This issue is under review as part of Ofcom's work on NGN interconnection. Without prejudice to the findings of a future review of the appropriate market definition and BT's market power after BT's 21CN is introduced, the availability of such a replacement form of local interconnection would be more consistent with the safeguard cap approach now being proposed than a scenario in which such local interconnection were not available.

Question 9: *Do you agree that local-tandem conveyance is increasingly competitive and therefore the setting of a 'safeguard' cap should provide sufficient protection for competing communications providers?*

Changes to charge control baskets

4.49 In the current charge controls of 2001-5, some of the charge control baskets cover multiple services. The requirement on BT is to reduce average prices for the products in each basket to meet controls set for the overall basket. Two of these baskets are:

- single transit (ST) and local-tandem conveyance/transit (LTC/LTT); and
- interconnection circuits (ISB services) and PPP.

4.50 The essential reason for that basket structure was that it was considered that the services in each combined basket shared similar competitive conditions. It therefore did not appear necessary to constrain unduly BT's pricing behaviour by having separate controls for each of the products in these baskets.

4.51 However, in practice, the way in which BT has priced these services indicates that competitive conditions were not as similar as expected. BT has reduced LTC prices but raised the prices of ST. Whilst Ofcom is proposing that only a safeguard control be imposed on LTC, were Ofcom instead proposing a modelled X for LTC, it would be on the basis of having ST and LTC in separate baskets, given the seemingly different levels of competition in providing the two services.

4.52 For PPP, Ofcom has already re-assessed (in July 2004)[19] the appropriate BT charge and applied limitations on it by imposing a sub-cap of RPI+0% on the revised PPP charge within the overall cap on ISB and PPP. The differing competitive conditions found for PPP and ISB services, as reflected in the decision to set a separate cap on

[19] http://www.ofcom.org.uk/consult/condocs/rev_bt_pm/statement/statement.pdf

PPP charges, imply that the combined basket for ISB and PPP is no longer appropriate. Ofcom therefore is proposing separate ISB and PPP caps for 2005-9.

4.53 Ofcom considers, however, that the ISB basket should however continue to comprise the same group of interconnection circuit services (see Annex 7), as the competitive conditions for these services are similar enough to justify one overall ISB control. It is also more practical in terms of charging and the monitoring of charges to have the charge control apply to services which are intrinsically serving the same purpose (ie interconnection). The net effect of this should be that communications providers purchasing many types of circuits would benefit from a relative reduction in the prices of some, even if they were to face relatively higher prices for others.

Question 10: *Do you agree that product management, policy and planning and interconnection circuits should be subject to separate controls?*

Different values of X for call origination and call termination

4.54 In the 2001-5 charge controls, Ofcom applied identical values of X to call origination and call termination. For the next charge controls, Ofcom proposes to set different values of X for these products, as shown in Table 4.1. The reason for the different modelled values of X is the difference in the starting level of BT's super-normal profits for these two services.

4.55 In principle, a single identical value of network 'X' could be applied to both services, as for the current NCCs, based on the inevitable uncertainties to which the modelling results are subject, and the fact that the two services use the same network components. This approach would increase the value of X for call origination and reduce the value of X for call termination.

4.56 However, the differences in the modelled values of X for the next charge controls are far more material than for the 2001-5 charge controls. On balance, therefore, Ofcom proposes to apply different values of X for call origination and call termination, but would welcome views on this approach.

Question 11: *Do you agree that it is appropriate to apply differing values of 'X' to call termination and call origination services given the differences in starting profitability?*

Proposed levels for the charge controls - values of X

4.57 In setting the values of 'X', Ofcom needs to consider a number of factors, including: the benefits of regulatory stability; the incentive properties of RPI-X regulation; the need to ensure that any forecast assumptions are reasonably derived from available data; and consumers' best interests. The 'X' factor also needs to ensure that BT is required to make real efficiency gains whilst ensuring sustainable competition. Ofcom has considered all of these factors in putting forward its proposals for the values of X.

4.58 Some of the inputs into modelling the values of X are not yet fully resolved. Ofcom has therefore applied a range of assumptions about the key variables that influence the values of X, and generated a range of values of X within which it proposes that the final values of X should be set for the 2005-9 charge controls. The outcome is shown in Table 4.1 below, alongside the 2001-5 charge controls.

Table 4.1 Current and proposed values of X

Service	Current controls 2001-5	Proposed controls 2005-9
Call termination	RPI – 10%	RPI - (2.25–6.25)%
Call origination	RPI – 10%	RPI - (0.5–4.5)%
Single transit	RPI – 13% for combined basket	RPI - (11–14)%
Local-tandem conveyance		Safeguard cap of RPI – 0%
Interconnection circuits (ISB)	RPI – 8.25% for combined basket; RPI + 0% sub-caps for each of ISB & PPP	RPI - (1.5–5.5)%
Product management, policy and planning (PPP)		RPI - (2.5–6.5)%
DLE FRIACO	RPI – 7.5%	RPI - (7.5–11.25)%
Single Tandem FRIACO	RPI – 8.75%	RPI - (8.5–12.25)%
Inter-tandem conveyance and Inter-tandem transit	Safeguard cap of RPI – 0%	No control as no SMP

Key factors affecting the values of X

4.59 It is notable that many of the values of X are proposed to be lower in the 2005-9 charge controls than for 2001-5. A full analysis of how Ofcom derived these ranges is provided in Annex 8, but to draw stakeholders' attention to some of the key factors affecting the values of X, paragraphs 4.60 to 4.71 below give a brief summary of the key inputs and assumptions used to derive Ofcom's ranges of X. In other words, those inputs and assumptions incorporate the most basic features of Ofcom's proposals on the values of X that it would ultimately wish to adopt.

Traffic volumes

4.60 Volumes of traffic on BT's network are a key factor in determining BT's profits. High economies of scale mean that as volumes rise, total revenues increase proportionately much more than total costs. The opposite effect on profits occurs when volumes fall.

4.61 In 2001-5, volumes were expected to rise, although they have in fact been a lot lower than forecast. For 2005-9, volumes are expected to fall, at an annual average of 4.5% for all traffic (including BT Retail traffic). This figure is based on extrapolating volume trends, plus other assumptions. Ofcom's overall estimate is broadly consistent with both BT's own view and those of third party analysts. Major factors in the volume decline are identified as movement of traffic onto mobile networks, and broadband substitution.

4.62 In modelling volumes, Ofcom has made some assumptions about the rate at which data traffic will migrate from narrowband to broadband. However, Ofcom is considering how far to take into account that migration. This will depend on the degree to which Ofcom expects BT to experience a rise in unit costs as a result of falling narrowband volumes. On the one hand, BT may experience 'economies of scope', as it can use some of the same (common) cost components in providing that traffic on a broadband basis. It is also the case that if broadband substitution were fully reflected in the narrowband forecast, BT would have an incentive to maximise the forecast amount of such substitution in order to get a lower X on the NCC and retail uplift controls. However, some of the migration to broadband will cause traffic to leave BT's network, for example to LLU providers, which would limit those economies of scope. The greater the economies of scope that BT can benefit from, the more those migrating volumes can be assumed to still be on BT's narrowband network for the purpose of modelling BT's unit costs. Ofcom has used a range of assumptions on these issues to adjust its volume forecast for BT, which are taken into account within the published ranges of X (as explained in Annex 8). As this can have a very material impact on the values of X, Ofcom would welcome stakeholders' views on the following issues:

- how far the same resources are used to provide narrowband and broadband wholesale services; and
- how far the traffic migrating from narrowband to broadband would be expected to leave BT's network, for example to LLU providers.

Question 12: *What are your views on Ofcom's projected volume growth forecasts as set out in Annex 8, and the proposed adjustment of modelled volumes to account for traffic migration to broadband?*

BT's starting profits

4.63 BT's profits at the start of the next charge controls are forecast to be much lower than they were for the corresponding controls in 2001. This is shown in Section 2 above. Lower values of X are therefore appropriate due to the lower level of BT's excess profit that needs to be addressed.

BT's efficiency

4.64 This measures the amount by which BT's capital and operational expenditure are expected to fall annually (after adjusting for the effect of volumes, input price changes and BT's catch-up for historical relative inefficiency). To calculate this, Ofcom has considered BT's historical reduction in unit costs (taking account of accounting adjustments to BT's financial data) and BT's efficiency relative to other companies (as assessed on Ofcom's behalf by NERA[20]). As a result, Ofcom projects BT's annual efficiency gain to be somewhere in the range of 2.5% to 4.5%. This range of efficiency values has contributed to the range of Xs proposed.

4.65 The accounting adjustments issue concerns a number of BT adjustments that have not been separately identified in BT's regulatory financial statements. All of these adjustments have reduced unit costs for core network components. BT has argued that when Ofcom is examining its historical reduction in real unit costs, some of the reduction is due to non-repeatable savings (e.g. rates rebate) rather than true efficiency gains. As a result BT wanted the adjustments to be re-instated so that the final year operational cost used to measure BT's efficiency was not artificially low.

[20] http://www.ofcom.org.uk/consult/condocs/charge/nera.pdf

4.66 Ofcom has reviewed all the proposed and processed accounting adjustments made by BT during the current charge control period, and has accepted a number of these adjustments as valid (ie they do not arise due to real efficiency gains), but two of the proposed adjustments are still being considered. These two elements together explain about £43m of the reduction in network costs. Ofcom believes that at least a proportion of this figure represents the way economies of scope are reflected in the accounts, and therefore a genuine efficiency gain. Ofcom will look further at these potential adjustments during the consultation period, but currently this unresolved issue is reflected in the efficiency range quoted above.

Cost of capital

4.67 The 2001-5 charge control used 13.5% as an estimate of the pre-tax nominal cost of capital of BT's regulated business. Ofcom is currently consulting on BT's cost of capital, including a consideration of whether the cost of capital should be disaggregated for different parts of BT's business[21]. Pending the resolution of that consultation, Ofcom's projected ranges of X include an allowance for a range of values for the cost of capital, and will incorporate the conclusion of that cost of capital consultation into its decision on network charge controls.

Cost basis for the NCCs

4.68 In previous charge control reviews, Oftel modelled the charge control on two different cost basis; Long Run Incremental Costs plus an Equal proportional Mark-up for common costs (LRIC+EPMU) and Current Cost Accounting with Fully Allocated Costs (CCA FAC). The final charges were based on LRIC+EPMU. In this consultation, Ofcom has calculated values of X based on both methods, and the final values of X selected within the ranges on which Ofcom is consulting will vary partly on the basis of which cost basis is chosen.

4.69 CCA FAC and LRIC+EPMU are two different ways of apportioning common costs, neither of which is a technically superior to the other. LRIC+EPMU has been preferred in the past, and has the advantage that it is consistent with the basis used in NCCs since 1997. The disadvantage of LRIC+EPMU is that it involves a time consuming operation which BT carries out on an irregular basis, usually in developing price controls. Ofcom has little visibility of how BT generates these costs from its LRIC model, and this extra iteration by BT's of its financial data is not subject to external audit scrutiny. Performance monitoring on a LRIC basis against BT's actual financial performance is not straightforward, as routinely prepared wholesale service profitability information is prepared on a CCA FAC basis. By contrast, CCA FAC uses data that can be reconciled to the regulatory financial statements, which have been audited and are in the public domain.

4.70 The actual LRIC+EPMU results were not found to be materially different from CCA FAC in the 2001 NCC review. BT has previously argued this point as a reason to use CCA FAC data in setting charge controls. However, the LRIC+EPMU figures initially supplied by BT for setting the next NCCs assumed methodological changes to BT's LRIC model which Ofcom believes are not economically justified. This meant that BT's core network costs were materially overstated. In order to produce an appropriate LRIC+EPMU data, Ofcom asked BT to adjust and re-run the LRIC+EPMU model. BT has not yet been able to perform this time-consuming task.

4.71 So far, Ofcom has been using CCA FAC data in its charge control modelling. BT estimates that the adjusted LRIC+EPMU data will be around 1.6% higher than the

[21] http://www.ofcom.org.uk/consult/condocs/cost_capital/condoc.pdf

CCA FAC data. To allow for the possibility of moving to LRIC+EPMU data for the purpose of determining final charge controls, Ofcom has inflated the CCA FAC data by 1.6% and reflected this adjustment in the range of Xs on which Ofcom is consulting. Using that 1.6% proxy for LRIC+EPMU costs would reduce the values by about 0.5%.

Question 13: *Should Ofcom move from LRIC+EPMU to CCA FAC as the cost basis for determining the NCC, even though it would be inconsistent with the precise methodology by which common costs were recovered in previous NCC reviews?*

Proposed change to charge notification period for local-tandem conveyance

4.72 Ofcom proposes that its market analysis for local-tandem conveyance also suggests a need to consider the appropriateness of the current requirement on BT to notify charges, terms and conditions for LTC.

4.73 Notification of changes to services at the wholesale level can assist competition by giving advanced warning of charge changes to competing providers purchasing wholesale access services. This is important to ensure that competing providers have sufficient time to plan for such changes, as they may want to restructure retail prices in response to charge changes at the wholesale level. Notification of changes therefore helps to ensure stability in markets and without it, incentives to invest might be undermined and market entry made less likely.

4.74 Notification of charges has certain disadvantages, particularly in markets where there is some competition. It can lead to a 'chilling' effect where other communications providers follow BT's prices rather than act dynamically to set competitive prices. On balance, however, Ofcom does not consider that this consideration undermines the imposition of this obligation. In markets where SMP remains persistent, there is a high level of reliance by competitors on the provision of access services to enable them to compete. It is possible, however, to reflect the development of competition in adjusting the notification period for particular markets.

4.75 Where competition has started to develop, Ofcom considers that 28 days is a sufficient notification period. Ofcom now proposes that there is a sufficiently competitive position in the market for local-tandem conveyance and transit on fixed public narrowband networks (in the UK excluding the Hull area). Consequently, Ofcom proposes to amend the relevant SMP services condition to reduce the notification period for BT's local-tandem conveyance service to 28 days. For all other markets in which BT has been found to have SMP (plus interconnection circuits and PPP), the 90 day notification period will remain unchanged.

Question 14: *Do you agree that local-tandem conveyance is increasingly competitive and therefore it is appropriate to reduce the prior notification period that BT should be required to give before proposing to change charges, terms or conditions to twenty-eight days?*

Other proposals on BT's obligations

4.76 Ofcom is using the opportunity of this document's publication to propose changes that would affect BT's obligations in several areas:

- an update to the FRIACO adjustment ratio;

- a surcharge to provide for BT cost recovery for an NTS-related change to BT's billing system; and
- minor changes to SMP conditions on notification and undue discrimination.

4.77 A number of other issues are also described below that arose in Ofcom's discussions with stakeholders, but for which Ofcom does not propose to make any changes to the structure of the NCCs.

FRIACO adjustment ratio

4.78 The FRIACO Adjustment Ratio (FRIACO AR) measures the average number of circuits per FRIACO port. It is used in setting the regulated charge for FRIACO. The FRIACO AR has been adjusted periodically, most recently in November 2004[22]. At that time Ofcom committed to updating the calculation of the FRIACO AR as part of the NCC consultation process. Ofcom has collected further data from BT to enable it to update this ratio.

4.79 Ofcom proposes that the value of the AR for DLE FRIACO should be reduced from 1.78 to 1.70, the latter figure constituting the best estimate on the basis of the data available. The estimation of this value is described in detail in Annex 9. The effect of this is a marginal increase in the modelled values of X for DLE FRIACO. Ofcom proposes that the values of the ARs for ST FRIACO should remain unchanged (see Annex 9).

4.80 In Annex 9, Ofcom discusses alternatives for how frequently the AR should be reviewed, from an annual basis to a review co-ordinated with reviewing the NCCs. The arguments surround certainty of charging and representativeness of the current AR calculations. Ofcom would welcome views on this issue.

Question 15: *Does the Adjustment Ratio for DLE FRIACO need to be reviewed annually or should it be fixed at the proposed value for the duration of the charge control?*

Surcharge for NTS billing cost recovery

4.81 In October 2004, Ofcom made a Direction[23] relating to the method used by BT to calculate its wholesale conveyance charges for Number Translation Services (NTS) calls which originate on or transit the BT network for termination on NTS numbers of other Terminating Communications Providers. This Direction placed an obligation on BT to change its billing system. In relation to BT's charge for recovery of its additional set-up and on-going costs in completing this work, the Direction said that these costs should be recovered from all NTS operators, including BT itself, should take the form of a pence per minute ("ppm") surcharge to BT's existing NTS conveyance charges, and discussed that the charge would be set within the NCC Review.

4.82 BT has provided information regarding the costs of implementing INCA-CLI, specifying set-up costs of £1.3 million and ongoing annual costs of £0.33 million. With a recovery period of five years, and spreading the costs over all NTS minutes as specified in the above Direction, Ofcom has calculated a surcharge of 0.0014ppm in each of the five years from 2005/6. This surcharge is an addition to any charges that BT is allowed to make under Condition AA11.

[22] http://www.ofcom.org.uk/consult/condocs/dle_friaco/statement/DLE_FRIACO.pdf
[23] http://www.ofcom.org.uk/consult/condocs/inca_cli_nts/final_dec/inca_cli_finaldirection.pdf

4.83 Ofcom has considered whether there is a need to impose a further Direction to impose this charge. Given BT's obligation is already described by the above DIrection, and given the level of the surcharge, Ofcom does not consider it necessary at this stage to impose a further Direction. Instead, Ofcom will monitor BT's charges to ensure compliance with the Direction.

Minor amendments to notification and undue discrimination conditions

4.84 Ofcom proposes to amend SMP Conditions AA6(a), AA6(b) and BA6 to make it clear that the obligations on BT to give prior notification of amendments to its reference offer, the charges, terms and conditions for Network Access (including the charges and terms and conditions for new Network Access) and technical information do not apply where such amendments have been directed or determined by Ofcom. The reason for this proposed amendment is to avoid a situation where important changes are unnecessarily delayed, to the possible detriment of competition and the interests of consumers.

4.85 Ofcom proposes to delete a specific provision in SMP Conditions AA2 and BA2. This provision was intended only to be a specific example of how the undue discrimination obligation in SMP Conditions AA2 and BA2 would apply in practice. Ofcom intends to consult on guidelines on interpreting non-discrimination regulatory requirements in Spring 2005. To avoid confusion in the meantime, Ofcom therefore considers it appropriate to remove the specific example of undue discrimination given in SMP Conditions AA2 and BA2. The substance of the undue discrimination obligation, however, remains unaltered.

Two-part charging

4.86 At present, most of BT's interconnection charges are set on a pence per minute basis and these charges cover both the costs incurred in setting up the call and those incurred for its duration. However, some costs vary with the number of calls rather than call minutes. Two-part charging is intended to reflect call set-up as well as call minute-related costs more closely. At present, charges for long duration calls tend to be in excess of costs, whilst those of short duration calls may be below cost.

4.87 Some of BT's competitors favour two-part charging but others do not. A mix of views would be expected: those with a traffic profile with longer than average call durations should tend to favour two-part charging, and vice versa. In the past, BT has rejected requests for two-part charging, in the absence of an industry consensus.

4.88 Oftel considered the case for two-part charging on a number of occasions. It generally found little interest from operators. When it last examined the issue, in September 2003, it found that £12m of costs of introducing two-part charging were likely to outweigh benefits of about £5m over a five year period. Ofcom shares BT's view that, given the pending move from PSTN to 21CN interconnection products, the argument for adopting two-part charging as a basis for the next NCCs is now even less persuasive. Ofcom has therefore not proposed to incorporate two-part charging into the NCC regime.

Capacity-based charging

4.89 Another alternative to pence per minute charges would be one based on the amount of capacity in the network used by a customer. FRIACO represents a form of capacity-based charging for narrowband internet traffic, and some providers expressed a

potential desire for such a system for wholesale voice traffic, reflecting the development of retail tariffs that include unmetered voice calls.

4.90 Ofcom considers that the pending move from PSTN to 21CN interconnection products also is a good argument for not devoting extras resources to the development of a capacity-based charging system as a basis for the next NCCs. Ofcom has expressed, in informal discussions with stakeholders, the view that those wanting such a product should request it from BT under normal procedures. Ofcom also notes that the absence of such a product at wholesale level has not prevented the sale of flat-rate products at the retail level.

Time of day gradient

4.91 The network time of day gradient describes how BT's wholesale charges vary according to the time of day. It therefore affects the charges that BT makes for NCC services. Oftel's network charge control guidelines stated that it would expect the network charge control gradient to be "directly coupled to that for retail prices where appropriate". This was to avoid possible margin squeezes which might arise if there were significant differences in the retail and network gradients.

4.92 This linkage can restrict the efficiency of the network tariff gradient as a peak-load pricing mechanism, since there are different traffic profiles (particularly for certain operators) and demand elasticities at the retail and network levels. Some of BT's competitors have expressed concern about the transparency of the retail time of day gradient, and Ofcom has suggested to BT that it provide clarification of how the retail gradient is calculated.

4.93 However, the modelling of the NCCs does not depend on differences in costs or charges by time of day, so that modelling has progressed separately. The issue of the tariff gradient applied to more services than those covered by the NCCs, so should also be considered separately for that reason. Ofcom hopes that greater clarity about the retail tariff gradient calculation will address operators' concerns.

'Three to two tier' charging

4.94 BT has suggested that DLE and Single Tandem charge elements should be at least partially converged during the next charge control period, as a result of moving to a new network architecture. It argues that the current three tiers of interconnection (DLE, single tandem, double tandem) will, as the 21CN is introduced, become two tiers (single metro node, double metro node), and that the single metro node element would be charged somewhere between the current DLE and single tandem charges. The proposed justification for this is that charges would be more cost oriented at the end of the next charge control period.

4.95 However, Ofcom does not believe that it would be appropriate to adjust charges to allow for such convergence during the next NCCs. Firstly, the 21CN interconnection products are not in the markets as defined and on which the proposed charge controls are based. Secondly, a movement to two tiers represents a BT assumption that no interconnection would be available at multi-service access nodes (MSANs) in the 21CN, but the issue of MSAN interconnection is still a matter of discussion with Ofcom. Ofcom therefore does not propose to adjust its NCC controls on the bases of this BT proposal.

Legal implementation of the proposals

4.96 In Annex 5, Ofcom publishes formal Notifications of proposals:

- to revoke all SMP services conditions, and to disapply a direction on credit vetting, in so far as they apply to the market for inter-tandem conveyance and transit;
- to set new charge control conditions on all of the services currently covered by the network charge control regime, except for inter-tandem conveyance and transit;
- to modify the notification period condition for local-tandem conveyance;
- to re-set, unamended, all other obligations relating to SMP in local-tandem conveyance;
- to modify the SMP services condition that specifies the value of the DLE FRIACO adjustment ratio; and
- to make minor changes to notification and undue discrimination conditions.

4.97 In Annex 6, Ofcom provides further justification for these proposed legal changes, including assessments of how Ofcom believes its proposals address the relevant legal tests.

4.98 When Ofcom has considered representations made within the period to 1 June 2005, including any made by the European Commission or other NRAs, it may give effect to its proposals, with or without modifications, by identifying markets, making market power determinations and setting conditions. Ofcom will do this by publishing further Notifications accompanied by a final Explanatory Statement.

A note on fixed call termination obligations for providers other than BT

4.99 As Ofcom is considering the call termination charge controls for BT, it is a useful opportunity to re-confirm the corresponding obligations on other communications providers concerning their own charges for fixed call termination. Fixed geographic call termination has been assessed to be an enduring bottleneck, with each communications provider having SMP in the provision of the service to each other. The reasons for this were set out in the statement entitled Review of fixed geographic call termination markets, published in November 2003[24].

4.100 In the absence of regulation, communications providers would have incentives to set charges in excess of their costs in terminating calls. For this reason, Ofcom believes that all communications providers should meet all reasonable requests to terminate fixed geographic calls, and do so on fair and reasonable terms, conditions and charges. In the event of a dispute, Ofcom would need to decide whether the terms, conditions and charges were fair and reasonable.

4.101 In the Review of fixed geographic call termination markets, it was explained that charges set on the basis of BT's costs would:

- ensure that the terminating communications providers could not set excessive charges; and
- encourage terminating communications providers to become increasingly efficient in the provision of fixed geographic call termination services.

4.102 However, the legal obligation (SMP services condition BC1) only requires communications providers to set "fair and reasonable" charges. It does not state that their charges have to be based on BT's. Nonetheless, in interrelationships with BT, Ofcom believes that charges that were not based on BT's might not be "fair and

[24] See http://www.ofcom.org.uk/consult/condocs/narrowband_mkt_rvw/Eureviewfinala1.pdf

reasonable". BT might be required to pay more for call termination on another communication provider's network than it received from that provider for call termination on its own network. Ofcom does not believe that this would be competitively neutral. Ofcom therefore encourages communications providers to reach commercially negotiated reciprocal charging agreements with BT, reflecting the new termination charge control on BT, effective from 1 October 2005. For interrelationships with communications providers other than BT, charges do not necessarily have to be based on BT's costs, but BT's costs could be used as a reasonable proxy.

Question 16: *Do you have any other comments on Ofcom's proposals regarding BT's SMP remedies, including charge controls, as contained in this document?*

Section 5

Conclusions and next steps

5.1 Ofcom is proposing in this document a number of changes to regulation, including:

- the removal of BT's SMP obligations in the market for inter-tandem conveyance and inter-tandem transit in the UK (excluding the Hull Area); and
- new NCCs for four years, from 1 October 2005, for all other services currently subject to NCCs, including moving to a safeguard charge control of RPI-0% on BT for local-tandem conveyance services.

5.2 Ofcom will now formally consult on these proposals until 1 June 2005. The procedures for formal consultation are explained in Section 6 below. When Ofcom has considered representations made within the period to 1 June 2005, including any made by the European Commission, it may give effect to its proposals, with or without modifications. Ofcom will do this by publishing further Notifications accompanied by a final Explanatory Statement. Ofcom expects to publish its final conclusions by the end of July 2005.

5.3 As stated in Section 4, Ofcom is consulting on a range of values for charge controls, because some relevant issues are still being resolved. Many of these issues are necessarily complex, and therefore Ofcom would welcome comments from stakeholders on these issues, on an informal basis, during the 10-week consultation period, with a view to achieving a timely decision following the conclusion of the formal consultation. If you would like to participate in this way, please contact Nic Green, on 020 7783 4154 or at nic.green@ofcom.org.uk.

Section 6

Responding to this consultation

How to respond

Ofcom invites written views and comments on the issues raised in this document, to be made by **5pm on 1 June 2005.**

Ofcom strongly prefers to receive responses as e-mail attachments, in Microsoft Word format, as this helps us to process the responses quickly and efficiently. We would also be grateful if you could assist us by completing a response cover sheet (see Annex 2), among other things to indicate whether or not there are confidentiality issues. The cover sheet can be downloaded from the 'Consultations' section of our website.

Please can you send your response to nic.green@ofcom.org.uk

Responses may alternatively be posted or faxed to the address below, marked with the title of the consultation.

Nic Green
Competition and Markets
4th Floor
Ofcom
Riverside House
2A Southwark Bridge Road
London SE1 9HA

Fax: 020 7783 4109

Note that we do not need a hard copy in addition to an electronic version. Also note that Ofcom will not routinely acknowledge receipt of responses.

It would be helpful if your response could include direct answers to the questions asked in this document, which are listed together at Annex 3. It would also help if you can explain why you hold your views, and how Ofcom's proposals would impact on you.

Further information

If you have any want to discuss the issues and questions raised in this consultation, or need advice on the appropriate form of response, please contact Nic Green on 020 7783 4154.

Confidentiality

Ofcom thinks it is important for everyone interested in an issue to see the views expressed by consultation respondents. We will therefore usually publish all responses on our website, www.ofcom.org.uk. We will do this on receipt of responses, unless respondents request otherwise on their response cover sheet.

All comments will be treated as non-confidential unless respondents specify that part or all of the response is confidential and should not be disclosed. Please place any confidential parts of a response in a separate annex, so that non-confidential parts may be published along with the respondent's identity.

Ofcom reserves its power to disclose any information it receives where this is required to carry out its functions. Ofcom will exercise due regard to the confidentiality of information supplied.

Please also note that copyright and all other intellectual property in responses will be assumed to be licensed to Ofcom to use, to meet its legal requirements. Ofcom's approach on intellectual property rights is explained further on its website, at www.ofcom.org.uk/about_ofcom/gov_accountability/disclaimer.

Next steps

Following the end of the consultation period, Ofcom intends to publish a statement by the end of July 2005.

Please note that you can register to get automatic notifications of when Ofcom documents are published, at http://www.ofcom.org.uk/static/subscribe/select_list.htm.

Ofcom's consultation processes

Ofcom is keen to make responding to consultations easy, and have published some consultation principles (see Annex 1) which it seeks to follow, including on the length of consultations.

If you have any comments or suggestions on how Ofcom conducts its consultations, please call our consultation helpdesk on 020 7981 3003 or e-mail us at consult@ofcom.org.uk. We would particularly welcome thoughts on how Ofcom could more effectively seek the views of those groups or individuals, such as small businesses or particular types of residential consumers, whose views are less likely to be obtained in a formal consultation.

If you would like to discuss these issues, or Ofcom's consultation processes more generally, you can alternatively contact Philip Rutnam, Partner, Competition and Strategic Resources, who is Ofcom's consultation champion:

Philip Rutnam
Ofcom
Riverside House
2A Southwark Bridge Road
London SE1 9HA
Tel: 020 7981 3585
Fax: 020 7981 3333
E-mail: philip.rutnam@ofcom.org.uk

Annex 1

Ofcom's consultation principles

Ofcom have published the following seven principles that it will follow for each public written consultation:

Before the consultation

1. Where possible, we will hold informal talks with people and organisations before announcing a big consultation to find out whether we are thinking in the right direction. If we do not have enough time to do this, we will hold an open meeting to explain our proposals shortly after announcing the consultation.

During the consultation

2. We will be clear about who we are consulting, why, on what questions and for how long.

3. We will make the consultation document as short and simple as possible with a summary of no more than two pages. We will try to make it as easy as possible to give us a written response. If the consultation is complicated, we may provide a shortened version for smaller organisations or individuals who would otherwise not be able to spare the time to share their views.

4. We will normally allow ten weeks for responses to consultations on issues of general interest.

5. There will be a person within Ofcom who will be in charge of making sure we follow our own guidelines and reach out to the largest number of people and organisations interested in the outcome of our decisions. This individual (who we call the consultation champion) will also be the main person to contact with views on the way we run our consultations.

6. If we are not able to follow one of these principles, we will explain why. This may be because a particular issue is urgent. If we need to reduce the amount of time we have set aside for a consultation, we will let those concerned know beforehand that this is a 'red flag consultation' which needs their urgent attention.

After the consultation

7. We will look at each response carefully and with an open mind. We will give reasons for our decisions and will give an account of how the views of those concerned helped shape those decisions.

Annex 2

Consultation response cover sheet

In the interests of transparency, we will publish all consultation responses in full on our website, www.ofcom.org.uk, unless a respondent specifies that all or part of their response is confidential. We will also refer to the contents of a response when explaining our decision, without disclosing the specific information that you wish to remain confidential.

We have produced a cover sheet for responses (see below) and would be very grateful if you could send one with your response. This will speed up our processing of responses, and help to maintain confidentiality by allowing you to state very clearly what you don't want to be published. We will keep your completed cover sheets confidential.

The quality of consultation can be enhanced by publishing responses before the consultation period closes. In particular, this can help those individuals and organisations with limited resources or familiarity with the issues to respond in a more informed way. Therefore Ofcom would encourage respondents to complete their cover sheet in a way that allows Ofcom to publish their responses upon receipt, rather than waiting until the consultation period has ended.

We strongly prefer to receive responses in the form of a Microsoft Word attachment to an email. Our website therefore includes an electronic copy of this cover sheet, which you can download from the 'Consultations' section of our website.

Please put any confidential parts of your response in a separate annex to your response, so that they are clearly identified. This can include information such as your personal background and experience. If you want your name, address, other contact details, or job title to remain confidential, please provide them in your cover sheet only so that we don't have to edit your response.

Cover sheet for response to an Ofcom consultation

BASIC DETAILS

Consultation title: Review of BT's network charge controls

To (Ofcom contact):

Name of respondent:

Representing (self or organisation/s):

Address (if not received by email):

CONFIDENTIALITY

What do you want Ofcom to keep confidential?

Nothing	☐	Name/contact details/job title	☐
Whole response	☐	Organisation	☐
Part of the response	☐	If there is no separate annex, which parts?	

If you want part of your response, your name or your organisation to be confidential, can Ofcom still publish a reference to the contents of your response (including, for any confidential parts, a general summary that does not disclose the specific information or enable you to be identified)?

DECLARATION

I confirm that the correspondence supplied with this cover sheet is a formal consultation response. It can be published in full on Ofcom's website, unless otherwise specified on this cover sheet, and I authorise Ofcom to make use of the information in this response to meet its legal requirements. If I have sent my response by email, Ofcom can disregard any standard e-mail text about not disclosing email contents and attachments.

Ofcom seeks to publish responses on receipt. If your response is non-confidential (in whole or in part), and you would prefer us to publish your response only once the consultation has ended, please tick here. ☐

Name Signed (if hard copy)

Annex 3

Consultation questions

Question 1: *Do you agree that the NCC regime has been generally successful as a means of effective regulation of BT's wholesale narrowband interconnection charges?*

Question 2: *Do you agree that the relevant market for consideration is the national market for local-tandem conveyance and transit on fixed public narrowband networks in the UK excluding the Hull area?*

Question 3: *Do you agree with Ofcom's provisional conclusion that BT has SMP in the national market for local-tandem conveyance and transit on fixed public narrowband networks?*

Question 4: *Do you agree that the relevant market for consideration is the national market for inter-tandem conveyance and transit on fixed public narrowband networks in the UK excluding the Hull area?*

Question 5: *Do you agree with Ofcom's provisional conclusion that BT does not have SMP in the national market for inter-tandem conveyance and transit on fixed public narrowband networks?*

Question 6: *Do you agree with Ofcom's chosen approach – the technology neutral model – in developing the charge controls proposed in this document?*

Question 7: *Do you agree that it is appropriate to set the next NCCs to last for four years?*

Question 8: *Do you agree with Ofcom's proposed approach to efficiency as regards BT's 21CN in proposing these charge controls?*

Question 9: *Do you agree that local-tandem conveyance is increasingly competitive and therefore the setting of a 'safeguard' cap should provide sufficient protection for competing communications providers?*

Question 10: *Do you agree that product management, policy and planning and interconnection circuits should be subject to separate controls?*

Question 11: *Do you agree that it is appropriate to apply differing values of 'X' to call termination and call origination services given the differences in starting profitability?*

Question 12: *What are your views on Ofcom's projected volume growth forecasts as set out in Annex 8, and the proposed adjustment of modelled volumes to account for traffic migration to broadband?*

Question 13: *Should Ofcom move from LRIC+EPMU to CCA FAC as the cost basis for determining the NCC, even though it would be inconsistent with the precise methodology by which common costs were recovered in previous NCC reviews?*

Question 14: *Do you agree that local-tandem conveyance is increasingly competitive and therefore it is appropriate to reduce the prior notification period that BT should be required to give before proposing to change charges, terms or conditions to twenty-eight days?*

Question 15: *Does the Adjustment Ratio for DLE FRIACO need to be reviewed annually or should it be fixed at the proposed value for the duration of the charge control?*

Question 16: *Do you have any other comments on Ofcom's proposals regarding BT's SMP remedies, including charge controls, as contained in this document?*

Annex 4

Legal and Regulatory Framework

Introduction

A4.1 This Annex sets out the relevant main provisions of the legal and regulatory framework that applies to issues considered in this Explanatory Statement. In particular, the following is covered below:

- generally about the framework under the EC Communications Directives;
- the implementing UK legislation, the Communications Act 2003;
- the procedures and the three stages for market reviews;
- the reasons why ex ante regulation is needed as opposed to relying on competition law remedies;
- Ofcom's statutory Notifications of its proposals;
- Impact Assessments; and
- the key features and legal basis of the charge control regime.

A4.2 Sections 3 to 4 of this Explanatory Statement deal, in effect, with the substantive application of those main provisions to Ofcom's considerations set out in this document.

A4.3 There is a key distinction to be drawn between Ofcom's treatment of the five different markets considered in this document. Two of those markets (inter-tandem conveyance and transit, and local-tandem conveyance and transit) are defined and analysed in the same depth as previous market reviews (see Section 3 above). For the other three markets (call origination, single transit, call termination), Ofcom is satisfied that there has not been a material change to those markets that would justify more extensive analysis in this document (see Annex 7).

The Framework under the EC Communications Directives

A4.4 A new regulatory framework for electronic communications networks ("**ECN**") and electronic communications services ("**ECS**"), associated facilities and associated services entered into force on 25 July 2003. The framework is designed to create harmonised regulation across the European Community ("**EC**") and is aimed at reducing entry barriers and fostering prospects for effective competition to the benefit of consumers.

A4.5 The new regulatory framework adopted by the European parliament and the Council in 2002 is established by the following five EC Communications Directives:

- Directive 2002/21/EC on a common regulatory framework for electronic communications networks and services (the "**Framework Directive**");
- Directive 2002/19/EC on access to, and interconnection of, electronic communications networks and associated facilities (the "**Access and Interconnection Directive**");
- Directive 2002/20/EC on the authorisation of electronic communications networks and services (the "**Authorisation Directive**");

- Directive 2002/22/EC on universal service and users' rights relating to electronic communications networks and services , (the "**Universal Service Directive**"); and
- Directive 2002/58/EC concerning the processing of personal data and the protection of privacy in the electronic communications sector (the "**Privacy Directive**").

A4.6 The Framework Directive provides the overall structure for the new regulatory regime and sets out fundamental rules and objectives which read across all five Directives.

A4.7 Article 8 of the Framework Directive sets out three key policy objectives which have been taken into account in the preparation of this document, namely promotion of competition, development of the internal market and the promotion of the interests of the citizens of the European Union.

A4.8 The Access and Interconnection Directive sets out the terms on which providers may access each others' networks and services with a view to providing publicly available electronic communications services.

A4.9 The Authorisation Directive establishes a new system whereby any person will be generally authorised to provide electronic communications services and/or networks without prior approval. Authorisation systems, such as individual or class licences, involving explicit decisions or administrative acts by a national regulatory authority ("**NRA**"), such as Ofcom, permitted under the previous EC Directives adopted in 1997 are now prohibited. That said, an NRA may impose on ECN and ECS providers specific obligations permitted under the EC Communications Directives, such as obligations on operators designated as having significant market power ("**SMP**") specified in the Access and Interconnection Directive.

A4.10 The Universal Service Directive defines a basic set of services that must be provided to end-users.

A4.11 The Privacy Directive establishes users' rights with regard to the privacy of their communications.

The Communications Act 2003

A4.12 The EC Communications Directives (apart from the Privacy Directive, which was implemented by regulations that came into force on 11 December 2003) were implemented in the UK by the Communications Act 2003 (the "**2003 Act**") with effect from (and including) 25 July 2003.

A4.13 In particular, Part 2 of the 2003 Act sets out the majority of that Act's provisions that implement the EC Communications Directives. Sections 32, 45-50, and 78-90 of that Part are of particular importance. In addition, Ofcom is required to act in accordance with its general and specific duties in sections 3 and 4 of the 2003 Act, respectively.

A4.14 Under section 3, Ofcom must, in carrying out its functions, further the interests of citizens in relation to communications matters and the interests of consumers in relevant markets, where appropriate by promoting competition. As to the latter, Ofcom must have regard, in particular, to the interests of those consumers in respect of choice, price, quality of service and value for money. This corresponds to the policy objective in Article 8(2) of the Framework Directive where competition

shall be promoted by inter alia ensuring that users (including disabled users) derive maximum benefit in terms of choice, price and quality.

A4.15 The three key policy objectives under that Article 8 have been set out above. NRAs must take all reasonable measures which are aimed at achieving them. This has been implemented in section 4 of the 2003 Act by requiring that Ofcom acts in accordance with the six Community requirements set out in this section. Where it appears to Ofcom that its general duties conflict with its section 4 duties, priority must be given to the latter.

A4.16 From 25 July 2003 until 29 December 2003, the Director General of Telecommunications and his office, the Office of Telecommunications ("**Oftel**") carried out the functions and responsibilities under the 2003 Act relating to the EC Communications Directives. On 29 December 2003, Ofcom took over those functions and responsibilities, and it assumed the powers of the five former regulators it has replaced, including Oftel.

The Market Reviews

A4.17 The EC Communications Directives require NRAs to carry out reviews of competition in communications markets to ensure that regulation remains appropriate and proportionate in the light of changing market conditions.

A4.18 The markets reviewed in this Explanatory Statement were first reviewed in 2003 by Oftel (see further below as to the current market definitions).

A4.19 Each market review has three stages, namely:

- definition of the relevant market or markets;
- assessment of competition in each market, in particular whether any undertakings have SMP in a given market; and
- assessment of appropriate regulatory obligations where there has been a finding of SMP.

A4.20 These three stages will be considered, in turn, below. But more detailed requirements and guidance concerning the conduct of market reviews are provided in the EU Communications Directives, the 2003 Act and in additional documents issued by the European Commission. As required by the new regime, in conducting this review, Ofcom have taken the utmost account of the two European Commission documents discussed below.

Market Definition Stage

General

A4.21 The first market review stage concerns the identification of a services market (i.e. market definition). Section 79(1) of the 2003 Act provides that before a market power determination may be considered, Ofcom must identify the market which is, in its opinion, the one which, in the circumstances of the United Kingdom, is the market in relation to which it is appropriate to consider making such a determination and to analyse that market. The procedure for market definitions (known as 'services market identifications' under the 2003 Act) is set out mainly in Article 15 of the Framework Directive and sections 78 to 86 of the 2003 Act.

A4.22 Article 15(3) of the Framework Directive requires that NRAs shall, taking the utmost account of two documents published by the European Commission, define the relevant markets appropriate to national circumstances, in particular relevant geographic markets within their territory, in accordance with the principles of competition law. These two documents will be considered in turn.

The Recommendation on relevant product and service markets

A4.23 The European Commission has identified in its first recommendation[25] on relevant product and service markets, adopted on 11 February 2003 (the "**Recommendation**") in accordance with Article 15(1) of the Framework Directive, a set of product and service markets within the electronic communications sector, in which ex ante regulation may be warranted.

A4.24 The Recommendation seeks to promote harmonisation across the EC by ensuring that the same markets are subject to a market analysis in all the Member States.

A4.25 However, as the above-mentioned Article 15(3) makes it clear, NRAs are able to regulate markets that differ from those identified in the Recommendation where this is justified by national circumstances and where the Commission does not raise any objections under Article 7(4) of the Framework Directive. Accordingly, NRAs are to define relevant markets appropriate to national circumstances, provided that they take due account of the markets listed in the Recommendation. This obligation has been imposed on Ofcom under section 79(2) of the 2003 Act.

A4.26 According to Article 15(1) of the Framework Directive, the European Commission shall regularly review its Recommendation. Before adopting a new Recommendation, the European Commission must consult publicly as well as with the NRAs. It stated in its first Recommendation that it would review the need for any update no later than 30 June 2004 on the basis of market developments.

A4.27 However, on 16 June 2004, the European Commission issued a press release stating that, rather than launching a review of the Recommendation at that stage, it had decided to "reschedule the date for the launch of such a review until the end of 2005". Its reasons for delaying the review were, firstly, that a significant number of Member States had not even transposed the EC Communications Directives; secondly, many Member States had yet to complete the first round of requisite market analyses; thirdly, the pace of change in the markets for electronic communication was not such that an early review would appear justified; and, fourthly, launching a review could lead to substantial disruption for the NRAs and increase the level of uncertainty related to regulatory intervention.

A4.28 Until such a review has been concluded, the European Commission's 18 product and service markets listed in the Annex to the current Recommendation, which it has identified and recommended that NRAs should analyse, are the relevant markets that Ofcom must consider.

[25] Commission Recommendation of 11 February 2003 on relevant product and service markets within the electronic communications sector susceptible to ex ante regulation in accordance with Directive 2002/21/EC of the European Parliament and of the Council on a common regulatory framework for electronic communication networks and services, (2003/311/EC), OJ L 114/45, 8.5.2003.

Guidelines for market analysis and the assessment of SMP

A4.29 The second document is guidelines[26] for market analysis and the assessment of SMP (the "**SMP Guidelines**") published, in accordance with Article 15(2) of the Framework Directive, by the European Commission in July 2002.

A4.30 As noted above, Ofcom is also required under the said Article 15(3) (as implemented in section 79(2) of the 2003 Act) to take the utmost account of the SMP Guidelines when identifying a services market (see further below for the market analysis (SMP) stage).

A4.31 Oftel published its own additional guidelines on the criteria to assess effective competition, which can be found at http://www.ofcom.org.uk/static/archive/oftel/publications/about_oftel/2002/smpg0802.htm. These supplement the SMP Guidelines and have been taken into account by Ofcom, where appropriate.

Ofcom's approach to services market identifications

A4.32 There are two dimensions to the definition of a relevant market:

- the relevant products to be included in the same market; and
- the geographic extent of the market.

A4.33 In defining the markets in accordance with the principles of competition law, Ofcom's approach to service market identifications follows, to start with, that used by UK competition authorities (see, for instance, the competition law guideline by the Office of Fair Trading ("**OFT**") entitled '*Market Definition – Understanding competition law*', December 2004, that can be found at: http://www.oft.gov.uk/NR/rdonlyres/972AF80C-2D74-4A63-84B3-27552727B89A/0/OFT403.pdf) and is in line with those used by European and US competition authorities.

A4.34 Market boundaries are determined by identifying constraints on the price-setting behaviour of firms. There are two main competitive constraints to consider: how far it is possible for customers to substitute other services for those in question (i.e. demand side substitution); and how far suppliers could switch, or increase, production to supply the relevant products or services (i.e. supply-side substitution) following a price increase.

A4.35 In this assessment, supply side substitution will be considered as a low cost form of entry, which could take place within a relatively short period of time. The OFT states, in its above-mentioned OFT Market Definition guideline, the relatively short period to be within a year. That is, for supply side substitution to be relevant, there would need to be additional competitive constraints arising from entry into the supply of the service in question, from suppliers who are able to enter quickly and at low cost, by virtue of their existing position in the supply of other services. As discussed below, only those supply side substitution possibilities that are viable in the absence of unregulated wholesale inputs will be considered as relevant to the analysis.

A4.36 The concept of the 'hypothetical monopolist test' is a useful tool to identify close demand side and supply side substitutes. A product is considered to constitute a separate market if a hypothetical monopoly supplier could impose a small but significant, non-transitory price increase ("**SSNIP**") above the competitive level

[26] Commission guidelines on market analysis and the assessment of significant market power under the Community regulatory framework for electronic communications networks and services, (2002/C 165/03), OJ C 165/6, 11.7.2002.

without losing sales to such a degree as to make this unprofitable. If such a price rise would be unprofitable, because consumers would switch to other products, or because suppliers of other products would begin to compete with the monopolist, then the market definition should be expanded to include the substitute products.

A4.37 There might be suppliers who provide other retail and wholesale services but who might also be materially present in the provision of demand side substitutes to the service for which the hypothetical monopolist has raised its price. However, such suppliers are not relevant to supply side substitution, as they supply services already identified as demand side substitutes. As such, their entry has already been taken into account and so supply side substitution cannot provide an additional competitive constraint on the hypothetical monopolist. However, the impact of expansion by such suppliers can be taken into account in the assessment of market power.

A4.38 Sometimes an additional consideration is whether there are common pricing constraints across customers, services or areas such that they should be included within the same relevant market even if demand and supply side substitution are not present.

Relationship between the wholesale and retail markets

A4.39 In this Explanatory Statement, the relevant markets have been considered both at the retail and the wholesale level. Consideration of the relevant retail markets logically precedes the analysis of the wholesale markets, since the demand for wholesale services is derived from the demand for retail services.

A4.40 The purpose of this review of the markets is to assess whether a provider has SMP in a wholesale market and to identify appropriate remedies to address the existence of market power, i.e. the identified competition problem.

A4.41 It is, therefore, necessary for the definition of retail markets to be undertaken in the absence of regulation of wholesale services. To do otherwise would mean that the wholesale market power assessment would depend on a retail market definition that relied on a wholesale remedy arising from the finding of wholesale market power. This would be a circular and incorrect approach to market definition.

A4.42 Accordingly, the demand side and supply side substitution possibilities at the retail level are considered only if they are viable in the absence of regulated wholesale inputs.

Retail geographic market

A4.43 In addition to the products to be included within a market, market definition also requires the geographic extent of the market to be specified. The geographic market is the area within which demand side and/or supply side substitution can take place and is defined using a similar approach to that used to define the product market. Ofcom has considered the geographic extent of each relevant market covered in this market review.

A4.44 There are a number of possible approaches to geographic market definition. One approach would be to begin with a narrowly-defined area and then consider whether a price increase by a hypothetical monopolist in that narrowly defined area would encourage customers to switch to suppliers located outside the area (demand-side substitution) or operators outside the area to begin to offer services in the area

(supply-side substitution). If supply and/or demand side substitution is sufficient to constrain prices then it is appropriate to expand the geographic market boundary.

A4.45 Ofcom recognises that in certain telecommunications (product) markets in the UK, there could be different competitive pressures in different geographic areas. An obvious example is local access where BT competes with cable operators who have local franchises. Another is trunk segments of leased lines. In these circumstances it might be possible to identify separate geographic markets for some services. However, a number of difficulties would then arise. In particular, the definition of separate geographic markets using the hypothetical monopolist test as outlined above would likely lead to a proliferation of markets. This, when considered along with the dynamic nature of telecommunications markets, would likely mean that the boundary between areas where there are different competitive pressures would be unstable and change over time, rendering the market definition obsolete. It is not clear that determining ex-ante where the boundary would be is an exercise that could be carried out with any degree of accuracy.

A4.46 Because of the difficulties associated with defining separate geographic areas, there is a risk that inappropriate decisions would be made about the imposition or removal of regulations, which could be detrimental to consumers and competition. In any case, even if separate narrow local markets were to be defined it is likely that BT would continue to have SMP in many of these markets. Therefore, such a detailed approach is unlikely to add significant benefit to the regulatory outcome being proposed.

A4.47 An alternative approach is to define geographic markets in a broader sense. This involves defining a single geographic market but recognising that this single market has local geographical characteristics. That is to say, recognising that within the single market there are areas where competition is more developed than in other areas. This avoids the difficulties of proliferation and instability.

European Commission's approach to market definition

A4.48 In formulating its approach to market definition, Ofcom has taken due account of the Recommendation.

A4.49 The 7th recital to the Recommendation clearly states that the starting point for market definition is a characterisation of the retail market over a given time horizon, taking into account the possibilities for demand and supply side substitution. The wholesale market is identified subsequently to this exercise being carried out in relation to the retail market. This approach is repeated in section 3.1 of the Explanatory Memorandum to the Recommendation (the "**EM**") and is exactly that set out above and followed by Ofcom.

A4.50 Section 3.1 of the EM also states that, because any market analysis is forward looking, markets are to be defined prospectively taking account of expected or foreseeable technological or economic developments over a reasonable horizon linked to the timing of the next market review. Again, this is the approach followed by Ofcom.

A4.51 Furthermore, section 3.1 of the EM states that market definition is not an end in itself, but a means to assessing effective competition for the purposes of *ex ante* regulation. Ofcom has adopted an approach by which this consideration is at the centre of its analysis. The purpose of market definition is to illuminate the situation with regard to competitive pressures. For example, Ofcom's approach to supply side

substitution explicitly identifies as the key issue the question of whether additional competitive constraints on pricing are brought to bear by additional suppliers entering the market. Thus, the key issue is not the market definition for its own sake, but an identification of the extent and strength of competitive pressures.

A4.52 Also, section 4 of the EM states that retail markets should be examined in a way that is independent of the infrastructure being used, as well as in accordance with the principles of competition law. Again, this approach is key to Ofcom's analysis. As seen from the above, Ofcom's approach is based on a competition law assessment of markets and an assessment of the extent to which switching among services by consumers constrains prices, irrespective of the infrastructure used by the providers of those services.

Current market definitions for fixed narrowband markets

A4.53 The narrowband markets covered in this document were last assessed by Oftel, with its conclusions published in November 2003. Four of those markets were covered in one document, the Market Review 2003 Statement[27], whereas fixed call termination was covered in a separate document, the Fixed Call Termination Statement[28].

A4.54 These documents defined the following markets for the purposes of regulation of wholesale narrowband interconnect services for the UK (excluding the Hull area in markets other than fixed call termination) in respect of BT:

- **Call origination**

  UK market definition: Call origination on fixed public narrowband networks (paragraph 1(a)(vi) of the Notification in Annex A to the Market Review 2003 Statement).

  Commission's market definition: Call origination on the public telephone network provided at a fixed location. For the purposes of this Recommendation, call origination is taken to include local call conveyance and delineated in such a way as to be consistent with the delineated boundaries for the markets for call transit and for call termination on the public telephone network provided at a fixed location (point 8 of the Annex to the Recommendation).

- **Local-tandem conveyance/transit ("LTC/LTT")**

  UK market definition: Local-tandem conveyance and transit on fixed public narrowband networks (paragraph 1(a)(vii) of the Notification in Annex A to the Market Review 2003 Statement).

  Commission's market definition: Call origination on the public telephone

[27] Document entitled 'Review of the fixed narrowband wholesale exchange line, call origination, conveyance and transit markets — Identification and analysis of markets, determination of market power and the setting of SMP conditions — Final Explanatory Statement and Notification' published by the Director General of Telecommunications on 28 November 2003; http://www.ofcom.org.uk/legacy_regulators/oftel/narrowband_mkt_rvw/nwe/fixednarrowbandstatement.pdf.

[28] Document entitled 'Review of fixed geographic call termination markets — Identification and analysis of markets, determination of market power and setting of SMP conditions — Final Explanatory Statement and Notification' published by the Director General of Telecommunications on 28 November 2003; http://www.ofcom.org.uk/legacy_regulators/oftel/narrowband_mkt_rvw/Eureviewfinala1.pdf.

network provided at a fixed location. For the purposes of this Recommendation, call origination is taken to include local call conveyance and delineated in such a way as to be consistent with the delineated boundaries for the markets for call transit and for call termination on the public telephone network provided at a fixed location (point 8 of the Annex to the Recommendation).

- **Inter-tandem conveyance ("ITC") /inter-tandem transit ("ITT")**

  UK market definition: Inter-tandem conveyance and transit on fixed public narrowband networks (paragraph 1(a)(viii) of the Notification in Annex A to the Market Review 2003 Statement).

  Commission's market definition: Transit services in the fixed public telephone network. For the purposes of this Recommendation, transit services are taken as being delineated in such a way as to be consistent with the delineated boundaries for the markets for call origination and for call termination on the public telephone network provided at a fixed location (point 10 of the Annex to the Recommendation).

- **Single transit**

  UK market definition: Single transit on fixed public narrowband networks (paragraph 1(a)(ix) of the Notification in Annex A to the Market Review 2003 Statement).

  Commission's market definition: Transit services in the fixed public telephone network. For the purposes of this Recommendation, transit services are taken as being delineated in such a way as to be consistent with the delineated boundaries for the markets for call origination and for call termination on the public telephone network provided at a fixed location (point 10 of the Annex to the Recommendation).

- **Termination**

  UK market definition: Fixed geographic call termination provided by BT (paragraph 1(a) of the Notification in Annex B to the Fixed Call Termination Statement).

  Commission's market definition: Call termination on individual public telephone networks provided at a fixed location. For the purposes of this Recommendation, call termination is taken to include local call conveyance and delineated in such a way as to be consistent with the delineated boundaries for the markets for call origination and for call transit on the public telephone network provided at a fixed location (point 9 of the Annex to the Recommendation).

A4.55 For the purposes of this Explanatory Statement, Ofcom considers it appropriate for reasons set out in Section 2 of this document to review the markets of LTC/LTT and ITC/ITT.

Market (SMP) Analysis Stage

General

A4.56 The second market review stage concerns the assessment of competition in each identified services market to decide whether any undertaking has SMP.

A4.57 Article 16(1) of the Framework Directive provides that NRAs must, as soon as possible after the adoption of the Recommendation or any updating thereof, carry out an analysis of the relevant markets, taking the utmost account of the SMP Guidelines. Ofcom's obligation to take due account of the SMP Guidelines in this context is set out in section 79(3) of the 2003 Act.

A4.58 In carrying out a market analysis, the key issue for an NRA is to determine whether the market in question is effectively competitive. The 27th recital to the Framework Directive clarifies the meaning of that concept. Namely, "[i]t is essential that ex ante regulatory obligations should only be imposed where there is not effective competition, i.e. in markets where there are one or more undertakings with significant market power, and where national and Community competition law remedies are not sufficient to address the problem".

A4.59 Thus, Article 16 further prescribes, in effect, what regulatory action NRAs must take depending upon whether or not the market in question has been found effectively competitive. If it has, then NRAs are prohibited to impose specific (SMP) obligations and must withdraw such obligations where they exist. On the other hand, where the market is not effectively competitive, the NRAs must identify the undertakings with SMP on that market and shall impose on them appropriate obligations.

A4.60 Indeed, paragraphs 21 and 114 of the SMP Guidelines provide that merely designating an undertaking as having SMP on a given market without imposing any appropriate regulatory obligations is inconsistent with the new regulatory framework, notably Article 16(4) of the Framework Directive. In other words, NRAs must impose at least one regulatory obligation on an SMP operator.

A4.61 Under the 2003 Act, the process of designating an undertaking as having SMP is referred to as the making of a market power determination under section 79. To reflect the provisions in Article 16, there is a close link in this analysis with the imposition of remedies. This is because section 45 of the 2003 Act details the various conditions that may be set under the new regime. Section 46 of the 2003 Act prescribes who those conditions may be imposed upon.

A4.62 In relation to SMP services conditions, section 46(7) provides that they may be imposed on a particular person who is a communications provider or a person who makes associated facilities available and who has been determined to have significant market power in a "services market" (i.e. a specific market for electronic communications networks, electronic communications services or associated facilities). Accordingly, having identified the relevant market, Ofcom is required to analyse the market in order to assess whether any person or persons have SMP as defined in section 78 of the 2003 Act (Article 14 of the Framework Directive).

Approach used to assess SMP

A4.63 Under the EC Communications Directives and the said section 78, the concept of SMP is defined so that it is equivalent to the competition law concept of dominance. Article 14(2) of the Framework Directive provides: "[a]n undertaking shall be deemed to have significant market power if, either individually or jointly with others, it enjoys a position equivalent to dominance, that is to say a position of economic strength affording it the power to behave to an appreciable extent independently of competitors, customers and ultimately consumers".

A4.64 Further, Article 14(3) of the Framework Directive provides that: "[w]here an undertaking has significant market power on a specific market, it may also be

deemed to have significant market power on a closely related market, where the links between the two markets are such as to allow the market power held in one market to be leveraged into the other market, thereby strengthening the market power of the undertaking".

A4.65 Therefore, in the relevant market, one or more undertakings may be designated as having SMP where that undertaking, or undertakings, enjoy a position of dominance. Also, an undertaking may be designated as having SMP where it could lever its market power from a closely related market into the relevant market, thereby strengthening its market power in the relevant market.

A4.66 In assessing whether BT has SMP in the relevant markets in question, Ofcom has taken the utmost account of the SMP Guidelines as well as Oftel's supplemental guidelines, as referred to above, in its market power assessment. In particular, the analyses in Section 3 provide an assessment of SMP in the two markets in question against the criteria set out in those guidelines, such as market shares*, ease of market entry, and economies of scale.*

The relationship between the market reviews and Competition Act 1998 and Enterprise Act 2002 investigations

A4.67 The economic analyses carried out in this Explanatory Statement are for the purposes of determining whether an undertaking or undertakings have SMP in relation to the markets in question. It is without prejudice to any economic analysis that may be carried out in relation to any investigation or decision pursuant to the Competition Act 1998 or the Enterprise Act 2002.

A4.68 The fact that economic analysis carried out for a market review is without prejudice to future competition law investigations and decisions is recognised in Article 15(1) of the Framework Directive which provides that: "…The recommendation shall identify…markets…the characteristics of which may be such as to justify the imposition of regulatory obligations …without prejudice to markets that may be defined in specific cases under competition law…".

A4.69 Its intention is further evidenced in the SMP Guidelines, which state:

- Paragraph 25: "… Article 15(1) of the Framework Directive makes clear that the market to be defined by NRAs for the purpose of ex ante regulation are without prejudice to those defined by national competition authorities and by the Commission in the exercise of their respective powers under competition law in specific cases." (repeated in paragraph 37);
- Paragraph 27: "…Although NRAs and competition authorities, when examining the same issues in the same circumstances and with the same objectives, should in principle reach the same conclusions, it cannot be excluded that, given the differences outline above, and in particular the broader focus of the NRAs' assessment, markets defined for the purposes of competition law and markets defined for the purpose of sector-specific regulation may not always be identical"; and
- Paragraph 28: "…market definitions under the new regulatory framework, even in similar areas, may in some cases, be different from those markets defined by competition authorities."

A4.70 In addition, it is up to all providers to ensure that they comply with their legal obligations under all the laws applicable to the carrying out of their businesses. It is incumbent upon all providers to keep abreast of changes in the markets in which they operate, and in their position in such markets, which may result in legal obligations under the Competition Act 1998 or Enterprise Act 2002 applying to their conduct.

The need for ex-ante regulation

Nature of the competition problem identified

A4.71 Before turning to the last stage market review stage concerning remedies, it is necessary to consider whether competition law remedies are sufficient to address the problem. This consideration is necessary to establish, in line with the above-mentioned 27th recital to the Framework Directive, whether or not a market is effectively competitive. (In this context, it is to be noted that the importance of identifying that problem reappears under Article 8(4) of the Access and Interconnection Directive. This is because obligations imposed in accordance with Article 8 shall be based on the nature of the problem identified, proportionate and justified in the light of the objectives laid down in Article 8 of the Framework Directive.)

A4.72 Ofcom's own guidelines on Impact Assessment note that Ofcom will consider the option of no regulation in its impact assessment process. See www.ofcom.org.uk/consult/condocs/ia_guidelines/condoc.pdf for further details.

A4.73 In this light, it is considered below whether ex ante regulation is justified in the markets identified in Section 3 or whether it would be sufficient to rely on competition law alone to address market failures, while noting the European Commission's view in paragraphs 21 and 114 of the SMP Guidelines about imposing at least one SMP remedy.

Appropriate to promote the development of competition

A4.74 As a competitive market will produce a more efficient outcome than a regulated market, the promotion of competition is central to securing the best deal for the consumer in terms of quality, choice and value for money.

A4.75 Where markets are effectively competitive, ex post competition law is sufficient to deal with any competition abuses that may arise. However, without the imposition of ex ante regulations to promote actively the development of competition in a non-effectively competitive market, it is unlikely that ex post general competition law powers will be sufficient to ensure that effective competition becomes established. For example, this is because ex post powers prohibit abuse of dominance rather than the holding of a dominant position. Ex-ante powers can be utilised to reduce the level of market power in a market and thereby encourage effective competition to become established.

A4.76 The risk is not all one way as use of some ex ante measures can themselves limit or add nothing to the development of competition. Ofcom has recognised this in removing some regulation where markets are not effectively competitive.

A4.77 Ofcom considers that ex ante regulation is necessary in the markets covered by this Explanatory Statement and Notification. The remedies considered in Section 4 are appropriate to promote the development of competition in downstream narrowband

markets. A failure to regulate BT in these markets is likely to affect the development of competition in that competing providers would be unlikely to provide intermediate or retail services without wholesale services provided by BT. In the absence of regulation, BT would have little incentive to provide such wholesale services.

A4.78 It is preferable to apply regulation at the wholesale level as this both addresses SMP issues in the wholesale markets and promotes competition in downstream markets that rely on wholesale inputs. This fits with the requirement that NRAs take measures which meet the objective of encouraging efficient investment in infrastructure and promoting innovation (see Article 8(2) of the Framework Directive and section 4 of the 2003 Act). The regulation of wholesale markets encourages competing providers to purchase wholesale products and combine them with their own networks to create products in competition with BT.

Characteristics of communications markets in general

A4.79 Generally, the case for ex ante regulation in communications markets is based on the existence of market failures which, by themselves or in combination, mean that competition might not be able to become established if the regulator relied solely on its ex post competition law powers established for dealing with more conventional sectors of the economy. Therefore, it is appropriate for ex-ante regulation to be used to address these market failures and entry barriers that might otherwise prevent effective competition from becoming established. By imposing ex ante regulation that will promote competition, it may be possible to reduce the need for such regulation as markets become more competitive, with greater reliance on ex-post competition law.

A4.80 The European Commission has stated, in paragraph 3 of section 3.2 of the EM, that ex ante regulation is justified: "[…] where the compliance requirements of an intervention to redress a market failure are extensive (eg the need for detailed accounting for regulatory purposes, assessment of costs, monitoring of terms and conditions including technical parameters etc) or where frequent and/or timely intervention is indispensable, or where creating legal certainty if of paramount concern.[…])." This is the case for many markets where persistent SMP leads to a risk of a firm setting excessive prices and the need for efficiency incentives, where a charge control would be justified, or where there is likely to be a need for intervention to set detailed terms and conditions for access to networks. Indeed, this is the case for all the markets dealt with in this review.

Market dominance

A4.81 Although communications markets have in general become increasingly competitive over time, this is from a position in which most were controlled by a legacy monopoly operator. The increase in competition that has occurred inevitably reflects the imposition of ex ante regulation to counter the market power of the legacy operator. Moreover, despite this, the legacy operator remains, in Ofcom's view, dominant in all except one of the markets in this review. Therefore, it is appropriate to continue to impose ex ante regulations in these markets in order to ensure that effective competition can become established.

Network externality effects

A4.82 Externality effects are present in the markets in this review. In particular, the network externality effect, which means that the value of a network to its users increases more than proportionately with the number of subscribers, gives the large incumbent

network a great advantage over potential competitors. For example, the value of a large network might be little affected if it refused to deliver calls to or accept calls from a much smaller entrant, but the latter might find it impossible to attract subscribers as a result. As a consequence, this would enable the incumbent to exclude rivals from the market by refusing to interconnect with them or doing so only on onerous terms.

A4.83 General ex post competition law powers may not be sufficient to address the effects of the network externality. This is because the network externality effect generally re-enforces a dominant position and under general competition law there is no prohibition on holding a position of dominance in itself. Therefore, it may be more appropriate to address the impact of network externality through ex ante obligations, for example by requiring interconnection with the incumbent's network.

Entry barriers

A4.84 The communications networks in this review are characterised by economies of scale, that is, average costs fall as output increases. Economies of scale result from the fact that a high proportion of the costs of a communications network are fixed whilst marginal costs (the costs of an extra unit of output) are relatively low.

A4.85 Whilst the extent of economies of scale varies in different parts of the network, their existence means that a large network will tend to have lower average costs than a smaller one. Successful entry by new network operators will therefore require significant investment and most of this will be sunk costs, in the sense that the costs will not be recoverable if the entrant decides to exit the market. Significant sunk costs create an asymmetry in the market between incumbents and potential entrants that the former could exploit to deter entry, if allowed to. Incumbents could exploit this asymmetry by signalling to a potential entrant that, if it were to enter the market, prices would be too low to cover sunk costs. Entry might therefore be deterred.

A4.86 Also, although entry at the retail level by operators without their own networks is likely to require relatively smaller sunk investments, it is also likely to require regulated supply of wholesale inputs if retail competition is to become established where there is market power at the network level.

A4.87 Therefore, in the communications markets in this review, especially where there is a requirement for larger sunk investments, ex ante regulation is appropriate to address the effect of this barrier to entry.

A4.88 Ofcom does recognise that inappropriate ex ante regulation can have the effect of limiting competition. In formulating remedies to overcome SMP, it is important to consider the extent to which the proposed remedies will address the specific problem identified.

Remedies Stage

Subject matter of the SMP remedies

A4.89 The third and final market review stage concerns remedies. As noted above, Article 16 of the Framework Directive dictates the imposition or removal of SMP remedies depending upon whether or not a finding of SMP in an identified services market has been made. Where an SMP finding has been made, Ofcom will consider what appropriate SMP remedies are available.

A4.90 Under section 45 of the 2003 Act, Ofcom is empowered generally to set SMP services conditions authorised or required by sections 87 to 92. The latter implement Articles 9 to 13 of the Access and Interconnection Directive and Articles 17 to 19 of the Universal Service Directive. In addition, Ofcom's power to set such conditions includes additional powers specified in section 45(10), such as powers to include provisions in SMP services conditions for Ofcom to make directions in respect of specified markets.

A4.91 The SMP obligations relevant to the markets covered by this document are discussed in Section 4.

A4.92 Section 46 of the 2003 Act provides that SMP services conditions set under section 45 may only be applied if the person to whom they are to apply is a communications provider (or a person who makes associated facilities available) and is a person whom Ofcom has determined to be a person having SMP in a services market. It is therefore important to consider the precise identity of the regulated entity on whom it is appropriate to impose obligations.

Regulated entity

A4.93 As noted above, section 46 provides that a person to whom an SMP services condition is applied must be a 'communications provider' or a 'person' who makes associated facilities available and a 'person' who Ofcom has determined to have SMP in a specific market for electronic communications networks, electronic communications services or associated facilities (i.e. the 'services market').

A4.94 Article 16 of the Framework Directive requires that, where an NRA determines that a relevant market is not effectively competitive, it shall identify "undertakings" with SMP on that market and impose appropriate specific regulatory obligations. For the purposes of EC competition law, "undertaking" includes companies within the same corporate group (Viho v Commission Case C-73/95 P [1996] ECR I-5447), for example, where a company within that group is not independent in its decision making.

A4.95 Ofcom considers it appropriate to prevent a dominant provider to whom a SMP service condition is applied, which is part of a group of companies, exploiting the principle of corporate separation. The dominant provider should not use another member of its group to carry out activities or to fail to comply with a condition, which would otherwise render the dominant provider in breach of its obligations. For this reason, Ofcom proposes that the obligations detailed in this Explanatory Statement and Notification should apply to British Telecommunications plc and any BT subsidiary or holding company, or any subsidiary of that holding company, all as defined by Section 736 of the Companies Act 1985 as amended by the Companies Act 1989.

The legal tests

A4.96 However, before Ofcom can set or modify SMP services conditions on such a regulated entity, it must be satisfied that certain legal tests have been satisfied in relation to each and every condition.

A4.97 In Section 4 and Annex 6 of this document, Ofcom sets out its reasons explaining why those tests would be satisfied based on evidence presently before Ofcom. In addition to need of satisfying the general and specific duties, the appropriateness of

the remedy and identifying the nature of the competition problem mentioned above, Ofcom must satisfy a number of additional tests.

A4.98 First, under section 47(2) of the 2003 Act, Ofcom must show for each and every SMP services condition that it is:

- objectively justifiable in relation to the networks, services, facilities, apparatus or directories to which it relates;
- not such as to discriminate unduly against particular persons or against a particular description of persons;
- proportionate to what the condition or modification is intended to achieve; and
- in relation to what it is intended to achieve, transparent.

A4.99 Secondly, each of the tests set out in section 87(4) of the 2003 Act which Ofcom considers relevant must be satisfied. That section requires that Ofcom:

> "…must take into account, in particular, the following factors—
>
> a) the technical and economic viability, having regard to the state of market development, of installing and using facilities that would make the proposed network access unnecessary;
>
> b) the feasibility of the provision of the proposed network access;
>
> c) the investment made by the person initially providing or making available the network or other facility in respect of which an entitlement to network access is proposed;
>
> d) the need to secure effective competition in the long term;
>
> e) any rights to intellectual property that are relevant to the proposal; and
>
> f) the desirability of securing that electronic communications services are provided that are available throughout the member States."

A4.100 It is to be emphasised that this list is not exhaustive and other reasons can therefore be added by Ofcom for imposing the access obligation(s) in question.

A4.101 Thirdly, in addition to the above-mentioned tests, Ofcom must also satisfy the tests set out in section 88 of the 2003 Act in relation to network access pricing etc. obligations, namely: price control; cost orientation and cost recovery rules; use of cost accounting system rules; obligations to adjust prices.

A4.102 Section 88 only allows Ofcom to impose such obligations where:

- it appears to Ofcom from the market analysis carried out for the purpose of setting that condition that there is a relevant risk of adverse effects arising from price distortion (see below for the meaning of this term); and
- it also appears to Ofcom that the setting of the condition is appropriate for the purposes of promoting efficiency, promoting sustainable competition, and conferring the greatest possible benefits on the end-users of public

electronic communications services. In considering these matters, Ofcom may have regard to the prices at which services are available in comparable competitive markets and may determine what they consider to represent efficiency by using such cost accounting methods as they think fit.

A4.103 There is a relevant risk of adverse affects arising from price distortion if the SMP designated undertaking might fix and maintain some or all of its prices at an excessively high level, or impose a price squeeze, so as to have adverse consequences for end-users of public electronic communications services.

A4.104 In addition, Ofcom must show that in setting the network access pricing obligation it has taken account of the extent of the SMP provider's investment in the matters to which the condition relates.

A4.105 It is to be noted that the term "price control" has not been defined in the EC Communications Directives. The 20th recital to the Access and Interconnection Directive suggests that it could cover a range of obligations concerning prices:

"Price control may be necessary when market analysis in a particular market reveals inefficient competition. The regulatory intervention may be relatively light, such as an obligation that prices for carrier selection are reasonable as laid down in Directive 97/33/EC, or much heavier such as an obligation that prices are cost oriented to provide full justification for those prices where competition is not sufficiently strong to prevent excessive pricing. In particular, operators with significant market power should avoid a price squeeze whereby the difference between their retail prices and the interconnection prices charged to competitors who provide similar retail services is not adequate to ensure sustainable competition. When a national regulatory authority calculates costs incurred in establishing a service mandated under this Directive, 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. The method of cost recovery should be appropriate to the circumstances taking account of the need to promote efficiency and sustainable competition and maximise consumer benefits."

A4.106 Article 12 of that Directive, however, expressly empowers NRAs to impose obligations on operators to meet reasonable requests for access to, and use of, specific network elements and associated facilities, inter alia in situations where the NRA considers that denial of access or unreasonable terms and conditions having a similar effect would hinder the emergence of a sustainable competitive market at the retail level, or would not be in the end-user's interest, and that NRAs may attach to those obligations conditions covering fairness, reasonableness and timeliness.

A4.107 In the light of the potential interplay between these provisions, Ofcom has addressed the section 88 test also under the requirement to provide network access on fair and reasonable terms and conditions, including charges.

The material change test

A4.108 Under specific circumstances, Ofcom can set, modify or revoke an SMP services condition without conducting a new market analysis process. The framework for doing this, and Ofcom's intention to follow this procedure for certain of the services covered in this document, are described below.

A4.109 Where Ofcom seeks to set, modify or revoke an SMP services condition, it may only do so under section 86 of the 2003 Act if it is satisfied that there has not, since the condition was set or last modified, or since the relevant market power determination was made (as the case may be), been a material change in the market identified or otherwise used for the purposes of the market power determination by reference to which the condition was set or last modified.

A4.110 The alternative way of setting, modifying or revoking an SMP services condition, rather than satisfying that material change test, is for Ofcom to review, under section 84 of the 2003 Act, the market power determination by reference to which the condition in question was set.

A4.111 Section 84 requires Ofcom to carry out further analyses of the identified services market either:

- where Ofcom considers it an appropriate interval to do so for the purposes of reviewing market power determinations made on the basis of an earlier analysis or deciding whether to make proposals for the modification of SMP services conditions set by reference to a market power determination made on such a basis (section 84(2)); or
- as soon as reasonably practicable after recommendations are made by the European Commission that affect the matters that were taken into account, or could have been taken into account, in the case of the last analysis of the market in question (section 84(3)).

A4.112 For reasons set out in Section 2, Ofcom considers it an appropriate interval, at present, to carry out further analyses of the LTC and ITT/ITC markets both to review the relevant market power determinations and to propose such modifications to the applicable SMP services conditions as are appropriate.

A4.113 As regards the other identified services markets covered in this document (i.e. fixed call origination, fixed call termination and single transit) in which Ofcom is proposing to set the new NCCs discussed in this document, Ofcom is, in accordance with section 86(1)(b) of the 2003 Act, proposing to set those NCCs in the form of SMP services conditions by reference to the respective market power determinations made in relation to those markets in which OFCOM is satisfied there have been no material change since those determinations were made in November 2003. Ofcom's reasons for maintaining that view are set out, in particular, at Annex 7.

A4.114 In this context, it is to be noted that, were any material changes in economic and technological developments to occur in these markets in the future, Ofcom will consider appropriate timings for carrying out a market review of them under section 84(2) of the 2003 Act. As seen above, it is also possible that the European Commission would make a new Recommendation within the proposed period of the new NCCs that might affect the matters previously taken into account in making BT's market power determinations made in 2003. If so, this would trigger an Ofcom review of the relevant markets under section 84(3) of the 2003 Act.

ERG Common Position on Remedies

A4.115 At a plenary meeting on 1-2 April 2004, the European Regulators Group ("**ERG**") adopted a revised version of its document entitled 'ERG Common Position on the approach to Appropriate remedies in the new regulatory framework', ERG (03) 30rev1, (the "**Common Position on Remedies**").

A4.116 That document sets out NRAs' views on imposing remedies in a manner that contributes to the development of the internal market and ensures a consistent application of the new regulatory framework under the EC Communications Directives.

A4.117 Ofcom has therefore taken into account those views in considering appropriate remedies. For instance, the first principle set out in *The Common Position on Remedies* states that the "NRA must produce reasoned decisions in line with their obligations under the Directives [and] that the remedy selected [must] be based on the nature of the problem identified". As explained in Section 4 of this Explanatory Statement, Ofcom's proposals are based on the nature of the competition problems identified. More generally, Ofcom considers that its approach to determining SMP remedies is consistent with the *Common Position on Remedies* which in turn reflects the requirements of the EC Communications Directives which are addressed in this Explanatory Statement.

Ofcom's Notifications of Proposals

Public (national) consultation

A4.118 Ofcom is required to give interested parties an opportunity to comments on its proposals contained in this Explanatory Statement. That statutory obligation to consult is set out in:

- section 49(4) of the 2003 Act in respect of Ofcom's proposed modified Directions under SMP services condition AA1(a), see Annex 6 of this document; and
- sections 48(2) and 80(1) of the 2003 Act in respect of Ofcom's proposals in this document on services market identifications, market power determinations and modifications to the relevant SMP services conditions, of the 2003 Act

as required by Article 6 of the Framework Directive where the proposed draft measures have a significant impact on the relevant markets.

A4.119 Ofcom is entitled, by virtue of section 80(2) of the 2003 Act, to publish a single notification of its proposals as to services market identifications, market power determinations and modifications to the relevant SMP services conditions. Annex 5 includes a single notification containing all such proposals. Also at Annex 5, Ofcom is publishing its notification in respect of its above-mentioned proposed modified directions.

Obligation to inform the European Commission, other NRAs and the Secretary of State – Parallel consultation under Article 7

A4.120 As required by Article 7 of the Framework Directive and sections 50 and 81 of the 2003 Act, draft decisions contained in this Explanatory Statement are also being sent to the European Commission, the NRAs of every other Member State and the Secretary of State.

A4.121 As Ofcom considers that the draft measures might affect trade between Member States, the European Commission and the other NRAs may make comments within the consultation period for the public (national) consultation, the details of which are set out in Section 6 of this document.

If the European Commission believes that the market definitions proposed in Section 3 of this document, or Ofcom's proposals to designate BT as having SMP in the LTC market and to not designate BT as having in the ITT/ITC market SMP, would create a barrier to the single market or if it has serious doubts as to its compatibility with Community law, and issues a notice under Article 7(4) of the Framework Directive, Ofcom is required by section 82 of the 2003 Act to delay adoption of these draft measures for a further period of two months while the European Commission considers its position.

Steps following the outcome of the consultation process

A4.122 When Ofcom has considered any representations duly made in response to the proposals set out in this document, including any made by the European Commission and other NRAs, it may under sections 48(5) and 80(6) of the 2003 Act give effect to these proposals, with or without modifications, by making the services market identifications, market power determinations and modifications to the SMP services conditions in question. Ofcom would do so by publishing a further notification accompanied by a further and final explanatory statement. Thereafter, the markets and the new regulatory remedies that have been imposed will be reviewed at appropriate intervals, as discussed above. As regards the proposed modified directions, Ofcom may under section 49(9) of the 2003 Act give effect to them, with or without modifications, after having considered any consultation responses.

A4.123 Whilst Ofcom cannot fetter its discretion in advance in this respect, it does not, at present, expect to have a further round of consultation. However, in the event that Ofcom would decide following the consultation process to substantially and materially modify its final decisions as compared to its initial proposals, it would be necessary to re-consult. That said, in the interests of a fair and open consultation, Ofcom considers that it has identified in this document the most basic features of its proposals that it would ultimately wish to adopt.

Impact Assessment

A4.124 The analysis presented in Section 4 of this document, when read in conjunction with the rest of this document, represents an Impact Assessment ("IA"), as defined by section 7 of the 2003 Act. You should send any comments on this IA to us by the closing date for this consultation. We will consider all comments before deciding whether to implement our proposals.

A4.125 As provide a valuable way of assessing different options for regulation and showing why the preferred option was chosen. They form part of best practice policy-making and are commonly used by other regulators. This is reflected in section 7 of the 2003 Act, which means that generally we have to carry out IAs where our proposals would be likely to have a significant effect on businesses or the general public, or when there is a major change in Ofcom's activities. In accordance with section 7, in producing the IA in this document Ofcom has had regard to such general guidance as it considers appropriate, including related Cabinet Office guidance.

Annex 5

Notifications

Part I – Proposed services market identifications, market power determinations and SMP conditions

NOTIFICATION UNDER SECTIONS 48(2), 80(1) AND 86 OF THE COMMUNICATIONS ACT 2003

WHEREAS:

A. on 28 November 2003, the Director published a document entitled 'Review of the fixed narrowband wholesale exchange line, call origination, conveyance and transit markets — Identification and analysis of markets, determination of market power and the setting of SMP conditions — Final Explanatory Statement and Notification';

B. at Annex A to that Market Review 2003 Statement, the Director published a notification identifying, in accordance with section 79 of the 2003 Act, the following nine services markets in each of which the Director determined that, for the purposes of making market power determinations under the 2003 Act, BT has significant market power in the United Kingdom excluding the Hull Area:

   i. wholesale residential analogue exchange line services

   ii. wholesale residential ISDN2 exchange line services;

   iii. wholesale business analogue exchange line services;

   iv. wholesale business ISDN2 exchange line services;

   v. wholesale ISDN30 exchange line services;

   vi. call origination on fixed public narrowband networks;

   vii. local-tandem conveyance and transit on fixed public narrowband networks;

   viii. inter-tandem conveyance and transit on fixed public narrowband networks;

   ix. single transit on fixed public narrowband networks;

C. as a result of those market power determinations, in accordance with section 48(1) of the 2003 Act, the Director set on BT pursuant to section 45 of the 2003 Act the SMP services conditions set out in Schedule 1 to the November 2003 Notification, including Condition AA4 which imposes on BT certain price controls;

D. on 28 November 2003, the Director also published a document entitled 'Review of fixed geographic call termination markets — Identification and analysis of markets, determination of market power and setting of SMP conditions — Final Explanatory Statement and Notification';

E. at Annex B to that Fixed Call Termination 2003 Statement, the Director published a notification identifying, in accordance with section 79 of the 2003 Act, fixed geographic call termination provided by BT as a market in which the Director determined that, for

the purposes of making market power determinations under the 2003 Act, BT has significant market power;

F. as a result of that market power determination, in accordance with section 48(1) of the 2003 Act, the Director set on BT pursuant to section 45 of the 2003 Act the SMP services conditions set out in Schedule 1 to the Fixed Call Termination Notification, including Condition BA4 which imposes on BT price controls in respect of Fixed Call Termination Wholesale Services (as defined therein);

G. on 29 December 2003, OFCOM took over the responsibilities and assumed the powers of the five former regulators it has replaced, including the Director and, by virtue of the Transitional Provisions, the above-mentioned market power determinations made by the Director are to have effect as if made by OFCOM;

H. on 30 July 2004, OFCOM published a notification under sections 48(1) and 86 of the 2003 Act at Annex 1 to the Statement entitled 'Review of BT's product management, policy and planning (PPP) charge' with the effect of:

I. modifying the above-mentioned Condition AA4 as set out in Schedule 1 to that notification in respect of its application to BT in the call origination on fixed public narrowband networks market in the UK excluding the Hull Area;

J. setting SMP services condition PA1 as set out in Schedule 2 to that notification so as to apply to BT in each of the following markets: (a) call origination on fixed public narrowband networks in the UK excluding the Hull Area; (b) local-tandem conveyance and transit on fixed public telephone networks in the UK excluding the Hull Area; (c) inter-tandem conveyance and transit on fixed public telephone networks in the UK excluding the Hull Area; (d) single transit on fixed public narrowband networks in the UK excluding the Hull Area; and (e) fixed geographic call termination provided by BT;

i. in relation to which markets OFCOM were satisfied, in accordance with section 86 of the 2003 Act, that there had been no material change since the relevant market power determinations were made;

ii. furthermore, on 10 February 2005, OFCOM published three separate notifications under sections 48(1) and 86 of the 2003 Act at Annexes 1 to 3 to the Statement entitled 'Modifications to BT's SMP services conditions AA4, BA4 and PA1' with the effect of:

iii. modifying the above-mentioned Condition AA4 as set out in the Schedule to the notification at Annex 1 of that Statement by, in effect, substituting it for a new Condition AA4;

iv. modifying the above-mentioned Condition BA4 as set out in the Schedule to the notification at Annex 2 of that Statement by, in effect, substituting it for a new Condition BA4;

v. modifying the above-mentioned Condition PA1 as set out in the Schedule to the notification at Annex 3 of that Statement by, in effect, substituting it for a new Condition PA1;

in relation to all markets to which those respective SMP services conditions apply for which OFCOM were satisfied, in accordance with section 86 of the 2003 Act, that there had been no material change since the relevant market power determinations were made; and

NOW, therefore, OFCOM hereby publish this Notification to make the following proposals:

Service market identifications and market power determinations

1. For reasons set out in section 3 of the explanatory statement accompanying this Notification, OFCOM have, in accordance with section 84(2) of the 2003 Act, considered it an appropriate interval to carry out further analyses of the two identified services markets specified in paragraph 2 of this Notification for the purposes of both:

    a) reviewing the relevant market power determinations made on the basis of the analysis set out in the Market Review 2003 Statement; and

    b) deciding whether to make proposals for the modification of SMP services conditions set by reference to those market power determinations made on such a basis.

2. The two identified services markets are—

    a) local-tandem conveyance and transit on fixed public narrowband networks;

    b) inter-tandem conveyance and transit on fixed public narrowband networks;

    in the United Kingdom excluding the Hull Area.

3. OFCOM are proposing that, in accordance with section 80(1) of the 2003 Act, the two identified markets in paragraph 2 of this Notification continue to be identified as services markets in relation to which it is appropriate, in OFCOM's opinion, to consider whether to make market power determinations.

4. For reasons set out in section 3 of the explanatory statement accompanying this Notification, OFCOM are proposing, in accordance with section 80(1) of the 2003 Act, to make the following market power determinations, namely—

    a) in relation to the market specified in paragraph 2(a) of this Notification, to confirm that BT has significant market power;

    b) in relation to the market specified in paragraph 2(b) of this Notification, to determine that BT does not, either individually or jointly with others, have significant market power and, therefore, paragraph 2(a) of the November 2003 Notification shall have no effect to the extent that it provides for the making of a market power determination in respect of that market and that paragraph 2(a) shall be amended and read accordingly.

5. The effect of, and OFCOM's reasons for making, the proposals to identify the markets specified in paragraph 2 (as referred to in paragraph 3) of this Notification, and to make the market power determinations set out in paragraph 4 of this Notification, are set out in sections 3 and 4 of the explanatory statement accompanying this Notification.

6. In identifying and analysing the markets referred to in paragraph 2 of this Notification, and in considering whether to make the proposals set out in this Notification, OFCOM have, in accordance with section 79 of the 2003 Act, taken due account of all applicable guidelines and recommendations which have been issued or made by the European Commission in pursuance of a Community instrument, and relate to market identification or analysis.

SMP service conditions

7. OFCOM are proposing, in accordance with sections 48(2) and 84(4) of the 2003 Act, to revoke as set out in **Schedule 1** to this Notification each and every SMP services condition imposed on BT as a result of the November 2003 Notification (as amended by the February 2005 Notifications) in the proposed services market identified in paragraph 2(b), by reference to the proposed market power determination set out in paragraph 4(b), of this Notification.

8. OFCOM are further, in accordance with section 48(2) of the 2003 Act, proposing—

a) in relation to the proposed services market identified in paragraph 2(a) of this Notification and the services markets identified in sub-paragraphs (vi) and (ix) of paragraph 1(a) of the November 2003 Notification, to set SMP services conditions AA4(a), AA4(b), AA4(c), AA4(d) and AA4(e) by inserting them after Condition AA4 in Part 2 of Schedule 1 to the November 2003 Notification (as amended by the February 2005 Notifications) as set out in **Schedule 2** to this Notification in respect of their application to BT;

b) in relation to the services market identified in paragraph 1(a) of the Fixed Call Termination Notification, to set SMP services condition BA4(a) by inserting it after Condition BA4 in Part 2 of Schedule 1 to the Fixed Call Termination Notification (as amended by the February 2005 Notifications) as set out in Schedule 3 to this Notification in respect of its application to BT;

c) in relation to the proposed services market identified in paragraph 2(a) of this Notification, and the services markets identified in sub-paragraphs (vi) and (ix) of paragraph 1(a) of the November 2003 Notification and in paragraph 1(a) of the Fixed Call Termination Notification, to set SMP services condition PA1(a) as set out in Schedule 4 to this Notification in respect of its application to BT;

d) in relation to the proposed services market identified in paragraph 2(a) of this Notification and the services markets identified in sub-paragraphs (vi) and (ix) of paragraph 1(a) of the November 2003 Notification, to modify SMP services conditions AA2, AA6(a) and AA6(b) in Part 2 of Schedule 1 to the November 2003 Notification as set out in Schedule 5 to this Notification in respect of their application to BT;

e) in relation to the services market identified in sub-paragraph (vi) of paragraph 1(a) of the November 2003 Notification, to modify SMP services condition AA12 in Part 2 of Schedule 1

to the November 2003 Notification by substituting the definition of "AR (DLE) (LECO)" in paragraph AA12.3(c) for a new definition of "AR (DLE) (LECO)" as set out in Schedule 6 to this Notification in respect of its application to BT;

f) in relation to the services market identified in paragraph 1(a) of the Fixed Call Termination Notification, to modify SMP services conditions BA2 and BA6 in Part 2 of Schedule 1 to the Fixed Call Termination Notification as set out in Schedule 7 to this Notification in respect of its application to BT.

9. In making the proposals to set the SMP services conditions specified in sub-paragraphs (a) to (c) of paragraph 8 of this Notification, OFCOM are, in accordance with section 86(1)(b) of the 2003 Act, proposing to set those SMP services conditions by reference to the respective market power determinations made in relation to the identified services markets referred to in that paragraph 8 in which markets that are material to the setting of the SMP services conditions in question OFCOM are satisfied there have been no material change since those determinations were made. As regards the proposals to modify the SMP services conditions specified in sub-paragraphs (d) to (f) of paragraph 8 of this Notification, OFCOM are, in accordance with section 86(4)(a) of the 2003 Act, proposing to modify those SMP services conditions by reference to the respective market power determinations made in relation to the identified services markets referred to in that paragraph 8 in which markets that are material to the modification of the SMP services conditions in question OFCOM are satisfied there have been no material change since those conditions were set.

10. OFCOM are further, in accordance with sections 48(2) and 86(1)(a) of the 2003 Act, proposing that, in relation to the proposed services market identified in paragraph 2(a) of this Notification by reference to the proposed market power determination set out in paragraph 4(a) of this Notification, the SMP services conditions—

a) in Part 2 of Schedule 1 to the November 2003 Notification (other than the proposed Condition AA4(c), which is proposed to be set in accordance with paragraph 8(a) of this Notification); those conditions being AA1(a); AA1(b), AA2, AA3, AA5, AA6(a), AA6(b), AA7 and AA12;

b) in Schedule 2 to the Financial Reporting Notification (excluding Conditions OA29 to OA31 and OA34),

continue to be set in respect of their application to BT.

11. The effect of, and OFCOM's reasons for making, the proposals:

a) for setting and modifying the SMP services conditions set out in Schedules 1 to 7 to this Notification; and

b) for continuing to set the SMP services conditions specified in paragraph 10 of this Notification,

are set out in sections 3 and 4 of the explanatory statement accompanying this Notification.

12. OFCOM considers that the proposed modifications and setting of SMP services conditions referred to in paragraphs 8 to 10 of this Notification comply with the requirements of sections 45 to 47, 87 and 88 of the 2003 Act as appropriate and relevant to each of those SMP services conditions.

OFCOM's duties

13. In making all of the proposals set out in this Notification, OFCOM have considered and acted in accordance with their general duties set out in section 3 of, and the six Community requirements set out in section 4, of the 2003 Act.

Making representations

14. Representations may be made to OFCOM about the proposals set out in this Notification and the accompanying explanatory statement by no later than 1 June 2005.

15. Copies of this Notification and the accompanying explanatory statement have been sent to the Secretary of State for Trade and Industry in accordance with section 50(1)(a) of the 2003 Act, the European Commission and to the regulatory authorities of every other member State in accordance with sections 50(3) and 81 of the 2003 Act.

Interpretation

16. Except for references made to identified services markets in this Notification (including the recitals hereto) and in the 2003/2005 Notifications and except as otherwise defined in paragraph 17 of this Notification, words or expressions used in this Notification (and in the recitals hereto) shall have the same meaning as they have been ascribed in the 2003 Act.

17. In this Notification—

a) "**2003 Act**" means the Communications Act 2003 (c.21);

b) "**2003/2005** Notifications" means the November 2003 Notification, the Fixed Call Termination Notification, the Financial Reporting Notification, the July 2004 Notification, and the February 2005 Notifications;

c) "**BT**" means British Telecommunications plc, whose registered company number is 1800000, and any of its subsidiaries or holding companies, or any subsidiary of such holding companies, all as defined by section 736 of the Companies Act 1985, as amended by the Companies Act 1989;

d) "**Director**" means the Director General of Telecommunications as appointed under section 1 of the Telecommunications Act 1984;

e) "**February 2005 Notifications**" has the meaning given to it in recital (I) to this Notification;

f) "**Financial Reporting Notification**" means the notification published under sections 48(1) and 86(1) of the Act on 22 July

2004 concerning the regulatory financial reporting obligations imposed on BT;

g) "**Fixed Call Termination 2003 Statement**" has the meaning given to it in recital (D) to this Notification;

h) "**Fixed Call Termination Notification**" has the meaning given to it in recital (E) to this Notification;

i) "**Hull Area**" means the area defined as the 'Licensed Area' in the licence granted on 30 November 1987 by the Secretary of State under section 7 of the Telecommunications Act 1984 to Kingston upon Hull City Council and Kingston Communications (Hull) plc;

j) "**July 2004 Notification**" has the meaning given to it in recital (H) to this Notification;

k) "**Market Review 2003 Statement**" has the meaning given to it in recital (A) to this Notification;

l) "**November 2003 Notification**" has the meaning given to it in recital (B) to this Notification;

m) "**OFCOM**" means the Office of Communications; and

n) "**Transitional Provisions**" means sections 408 and 411 of the 2003 Act, the Communications Act 2003 (Commencement No.1) Order 2003 (S.I. 2003/1900 (C. 77)) and the Office of Communications Act 2002 (Commencement No.3) and Communications Act 2003 (Commencement No 2) Order 2003 (S.I. 2003/3142 (C. 125)).

18. For the purpose of interpreting this Notification:

a) headings and titles shall be disregarded; and

b) the Interpretation Act 1978 (c. 30) shall apply as if this Notification were an Act of Parliament.

19. The Schedule to this Notification shall form part of this Notification.

DAVID K S THOMAS
DIRECTOR OF REGULATORY FINANCE

A person duly authorised in accordance with paragraph 18 of the Schedule to the Office of Communications Act 2002

23 MARCH 2005

SCHEDULE 1

Proposed revocation of SMP services conditions imposed on BT pursuant to the November 2003 Notification (as amended by the February 2005 Notifications) as a result of the proposed market power determination in respect of the proposed identified services market for inter-tandem conveyance and transit on fixed public narrowband networks in the United Kingdom excluding the Hull Area hereby made by OFCOM as set out in paragraph 4(b) of this Notification in which it is proposed to determine that BT no longer has significant market power

1. For paragraph 1 of Part 1 of Schedule 1 to the November 2003 Notification, there shall be substituted the following new paragraph 1—

   "1 The SMP conditions in Part 2 of this Schedule 1 shall, except insofar as it is otherwise stated therein, apply to each and all of the markets set out in paragraph 1(a) of this Notification other than the market set out in subparagraph (viii) of that paragraph, and to Interconnection Circuits."

SCHEDULE 2

Proposed setting of SMP services conditions AA4(a), AA4(b), AA4(c), AA4(d) and AA4(e) as a result of the proposed market power determination in respect of the services market for local-tandem conveyance and transit on fixed public narrowband networks in the United Kingdom excluding the Hull Area hereby made by OFCOM as set out in paragraph 4(a) of this Notification in which it is proposed to confirm that BT has significant market power and as a result of the market power determinations made by the Director in respect of the identified services markets set out in paragraphs 1(a)(vi) and 1(a)(ix) of the November 2003 Notification in each of which BT has been determined to have significant market power

1. In Part 2 of Schedule 1 to the November 2003 Notification (as amended by the February 2005 Notifications), there shall be set the following SMP services conditions AA4(a), AA4(b), AA4(c), AA4(d) and AA4(e) by inserting them after Condition AA4—

"Condition AA4(a)

Charge control – Call Origination

AA4(a).1 Without prejudice to the generality of Condition AA3, and subject to paragraphs AA4(a).2, AA4(a).4 and AA4(a).5, the Dominant Provider shall take all reasonable steps to secure that, on the last day of each Relevant Year, the Percentage Change (as determined in accordance with paragraph AA4(a).3) in the aggregate of charges for the provision of Call Origination Services is not more than the Controlling Percentage (as determined in accordance with paragraph AA4(a).6).

AA4(a).2 For the purpose of complying with paragraph AA4(a).1, the Dominant Provider shall take all reasonable steps to secure that the revenue it accrues as a result of all individual Charge Changes during any Relevant Year shall be no more than that which it would have accrued had all of those Charge Changes been made on 1 April in the Relevant Year in question. The Dominant Provider shall be deemed to have satisfied this obligation where, by example in the case of a single Charge Change in the Relevant Year in question, the following formula is satisfied—

$$RC\left(1-D\right)\leq TRC$$

where—

RC is the revenue change associated with the single Charge Change made in the Relevant Year in question, calculated by the relevant Percentage Change immediately following the Charge Change multiplied by the revenue accrued during the Relevant Financial Year;

TRC is the target revenue change required in the Relevant Year in question to achieve compliance with paragraph AA4(a).1, calculated by the Percentage Change required in the Relevant Year in question to achieve compliance with paragraph AA4(a).1 multiplied by the revenue accrued from the provision of Call Origination Services during the Relevant Financial Year; and

D is the elapsed proportion of the Relevant Year in question calculated as:

i. for any Relevant Year other than the Leap Year, the date on which the Charge Change takes effect, expressed as a numeric entity on a scale ranging from 1 October = -182 to 30 September = 182, divided by 183;

ii. for the Leap Year, the date on which the Charge Change takes effect, expressed as a numeric entity on a scale ranging from 1 October = -183 to 30 September = 182, divided by 183.

AA4(a).3 The Percentage Change shall be calculated for the purposes of complying with paragraph AA4(a).1 by employing the following formula—

where—

Ct is the Percentage Change in the aggregate of charges for the provision of Call Origination Services at a particular time t during the Relevant Year;

n is the number of individual services that form part of (or are comprised in) the provision of Call Origination Services;

Ri is the sum of the revenue accrued during the Relevant Financial Year in respect of the individual service i that forms part of (or is comprised in) the provision of Call Origination Services where i is a unique number from 1 to n for each of the n individual services in the provision of Call Origination Services;

p0,i is the published charge made by the Dominant Provider for the individual service i that forms part of (or is comprised in) the provision of Call Origination Services immediately preceding the beginning of the Relevant Year; and

pt,i is the published charge made by the Dominant Provider for the individual service i that forms part of (or is comprised in) the provision of Call Origination Services at time t during the Relevant Year.

AA4(a).4 Where the Percentage Change in the Relevant Year in question is less than the Controlling Percentage (so that the Dominant Provider has made larger than required reductions), then the Controlling Percentage for the following Relevant Year shall be determined in accordance with paragraph AA4(a).6, but increased by the absolute value of such excess.

AA4(a).5 Where the Percentage Change in the Relevant Year in question is more than the Controlling Percentage (so that the Dominant Provider has made smaller than required reductions), then the Controlling Percentage for the following Relevant Year shall be determined in accordance with paragraph AA4(a).6, but decreased by the absolute value of such deficiency.

AA4(a).6 Subject to paragraphs AA4(a).4 and AA4(a).5, the Controlling Percentage in relation to the Relevant Year in question is the amount of the change in the Retail Prices Index in the period of 12 months ending on 30th June immediately before the beginning of that Year expressed as a percentage (rounded to two decimal places) of that Index as at the beginning of that period reduced [0.5-4.5] percentage points.

AA4(a).7 AA4(a).7 Where—

a) the Dominant Provider makes a material change (other than to a Charge) to the Charge Controlled Service for which a Charge is charged;

b) the Dominant Provider makes a change to the date on which its financial year ends; or

c) there is a material change in the basis of the Retail Prices Index,

paragraphs AA4(a).1 to AA4(a).6 shall have effect subject to such reasonable adjustment to take account of the change as OFCOM may direct to be appropriate in the circumstances. For the purposes of paragraph AA4(a).7(a), a material change to the Charge Controlled Service includes (but is not limited to) the introduction of a new product and/or service wholly or substantially in substitution for the existing Charge Controlled Service.

AA4(a).8 The Dominant Provider shall, no later than three months after the end of each Relevant Year, supply to OFCOM, in writing, the data necessary to perform the calculation of the Percentage Change.

AA4(a).9 If it appears to OFCOM that the Dominant Provider is likely to fail to secure that the Percentage Change does not exceed the Controlling Percentage for the last Relevant Year beginning on 1 October 2008 and ending on 30 September 2009, the Dominant Provider shall make such adjustment to any of its charges for the provision of Call Origination Services and by such day in that Relevant Year (or, if appropriate in OFCOM's opinion, by such day that falls after the end of that Relevant Year) as OFCOM may direct for the purpose of avoiding such a failure.

AA4(a).10 Paragraphs AA4(a).1 to AA4(a).9 shall not apply to such extent as OFCOM may direct.

AA4(a).11 In this Condition—

a) "**Charge**" means, for the purposes of paragraph AA4(a).7, the charge (being in all cases the amounts offered or charged by the Dominant Provider) to a Communications Provider for the Charge Controlled Service;

b) "**Charge Change**" means a change to any of the charges for the provision of Call Origination Services;

c) "**Charge Controlled Service**" means a product or service which forms part of (or is comprised in) the provision of Call Origination Services;

d) "**Controlling Percentage**" is to be determined in accordance with paragraph AA4(a).6;

e) "**Leap Year**" means the Relevant Year beginning on 1 October 2007 and ending on 30 September 2008;

f) "**OFCOM**" means the Office of Communications;

g) "**Percentage Change**" has the meaning given to it in paragraph AA4(a).3;

h) "**Relevant Financial Year**" means the period of 12 months ending on 31 March immediately preceding the Relevant Year in question;

i) "**Relevant Year**" means any of the four periods of 12 months beginning on 1 October starting with 1 October 2005 and ending on 30 September 2009; and

j) "**Retail Prices Index**" means the index of retail prices compiled by an agency or a public body on behalf of Her Majesty's Government or a governmental department (which is the Office of National Statistics at the time of publication of this Notification) from time to time in respect of all items.

Condition AA4(b)

Charge control – Single Transit

AA4(b).1 Without prejudice to the generality of Condition AA3, and subject to paragraphs AA4(b).2, AA4(b).4 and AA4(b).5, the Dominant Provider shall take all reasonable steps to secure that, on the last day of each Relevant Year, the Percentage Change (as determined in accordance with paragraph AA4(b).3) in the aggregate of charges for the provision of Single Transit Services is not more than the Controlling Percentage (as determined in accordance with paragraph AA4(b).6).

AA4(b).2 For the purpose of complying with paragraph AA4(b).1, the Dominant Provider shall take all reasonable steps to secure that the revenue it accrues as a result of all individual Charge Changes during any Relevant Year shall be no more than that which it would have accrued had all of those Charge Changes been made on 1 April in the Relevant Year in question. The Dominant Provider shall be deemed to have satisfied this obligation where, by example in the case of a single Charge Change in the Relevant Year in question, the following formula is satisfied—

$$RC\left(1-D\right)\leq TRC$$

where—

RC is the revenue change associated with the single Charge Change made in the Relevant Year in question, calculated by the relevant Percentage Change immediately following the Charge Change multiplied by the revenue accrued during the Relevant Financial Year;

TRC is the target revenue change required in the Relevant Year in question to achieve compliance with paragraph AA4(b).1, calculated by the Percentage Change required in the Relevant Year in question to achieve compliance with paragraph AA4(b).1 multiplied by the revenue accrued from the provision of Single Transit Services during the Relevant Financial Year; and

D is the elapsed proportion of the Relevant Year in question calculated as:

i. for any Relevant Year other than the Leap Year, the date on which the Charge Change takes effect, expressed as a numeric entity on a scale ranging from 1 October = -182 to 30 September = 182, divided by 183;

ii. for the Leap Year, the date on which the Charge Change takes effect, expressed as a numeric entity on a scale ranging from 1 October = -183 to 30 September = 182, divided by 183.

AA4(b).3 AA4The Percentage Change shall be calculated for the purposes of complying with paragraph AA4(b).1 by employing the following formula—

$$C_t = \frac{\sum_{i=1}^{n}\left[R_i \frac{(p_{t,i} - p_{0,i})}{p_{0,i}} \right]}{\sum_{i=1}^{n} R_i}$$

where—

Ct is the Percentage Change in the aggregate of charges for the provision of Single Transit Services at a particular time t during the Relevant Year;

n is the number of individual services that form part of (or are comprised in) the provision of Single Transit Services;

Ri is the sum of the revenue accrued during the Relevant Financial Year in respect of the individual service i that forms part of (or is comprised in) the provision of Single Transit Services where i is a unique number from 1 to n for each of the n individual services in the provision of Single Transit Services;

p0,i is the published charge made by the Dominant Provider for the individual service i that forms part of (or is comprised in) the provision of Single Transit Services immediately preceding the beginning of the Relevant Year; and

pt,i is the published charge made by the Dominant Provider for the individual service i that forms part of (or is comprised in) the provision of Single Transit Services at time t during the Relevant Year.

AA4(b).4 Where the Percentage Change in the Relevant Year in question is less than the Controlling Percentage (so that the Dominant Provider has made larger than required reductions), then the Controlling Percentage for the following Relevant Year shall be determined in accordance with paragraph AA4(b).6, but increased by the absolute value of such excess.

AA4(b).5 Where the Percentage Change in the Relevant Year in question is more than the Controlling Percentage (so that the Dominant Provider has made smaller than required reductions), then the Controlling Percentage for the following Relevant Year shall be determined in accordance with paragraph AA4(b).6, but decreased by the absolute value of such deficiency.

AA4(b).6 Subject to paragraphs AA4(b).4 and AA4(b).5, the Controlling Percentage in relation to the Relevant Year in question is the amount of the change in the Retail Prices Index in the period of 12 months ending on 30th June immediately before the beginning of that Year expressed as a percentage (rounded to two decimal places) of that Index as at the beginning of that period reduced [11-14] percentage points.

AA4(b).7 Where—

a) the Dominant Provider makes a material change (other than to a Charge) to the Charge Controlled Service for which a Charge is charged;

b) the Dominant Provider makes a change to the date on which its financial year ends; or

c) there is a material change in the basis of the Retail Prices Index,

paragraphs AA4(b).1 to AA4(b).6 shall have effect subject to such reasonable adjustment to take account of the change as OFCOM may direct to be appropriate in the circumstances. For the purposes of paragraph AA4(b).7(a), a material change to the Charge Controlled Service includes (but is not limited to) the introduction of a new product and/or service wholly or substantially in substitution for the existing Charge Controlled Service.

AA4(b).8 The Dominant Provider shall, no later than three months after the end of each Relevant Year, supply to OFCOM, in writing, the data necessary to perform the calculation of the Percentage Change.

AA4(b).9 If it appears to OFCOM that the Dominant Provider is likely to fail to secure that the Percentage Change does not exceed the Controlling Percentage for the last Relevant Year beginning on 1 October 2008 and ending on 30 September 2009, the Dominant Provider shall make such adjustment to any of its charges for the provision of Single Transit Services and by such day in that Year (or, if appropriate in OFCOM's opinion, by such day that falls after the end of that Relevant Year) as OFCOM may direct for the purpose of avoiding such a failure.

AA4(b).10 Paragraphs AA4(b).1 to AA4(b).9 shall not apply to such extent as OFCOM may direct.

AA4(b).11 In this Condition—

a) "**Charge**" means, for the purposes of paragraph AA4(b).7, the charge (being in all cases the amounts offered or charged by the Dominant Provider) to a Communications Provider for the Charge Controlled Service;

b) "**Charge Change**" means a change to any of the charges for the provision of Single Transit Services;

c) "**Charge Controlled Service**" means a product or service which forms part of (or is comprised in) the provision of Single Transit Services;

d) "**Controlling Percentage**" is to be determined in accordance with paragraph AA4(b).6;

e) "**Leap Year**" means the Relevant Year beginning on 1 October 2007 and ending on 30 September 2008;

f) "**OFCOM**" means the Office of Communications;

g) "**Percentage Change**" has the meaning given to it in paragraph AA4(b).3;

h) "**Relevant Financial Year**" means the period of 12 months ending on 31 March immediately preceding the Relevant Year in question;

i) "**Relevant Year**" means any of the four periods of 12 months beginning on 1 October starting with 1 October 2005 and ending on 30 September 2009; and

j) "**Retail Prices Index**" means the index of retail prices compiled by an agency or a public body on behalf of Her Majesty's Government or a governmental department (which is the Office of National Statistics at the time of publication of this Notification) from time to time in respect of all items.

Condition AA4(c)

Charge control – Local-tandem Conveyance

AA4(c).1 Without prejudice to the generality of Condition AA3, and subject to paragraphs AA4(c).2, AA4(c).4 and AA4(c).5, the Dominant Provider shall take all reasonable steps to secure that, on the last day of each Relevant Year, the Percentage Change (as determined in accordance with paragraph AA4(c).3) in each discrete charge, including charges disaggregated by time of day, distance or route, for the provision of Local-tandem Conveyance Services is not more than the Controlling Percentage (as determined in accordance with paragraph AA4(c).6).

AA4(c).2 For the purpose of complying with paragraph AA4(c).1, the Dominant Provider shall take all reasonable steps to secure that the revenue it accrues as a result of all individual Charge Changes during any Relevant Year shall be no more than that which it would have accrued had all of those Charge Changes been made at 1 April in the Relevant Year in question. The Dominant Provider shall be deemed to have satisfied this obligation where, by example in the case of a single Charge Change in the Relevant Year in question, the following formula is satisfied—

$$RC\left(1-D\right)\leq TRC$$

where—

RC is the revenue change associated with the single Charge Change made in the Relevant Year in question, calculated by the relevant Percentage Change immediately following the Charge Change multiplied by the revenue accrued during the Relevant Financial Year;

TRC is the target revenue change required in the Relevant Year in question to achieve compliance with paragraph AA4(c).1, calculated by the Percentage Change required in the Relevant Year in question to achieve compliance with paragraph AA4(c).1 multiplied by the revenue accrued from the provision of Local-tandem Conveyance Services during the Relevant Financial Year; and

D is the elapsed proportion of the Relevant Year in question calculated as:

i. for any Relevant Year other than the Leap Year, the date on which the Charge Change takes effect, expressed as a numeric entity on a scale ranging from 1 October = -182 to 30 September = 182, divided by 183;

ii. for the Leap Year, the date on which the Charge Change takes effect, expressed as a numeric entity on a scale ranging from 1 October = -183 to 30 September = 182, divided by 183.

AA4(c).3 The Percentage Change shall be calculated for the purposes of complying with paragraph AA4(c).1 by employing the following formula—

$$C_t = \frac{(p_t - p_0)}{p_0}$$

where—

Ct is the Percentage Change in each discrete charge, including charges disaggregated by time of day, distance or route, for the provision of Local-tandem Conveyance Services at a particular time t during the Relevant Year;

p0 is the published charge made by the Dominant Provider for the provision of Local-tandem Conveyance Services immediately preceding the beginning of the Relevant Year; and

pt is the published charge made by the Dominant Provider for the provision of Local-tandem Conveyance Services at time t during the Relevant Year.

AA4(c).4 Where the Percentage Change in the Relevant Year in question is less than the Controlling Percentage (so that the Dominant Provider has made larger than required reductions), then the Controlling Percentage for the following Relevant Year shall be determined in accordance with paragraph AA4(c).6, but increased by the absolute value of such excess.

AA4(c).5 Where the Percentage Change in the Relevant Year in question is more than the Controlling Percentage (so that the Dominant Provider has made smaller than required reductions), then the Controlling Percentage for the following Relevant Year shall be determined in accordance with paragraph AA4(c).6, but decreased by the absolute value of such deficiency.

AA4(c).6 Subject to paragraphs AA4(c).4 and AA4(c).5, the Controlling Percentage in relation to the Relevant Year in question is the amount of the change in the Retail Prices Index in the period of 12 months ending on 30th June immediately before the beginning of that Year expressed as a percentage (rounded to two decimal places) of that Index as at the beginning of that period reduced by 0 percentage points.

AA4(c).7 Where—

a) the Dominant Provider makes a material change (other than to a Charge) to the Charge Controlled Service for which a Charge is charged;

b) the Dominant Provider makes a change to the date on which its financial year ends; or

c) there is a material change in the basis of the Retail Prices Index,

paragraphs AA4(c).1 to AA4(c).6 shall have effect subject to such reasonable adjustment to take account of the change as OFCOM may direct to be appropriate in the circumstances. For the purposes of paragraph AA4(c).7(a), a material change to the Charge Controlled Service includes (but is not limited to) the introduction of a new product and/or service wholly or substantially in substitution for an existing Charge Controlled Service.

AA4(c).8 The Dominant Provider shall, no later than three months after the end of each Relevant Year, supply to OFCOM, in writing, the data necessary to perform the calculation of the Percentage Change.

AA4(c).9 If it appears to OFCOM that the Dominant Provider is likely to fail to secure that the Percentage Change does not exceed the Controlling Percentage for the last Relevant Year beginning on 1 October 2008 and ending on 30 September 2009,

the Dominant Provider shall make such adjustment to any of its charges for the provision of Local-tandem Conveyance Services and by such day in that Year (or, if appropriate in OFCOM's opinion, by such day that falls after the end of that Relevant Year) as OFCOM may direct for the purpose of avoiding such a failure.

AA4(c).10 Paragraphs AA4(c).1 to AA4(c).9 shall not apply to such extent as OFCOM may direct.

AA4(c).11 In this Condition—

a) "**Charge**" means, for the purposes of paragraph AA4(c).7, the charge (being in all cases the amounts offered or charged by the Dominant Provider) to a Communications Provider for the Charge Controlled Service;

b) "**Charge Change**" means a change to any of the discrete charges, including charges disaggregated by time of day, distance or route charges, for the provision of Local-tandem Conveyance Services;

c) "**Charge Controlled Service**" means a product or service which forms part of (or is comprised in) the provision of Local-tandem Conveyance Services;

d) "**Controlling Percentage**" is to be determined in accordance with paragraph AA4(c).6;

e) "**Leap Year**" means the Relevant Year beginning on 1 October 2007 and ending on 30 September 2008;

f) "**OFCOM**" means the Office of Communications;

g) "**Percentage Change**" has the meaning given to it in paragraph AA4(c).3;

h) "**Relevant Financial Year**" means the period of 12 months ending on 31 March immediately preceding the Relevant Year in question;

i) "**Relevant Year**" means any of the four periods of 12 months beginning on 1 October starting with 1 October 2005 and ending on 30 September 2009; and

j) "**Retail Prices Index**" means the index of retail prices compiled by an agency or a public body on behalf of Her Majesty's Government or a governmental department (which is the Office of National Statistics at the time of publication of this Notification) from time to time in respect of all items.

Condition AA4(d)

Charge control – LECO circuits, Local Exchange FRIACO ports and PPP

AA4(d).1 Without prejudice to the generality of Condition AA3, and subject to paragraphs AA4(d).2, AA4(d).4 and AA4(d).5, the Dominant Provider shall take all reasonable steps to secure that, on the last day of each Relevant Year, the Percentage Change (as determined in accordance with paragraph AA4(d).3) in each of:

a) the charge for the LECO circuit (excluding the FRIACO port at the Local Exchange);

b) the charge for the FRIACO port at the Local Exchange; and

c) the charge for PPP per FRIACO port,

d) is not more than the Controlling Percentage (as determined in accordance with paragraph AA4(d).6).

AA4(d).2 For the purpose of complying with paragraph AA4(d).1, the Dominant Provider shall take all reasonable steps to secure that the revenue it accrues as a result of all individual Charge Changes during any Relevant Year shall be no more than that which it would have accrued had all of those Charge Changes been made at 1 April in the Relevant Year in question. The Dominant Provider shall be deemed to have satisfied this obligation where, by example in the case of a single Charge Change in the Relevant Year in question, the following formula is satisfied—

$$RC\left(1-D\right)\leq TRC$$

where—

RC is the revenue change associated with the single Charge Change made in the Relevant Year in question, calculated by the relevant Percentage Change immediately following the Charge Change multiplied by the revenue accrued during the Relevant Financial Year;

TRC is the target revenue change required in the Relevant Year in question to achieve compliance with paragraph AA4(d).1, calculated by the Percentage Change required in the Relevant Year in question to achieve compliance with paragraph AA4(d).1 multiplied by the revenue accrued from the provision of any of the individual services specified in paragraph AA4(d).1(a) to (c) in question during the Relevant Financial Year; and

D is the elapsed proportion of the Relevant Year in question calculated as:

i. for any Relevant Year other than the Leap Year, the date on which the Charge Change takes effect, expressed as a numeric entity on a scale ranging from 1 October = -182 to 30 September = 182, divided by 183;

ii. for the Leap Year, the date on which the Charge Change takes effect, expressed as a numeric entity on a scale ranging from 1 October = -183 to 30 September = 182, divided by 183.

AA4(d).3 The Percentage Change shall be calculated for the purposes of complying with paragraph AA4(d).1 by employing the following formula—

$$C_t = \frac{(p_t - p_0)}{p_0}$$

where—

Ct is the Percentage Change in each of:

i. the charge for the LECO circuit (excluding the FRIACO port at the Local Exchange);

ii. the charge for the FRIACO port at the Local Exchange; and

iii. the charge for PPP per FRIACO port,

iv. in question at a particular time t during the Relevant Year;

p0 is the published charge made by the Dominant Provider for the provision of each separate service specified in paragraph AA4(d).1(a) to (c) in question immediately preceding the beginning of the Relevant Year; and

pt is the published charge made by the Dominant Provider for the provision of each separate service specified in paragraph AA4(d).1(a) to (c) in question at time t during the Relevant Year.

AA4(d).4 Where the Percentage Change in the Relevant Year in question is less than the Controlling Percentage (so that the Dominant Provider has made larger than required reductions), then the Controlling Percentage for the following Relevant Year shall be determined in accordance with paragraph AA4(d).6, but increased by the absolute value of such excess.

AA4(d).5 Where the Percentage Change in the Relevant Year in question is more than the Controlling Percentage (so that the Dominant Provider has made smaller than required reductions), then the Controlling Percentage for the following Relevant Year shall be determined in accordance with paragraph AA4(d).6, but decreased by the absolute value of such deficiency.

AA4(d).6 Subject to paragraphs AA4(d).4 and AA4(d).5, the Controlling Percentage in relation to the Relevant Year in question is the amount of the change in the Retail Prices Index in the period of 12 months ending on 30th June immediately before the beginning of that Year expressed as a percentage (rounded to two decimal places) of that Index as at the beginning of that period reduced by [7.5-11.25] percentage points.

AA4(d).7 Where—

a) the Dominant Provider makes a material change (other than to a Charge) to the Charge Controlled Service for which a Charge is charged;

b) the Dominant Provider makes a change to the date on which its financial year ends; or

c) there is a material change in the basis of the Retail Prices Index,

paragraphs AA4(d).1 to AA4(d).6 shall have effect subject to such reasonable adjustment to take account of the change as OFCOM may direct to be appropriate in the circumstances. For the purposes of paragraph AA4(d).7(a), a material change to the Charge Controlled Service includes (but is not limited to) the introduction of a new product and/or service wholly or substantially in substitution for an existing Charge Controlled Service.

AA4(d).8 The Dominant Provider shall, no later than three months after the end of each Relevant Year, supply to OFCOM, in writing, the data necessary to perform the calculation of the Percentage Change.

AA4(d).9 If it appears to OFCOM that the Dominant Provider is likely to fail to secure that the Percentage Change does not exceed the Controlling Percentage for the last Relevant Year beginning on 1 October 2008 and ending on 30 September 2009, the Dominant Provider shall make such adjustment to any of its charges for the provision of any of the individual services specified in paragraph AA4(d).1(a) to (c) in question and by such day in that Year (or, if appropriate in OFCOM's opinion, by such day that falls after the end of that Relevant Year) as OFCOM may direct for the purpose of avoiding such a failure.

AA4(d).10 Paragraphs AA4(d).1 to AA4(d).9 shall not apply to such extent as OFCOM may direct.

AA4(d).11 In this Condition—

a) "**Charge**" means, for the purposes of paragraph AA4(d).7, the charge (being in all cases the amounts offered or charged by the Dominant Provider) to a Communications Provider for the Charge Controlled Service;

b) "**Charge Change**" means a change to any of the charges for the provision of any of the individual services specified in paragraph AA4(d).1(a) to (c) in question;

c) "**Charge Controlled Service**" means a product or service which forms part of (or is comprised in) the provision of any of the individual services specified in paragraph AA4(d).1(a) to (c);

d) "**Controlling Percentage**" is to be determined in accordance with paragraph AA4(d).6;

e) "**Leap Year**" means the Relevant Year beginning on 1 October 2007 and ending on 30 September 2008;

f) "**OFCOM**" means the Office of Communications;

g) "**Percentage Change**" has the meaning given to it in paragraph AA4(d).3;

h) "**PPP**" means product management, policy and planning provided by the Dominant Provider;

i) "**Relevant Financial Year**" means the period of 12 months ending on 31 March immediately preceding the Relevant Year in question;

j) "**Relevant Year**" means any of the four periods of 12 months beginning on 1 October starting with 1 October 2005 and ending on 30 September 2009; and

k) "**Retail Prices Index**" means the index of retail prices compiled by an agency or a public body on behalf of Her Majesty's Government or a governmental department (which is the Office of National Statistics at the time of publication of this Notification) from time to time in respect of all items.

Condition AA4(e)

Charge control – Flat rate internet access local-tandem circuit and Tandem Exchange FRIACO ports

AA4(e).1 Without prejudice to the generality of Condition AA3, and subject to paragraphs AA4(e).2, AA4(e).4 and AA4(e).5, the Dominant Provider shall take all reasonable steps to secure that, on the last day of each Relevant Year, the Percentage Change (as determined in accordance with paragraph AA4(e).3) in each of:

a) the charge for a flat rate internet access local-tandem circuit (including DLE facing port but excluding FRIACO port at the Tandem Exchange); and

b) the charge for a FRIACO port at the Tandem Exchange,

c) is not more than the Controlling Percentage (as determined in accordance with paragraph AA4(e).6).

AA4(e).2 For the purpose of complying with paragraph AA4(e).1, the Dominant Provider shall take all reasonable steps to secure that the revenue it accrues as a result of all individual Charge Changes during any Relevant Year shall be no more than that which it would have accrued had all of those Charge Changes been made at 1 April in the Relevant Year in question. The Dominant Provider shall be deemed to have satisfied this obligation where, by example in the case of a single Charge Change in the Relevant Year in question, the following formula is satisfied—

$$RC(1-D) \leq TRC$$

where—

RC is the revenue change associated with the single Charge Change made in the Relevant Year in question, calculated by the relevant Percentage Change immediately following the Charge Change multiplied by the revenue accrued during the Relevant Financial Year;

TRC is the target revenue change required in the Relevant Year in question to achieve compliance with paragraph AA4(e).1, calculated by the Percentage Change required in the Relevant Year in question to achieve compliance with paragraph AA4(e).1 multiplied by the revenue accrued from the provision of any of the individual services specified in paragraph AA4(e).1(a) and (b) in question during the Relevant Financial Year; and

D is the elapsed proportion of the Relevant Year in question calculated as:

i. for any Relevant Year other than the Leap Year, the date on which the Charge Change takes effect, expressed as a numeric entity on a scale ranging from 1 October = -182 to 30 September = 182, divided by 183;

ii. for the Leap Year, the date on which the Charge Change takes effect, expressed as a numeric entity on a scale ranging from 1 October = -183 to 30 September = 182, divided by 183.

AA4(e).3 The Percentage Change shall be calculated for the purposes of complying with paragraph AA4(e).1 by employing the following formula—

$$C_t = \frac{(p_t - p_0)}{p_0}$$

where—

Ct is the Percentage Change in each of:

i. the charge for a flat rate internet access local-tandem circuit (including DLE facing port but excluding FRIACO port at the Tandem Exchange); and

ii. the charge for a FRIACO port at the Tandem Exchange,

in question at a particular time t during the Relevant Year;

p0 is the published charge made by the Dominant Provider for the provision of each separate service specified in paragraph AA4(e).1(a) and (b) in question immediately preceding the beginning of the Relevant Year; and

pt is the published charge made by the Dominant Provider for the provision of each separate service specified in paragraph AA4(e).1(a) and (b) in question at time t during the Relevant Year.

AA4(e).4 Where the Percentage Change in the Relevant Year in question is less than the Controlling Percentage (so that the Dominant Provider has made larger than required reductions), then the Controlling Percentage for the following Relevant Year shall be determined in accordance with paragraph AA4(e).6, but increased by the absolute value of such excess.

AA4(e).5 Where the Percentage Change in the Relevant Year in question is more than the Controlling Percentage (so that the Dominant Provider has made smaller than required reductions), then the Controlling Percentage for the following Relevant Year shall be determined in accordance with paragraph AA4(e).6, but decreased by the absolute value of such deficiency.

AA4(e).6 Subject to paragraphs AA4(e).4 and AA4(e).5, the Controlling Percentage in relation to the Relevant Year in question is the amount of the change in the Retail Prices Index in the period of 12 months ending on 30th June immediately before the beginning of that Year expressed as a percentage (rounded to two decimal places) of that Index as at the beginning of that period reduced by [8.5-12.25] percentage points.

AA4(e).7 Where—

a) the Dominant Provider makes a material change (other than to a Charge) to the Charge Controlled Service for which a Charge is charged;

b) the Dominant Provider makes a change to the date on which its financial year ends; or

c) there is a material change in the basis of the Retail Prices Index,

paragraphs AA4(e).1 to AA4(e).6 shall have effect subject to such reasonable adjustment to take account of the change as OFCOM may direct to be appropriate in the circumstances. For the purposes of paragraph AA4(e).7(a), a material change to the Charge Controlled Service includes (but is not limited to) the introduction of a new product and/or service wholly or substantially in substitution for an existing Charge Controlled Service.

AA4(e).8 The Dominant Provider shall, no later than three months after the end of each Relevant Year, supply to OFCOM, in writing, the data necessary to perform the calculation of the Percentage Change.

AA4(e).9 If it appears to OFCOM that the Dominant Provider is likely to fail to secure that the Percentage Change does not exceed the Controlling Percentage for the last Relevant Year beginning on 1 October 2008 and ending on 30 September 2009, the Dominant Provider shall make such adjustment to any of its charges for the provision of any of the individual services specified in paragraph AA4(e).1(a) and (b) in question and by such day in that Year (or, if appropriate in OFCOM's opinion, by such day that falls after the end of that Relevant Year) as OFCOM may direct for the purpose of avoiding such a failure.

AA4(e).10 Paragraphs AA4(e).1 to AA4(e).9 shall not apply to such extent as OFCOM may direct.

AA4(e).11 In this Condition—

a) "**Charge**" means, for the purposes of paragraph AA4(d).7, the charge (being in all cases the amounts offered or charged by the Dominant Provider) to a Communications Provider for the Charge Controlled Service;

b) "**Charge Change**" means a change to any of the charges for the provision of any of the individual services specified in paragraph AA4(d).1(a) to (c) in question;

c) "**Charge Controlled Service**" means a product or service which forms part of (or is comprised in) the provision of any of the individual services specified in paragraph AA4(d).1(a) to (c);

d) "**Controlling Percentage**" is to be determined in accordance with paragraph AA4(d).6;

e) "**Leap Year**" means the Relevant Year beginning on 1 October 2007 and ending on 30 September 2008;

f) "**OFCOM**" means the Office of Communications;

g) "**Percentage Change**" has the meaning given to it in paragraph AA4(d).3;

h) "**PPP**" means product management, policy and planning provided by the Dominant Provider;

i) "**Relevant Financial Year**" means the period of 12 months ending on 31 March immediately preceding the Relevant Year in question;

j) "**Relevant Year**" means any of the four periods of 12 months beginning on 1 October starting with 1 October 2005 and ending on 30 September 2009; and

k) "**Retail Prices Index**" means the index of retail prices compiled by an agency or a public body on behalf of Her Majesty's Government or a governmental department (which is the Office of National Statistics at the time of publication of this Notification) from time to time in respect of all items.

SCHEDULE 3

Proposed setting of SMP services condition BA4(a) as a result of the market power determination made by the Director in respect of the identified services market for fixed geographic call termination provided by BT set out in paragraph 1(a) of the Fixed Call Termination Notification in which BT has been determined to have significant market power

1. In Part 2 of Schedule 1 to the Fixed Call Termination Notification (as amended by the February 2005 Notifications), there shall be set the following SMP services condition BA4(a) by inserting it after Condition BA4—

Condition BA4(a)

Charge control – Fixed Call Termination

BA4(a).1 Without prejudice to the generality of Condition BA3, and subject to paragraphs BA4(a).2, BA4(a).4 and BA4(a).5, the Dominant Provider shall take all reasonable steps to secure that, on the last day of each Relevant Year, the Percentage Change (as determined in accordance with paragraph BA4(a).3) in the aggregate of charges for the provision of Fixed Call Termination Wholesale Services is not more than the Controlling Percentage (as determined in accordance with paragraph BA4(a).6).

BA4(a).2 For the purpose of complying with paragraph BA4(a).1, the Dominant Provider shall take all reasonable steps to secure that the revenue it accrues as a result of all individual Charge Changes during any Relevant Year shall be no more than that which it would have accrued had all of those Charge Changes been made on 1 April in the Relevant Year in question. The Dominant Provider shall be deemed to have satisfied this obligation where, by example in the case of a single Charge Change in the Relevant Year in question, the following formula is satisfied—

$$RC\left(1-D\right)\leq TRC$$

where—

RC is the revenue change associated with the single Charge Change made in the Relevant Year in question, calculated by the relevant Percentage Change immediately following the Charge Change multiplied by the revenue accrued during the Relevant Financial Year;

TRC is the target revenue change required in the Relevant Year in question to achieve compliance with paragraph BA4(a).1, calculated by the Percentage Change required in the Relevant Year in question to achieve compliance with paragraph BA4(a).1 multiplied by the revenue accrued from the provision of Fixed Call Termination Wholesale Services during the Relevant Financial Year; and

D is the elapsed proportion of the Relevant Year in question calculated as:

i. for any Relevant Year other than the Leap Year, the date on which the Charge Change takes effect, expressed as a numeric entity on a scale ranging from 1 October = -182 to 30 September = 182, divided by 183;

ii. for the Leap Year, the date on which the Charge Change takes effect, expressed as a numeric entity on a scale ranging from 1 October = -183 to 30 September = 182, divided by 183.

BA4(a).3 The Percentage Change shall be calculated for the purposes of complying with paragraph BA4(a).1 by employing the following formula—

$$C_t = \frac{\sum_{i=1}^{n}\left[R_i \frac{(p_{t,i} - p_{0,i})}{p_{0,i}} \right]}{\sum_{i=1}^{n} R_i}$$

where—

Ct is the Percentage Change in the aggregate of charges for the provision of Fixed Call Termination Wholesale Services at a particular time t during the Relevant Year;

n is the number of individual services that form part of (or are comprised in) the provision of Fixed Call Termination Wholesale Services;

Ri is the sum of the revenue accrued during the Relevant Financial Year in respect of the individual service i that forms part of (or is comprised in) the provision of Fixed Call Termination Wholesale Services where i is a unique number from 1 to n for each of the n individual services in the provision of Fixed Call Termination Wholesale Services;

p0,i is the published charge made by the Dominant Provider for the individual service i that forms part of (or is comprised in) the provision of Fixed Call Termination Wholesale Services immediately preceding the beginning of the Relevant Year; and

pt,i is the published charge made by the Dominant Provider for the individual service i that forms part of (or is comprised in) the provision of Fixed Call Termination Wholesale Services at time t during the Relevant Year.

BA4(a).4 Where the Percentage Change in the Relevant Year in question is less than the Controlling Percentage (so that the Dominant Provider has made larger than required reductions), then the Controlling Percentage for the following Relevant Year shall be determined in accordance with paragraph BA4(a).6, but increased by the absolute value of such excess.

BA4(a).5 Where the Percentage Change in the Relevant Year in question is more than the Controlling Percentage (so that the Dominant Provider has made smaller than required reductions), then the Controlling Percentage for the following Relevant Year shall be determined in accordance with paragraph BA4(a).6, but decreased by the absolute value of such deficiency.

BA4(a).6 Subject to paragraphs BA4(a).4 and BA4(a).5, the Controlling Percentage in relation to the Relevant Year in question is the amount of the change in the Retail Prices Index in the period of 12 months ending on 30th June immediately before the beginning of that Year expressed as a percentage (rounded to two

decimal places) of that Index as at the beginning of that period reduced by [2.25-6.25] percentage points.

BA4(a).7 Where—

a) the Dominant Provider makes a material change (other than to a Charge) to the Charge Controlled Service for which a Charge is charged;

b) the Dominant Provider makes a change to the date on which its financial year ends; or

c) there is a material change in the basis of the Retail Prices Index,

paragraphs BA4(a).1 to BA4(a).6 shall have effect subject to such reasonable adjustment to take account of the change as OFCOM may direct to be appropriate in the circumstances. For the purposes of paragraph BA4(a).7(a), a material change to the Charge Controlled Service includes (but is not limited to) the introduction of a new product and/or service wholly or substantially in substitution for the existing Charge Controlled Service.

BA4(a).8 The Dominant Provider shall, no later than three months after the end of each Relevant Year, supply to OFCOM, in writing, the data necessary to perform the calculation of the Percentage Change.

BA4(a).9 If it appears to OFCOM that the Dominant Provider is likely to fail to secure that the Percentage Change does not exceed the Controlling Percentage for the last Relevant Year beginning on 1 October 2008 and ending on 30 September 2009, the Dominant Provider shall make such adjustment to any of its charges for the provision of Fixed Call Termination Wholesale Services and by such day in that Year (or, if appropriate in OFCOM's opinion, by such day that falls after the end of that Relevant Year) as OFCOM may direct for the purpose of avoiding such a failure.

BA4(a).10 Paragraphs BA4(a).1 to BA4(a).9 shall not apply to such extent as OFCOM may direct.

BA4(a).11 In this Condition—

a) "**Charge**" means, for the purposes of paragraph BA4(a).7, the charge (being in all cases the amounts offered or charged by the Dominant Provider) to a Communications Provider for the Charge Controlled Service;

b) "**Charge Change**" means a change to any of the charges for the provision of Fixed Call Termination Wholesale Services;

c) "**Charge Controlled Service**" means a product or service which forms part of (or is comprised in) the provision of Fixed Call Termination Wholesale Services;

d) "**Controlling Percentage**" is to be determined in accordance with paragraph BA4(a).6;

e) "**Leap Year**" means the Relevant Year beginning on 1 October 2007 and ending on 30 September 2008;

f) "**OFCOM**" means the Office of Communications;

g) "**Percentage Change**" has the meaning given to it in paragraph BA4(a).3;

h) "**Relevant Financial Year**" means the period of 12 months ending on 31 March immediately preceding the Relevant Year in question;

i) "**Relevant Year**" means any of the four periods of 12 months beginning on 1 October starting with 1 October 2005 and ending on 30 September 2009; and

j) "**Retail Prices Index**" means the index of retail prices compiled by an agency or a public body on behalf of Her Majesty's Government or a governmental department (which is the Office of National Statistics at the time of publication of this Notification) from time to time in respect of all items."

SCHEDULE 4

Proposed setting of SMP services condition PA1(a) as a result of the proposed market power determination in respect of the services market for local-tandem conveyance and transit on fixed public narrowband networks in the United Kingdom excluding the Hull Area hereby made by OFCOM as set out in paragraph 4(a) of this Notification in which it is proposed to confirm that BT has significant market power and as a result of the market power determinations made by the Director in respect of the identified services markets set out in sub-paragraphs (vi) and (ix) of paragraph 1(a) of the November 2003 Notification and in paragraph 1(a) of the Fixed Call Termination Notification in each of which BT has been determined to have significant market power

1. The following SMP services condition PA1(a) shall be set—

"Condition PA1(a)

Charge control – PPP and Interconnection Circuits

PA1(a).1 Without prejudice to the generality of Condition AA3 and BA3, and subject to paragraphs PA1(a).2, PA1(a).4 and PA1(a).5, the Dominant Provider shall take all reasonable steps to secure that, on the last day of each Relevant Year, the Percentage Change (as determined in accordance with paragraph PA1(a).3) in:

a) the aggregate of charges for PPP per call minute; and

b) the aggregate of charges for Interconnection Circuits

in each of sub-paragraphs (a) and (b) above is not more than the Controlling Percentage (as determined in accordance with paragraph PA1(a).6).

PA1(a).2 For the purpose of complying with paragraph PA1(a).1, the Dominant Provider shall take all reasonable steps to secure that the revenue it accrues as a result of all individual Charge Changes during any Relevant Year shall be no more than that which it would have accrued had all of those Charge Changes been made on 1 April in the Relevant Year in question. The Dominant Provider shall be deemed to have satisfied this obligation where, by example in the case of a single Charge Change in the Relevant Year in question, the following formula is satisfied—

$$RC\left(1-D\right)\leq TRC$$

where—

RC is the revenue change associated with the single Charge Change made in the Relevant Year in question, calculated by the relevant Percentage Change immediately following the Charge Change multiplied by the revenue accrued during the Relevant Financial Year;

TRC is the target revenue change required in the Relevant Year in question to achieve compliance with paragraph PA1(a).1, calculated by the Percentage Change required in the Relevant Year in question to achieve compliance with paragraph PA1(a).1 multiplied by the revenue accrued from the provision of the

category of service specified in paragraphs PA1(a).1(a) or (b) in question during the Relevant Financial Year; and

D is the elapsed proportion of the Relevant Year in question calculated as:

i. for any Relevant Year other than the Leap Year, the date on which the Charge Change takes effect, expressed as a numeric entity on a scale ranging from 1 October = -182 to 30 September = 182, divided by 183;

ii. for the Leap Year, the date on which the Charge Change takes effect, expressed as a numeric entity on a scale ranging from 1 October = -183 to 30 September = 182, divided by 183.

PA1(a).3 The Percentage Change shall be calculated separately for each of:

i. the category of service specified in paragraph PA1(a).1(a); and

ii. the category of service specified in paragraph PA1(a).1(b),

by employing the following formula—

$$C_t = \frac{\sum_{i=1}^{n}\left[R_i \frac{(p_{t,i} - p_{0,i})}{p_{0,i}}\right]}{\sum_{i=1}^{n} R_i}$$

where—

Ct is the Percentage Change in the aggregate of charges for the provision of services in the category of services in question at a particular time t during the Relevant Year;

n is the number of individual services that form part of (or are comprised in) the provision of services in the category of services in question;

Ri is the sum of the revenue accrued during the Relevant Financial Year in respect of the individual service i that forms part of (or is comprised in) the provision of services in the category of services in question where i is a unique number from 1 to n for each of the n individual services in the provision of services in the category of services in question;

p0,i is the published charge made by the Dominant Provider for the individual service i that forms part of (or is comprised in) the provision of services in the category of services in question immediately preceding the beginning of the Relevant Year; and

pt,i is the published charge made by the Dominant Provider for the individual service i that forms part of (or is comprised in) the provision of services in the category of services in question at time t during the Relevant Year.

PA1(a).4 Where the Percentage Change in the Relevant Year in question is less than the Controlling Percentage (so that the Dominant Provider has made larger than required reductions), then the Controlling Percentage for the following Relevant

Year shall be determined in accordance with paragraph PA1(a).6, but increased by the absolute value of such excess.

PA1(a).5 Where the Percentage Change in the Relevant Year in question is more than the Controlling Percentage (so that the Dominant Provider has made smaller than required reductions), then the Controlling Percentage for the following Relevant Year shall be determined in accordance with paragraph PA1(a).6, but decreased by the absolute value of such deficiency.

PA1(a).6 Subject to paragraphs PA1(a).4 and PA1(a).5, the Controlling Percentage in relation to the Relevant Year in question is the amount of the change in the Retail Prices Index in the period of 12 months ending on 30th June immediately before the beginning of that Year expressed as a percentage (rounded to two decimal places) of that Index as at the beginning of that period reduced by:

a) in respect of PPP per call minute, by [2.5-6.5] percentage points; and

b) in respect of Interconnection Circuits, by [1.5-5.5] percentage points.

PA1(a).7 Where—

a) the Dominant Provider makes a material change (other than to a Charge) to the Charge Controlled Service for which a Charge is charged;

b) the Dominant Provider makes a change to the date on which its financial year ends; or

c) there is a material change in the basis of the Retail Prices Index,

paragraphs PA1(a).1 to PA1(a).6 shall have effect subject to such reasonable adjustment to take account of the change as OFCOM may direct to be appropriate in the circumstances. For the purposes of paragraph PA1(a).7(a), a material change to the Charge Controlled Service includes (but is not limited to) the introduction of a new product and/or service wholly or substantially in substitution for the existing Charge Controlled Service.

PA1(a).8 The Dominant Provider shall, no later than three months after the end of each Relevant Year, supply to OFCOM, in writing, the data necessary to perform the calculation of the Percentage Change.

PA1(a).9 If it appears to OFCOM that the Dominant Provider is likely to fail to secure that the Percentage Change does not exceed the Controlling Percentage for the last Relevant Year beginning on 1 October 2008 and ending on 30 September 2009, the Dominant Provider shall make such adjustment to any of its charges for the provision of services in the category of services specified in paragraphs PA1(a).1(a) or (b) in question and by such day in that Year (or, if appropriate in OFCOM's opinion, by such day that falls after the end of that Relevant Year) as OFCOM may direct for the purpose of avoiding such a failure.

PA1(a).10 Paragraphs PA1(a).1 to PA1(a).9 shall not apply to such extent as OFCOM may direct.

PA1(a).11 In this Condition—

a) "**Charge**" means, for the purposes of paragraph PA1(a).7, the charge (being in all cases the amounts offered or charged by the Dominant Provider) to a Communications Provider for the Charge Controlled Service;

b) "**Charge Change**" means a change to any of the charges for the provision of services in the category of services specified in paragraphs PA1(a).1(a) or (b) in question;

c) "**Charge Controlled Service**" means a product or service which forms part of (or is comprised in) the provision of services in the category of services specified in paragraphs PA1(a).1(a) or (b) in question;

d) "**Controlling Percentage**" is to be determined in accordance with paragraph PA1(a).6;

e) "**Leap Year**" means the Relevant Year beginning on 1 October 2007 and ending on 30 September 2008;

f) "**OFCOM**" means the Office of Communications;

g) "**Percentage Change**" has the meaning given to it in paragraph PA1(a).3;

h) "**Relevant Financial Year**" means the period of 12 months ending on 31 March immediately preceding the Relevant Year in question;

i) "**Relevant Year**" means any of the four periods of 12 months beginning on 1 October starting with 1 October 2005 and ending on 30 September 2009; and

j) "**Retail Prices Index**" means the index of retail prices compiled by an agency or a public body on behalf of Her Majesty's Government or a governmental department (which is the Office of National Statistics at the time of publication of this Notification) from time to time in respect of all items.

PA1(a).12 For the purpose of interpreting this Condition—

a) Except for references made to identified services markets in paragraph PA1(a).13 and except insofar as the context otherwise requires or as defined in paragraph PA1(a).11, words or expressions shall have the meaning ascribed to them in Part 1 of Schedule 1 to the November 2003 Notification or (as the case may be) in Part 1 of Schedule 1 to the Fixed Call Termination Notification and otherwise any word or expression shall have the same meaning as it has been ascribed in the Communications Act 2003 (c. 21);

b) headings and titles shall be disregarded; and

c) the Interpretation Act 1978 (c. 30) shall apply as if this Notification were an Act of Parliament."

PA1(a).13 This Condition shall apply to each and all of the following markets and to Interconnection Circuits—

a) call origination on fixed public narrowband networks in the UK excluding the Hull Area;

b) local-tandem conveyance and transit on fixed public telephone networks in the UK excluding the Hull Area;

c) single transit on fixed public narrowband networks in the UK excluding the Hull Area; and

d) fixed geographic call termination provided by the Dominant Provider,

in each market of which the Dominant Provider has been determined to have significant market power.

SCHEDULE 5

Proposed modifications to SMP services conditions AA2, AA6(a) and AA6(b) imposed on BT pursuant to the November 2003 Notification as a result of the market power determination in respect of the services market for local-tandem conveyance and transit on fixed public narrowband networks in the United Kingdom excluding the Hull Area which market power determination OFCOM hereby propose to confirm as set out in paragraph 4(a) of this Notification and as a result of the market power determinations made by the Director in respect of the identified services markets set out in paragraphs 1(a)(vi) and (ix) of the November 2003 Notification in each of which BT has been determined to have significant market power

1. Paragraph AA2.2 of SMP services condition AA2 in Part 2 of Schedule 1 to the November 2003 Notification shall be deleted in its entirety.

2. For paragraph AA6(a).2 of SMP services condition AA6(a) in Part 2 of Schedule 1 to the November 2003 Notification, there shall be substituted the following new paragraph AA6(a).2—

> *"AA6(a).2 Except where new or amended charges are directed or determined by Office of Communications ("Ofcom") or where such charges are required by a notification or an enforcement notification given by Ofcom under sections 94 or 95 of the Act, the Dominant Provider shall send to the Director and to every Third Party with which it has entered into an Access Contract covered by Condition AA1(a) a written notice of any amendment to the charges on which it provides Network Access or in relation to any charges for new Network Access (an "Access Charge Change Notice"):*
>
> a) in the case of each of the markets set out in paragraph 1(a) of this Notification (except for the markets set out in sub-paragraphs 1(a)(ii), 1(a)(v), 1(a)(vii) and 1(a)(viii)), not less than 90 days before any such amendment comes into effect; and
>
> b) in the case of each of the markets set out in sub-paragraphs 1(a)(ii), 1(a)(v) and 1(a)(vii) of paragraph 1(a) of this Notification, not less than 28 days before any such amendment comes into effect."

3. For paragraph AA6(b).1 of SMP services condition AA6(b) in Part 2 of Schedule 1 to the November 2003 Notification, there shall be substituted the following new paragraph AA6(b).1—

> *"AA6(b).1 Save where the Director consents otherwise, where the Dominant Provider:*
>
> a) proposes to provide Network Access covered by Condition AA1(a), the terms and conditions for which comprise new:
>
> i. technical characteristics (including information on network configuration where necessary to make effective use of the Network Access);
>
> ii. locations of the points of Network Access; or

iii. technical standards (including any usage restrictions and other security issues),

or

proposes to amend an existing Access Contract covered by Condition AA1(a) by modifying the terms and conditions listed in paragraph AA6(b).1(a)(i) to (iii) above on which the Network Access is provided,

the Dominant Provider shall publish a written notice (the "Notice") of the new or amended terms and conditions not less than 90 days before either the Dominant Provider enters into an Access Contract to provide the new Network Access or the amended terms and conditions of the existing Access Contract come into effect. This obligation for prior notification shall not apply where new or amended charges or terms and conditions are directed or determined by the Office of Communications ("Ofcom") or are required by a notification or an enforcement notification given by Ofcom under sections 94 or 95 of the Act."

SCHEDULE 6

Proposed modification to SMP services condition AA12 imposed on BT pursuant to the November 2003 Notification as a result of the market power determination made by the Director in respect of the identified services market set out in paragraph 1(a)(vi) of the November 2003 Notification in which BT has been determined to have significant market power

1. In paragraph AA12.3(c) of SMP services condition AA12 in Part 2 of Schedule 1 to the November 2003 Notification, for the definition of "AR (DLE) (LECO)", there shall be substituted the following new definition of "AR (DLE) (LECO)"—

> *""**AR (DLE) (LECO)"** means the adjustment ratio (Local Exchange call origination (LECO)) which measures the number of LECO circuits that are needed for each FRIACO port at the DLE. The AR (DLE) (LECO) adjustment ratio is 1.7."*

SCHEDULE 7

Proposed modifications to SMP services conditions BA2 and BA6 imposed on BT pursuant to the Fixed Call Termination Notification as a result of the market power determination made by the Director in respect of the identified services market for fixed geographic call termination provided by BT set out in paragraph 1(a) of the Fixed Call Termination Notification in which BT has been determined to have significant market power

1. Paragraph BA2.2 of SMP services condition BA2 in Part 2 of Schedule 1 to the Fixed Call Termination Notification shall be deleted in its entirety.

2. In Part 2 of Schedule 1 to the Fixed Call Termination Notification, for paragraph BA6.2 of SMP services condition BA6, there shall be shall be substituted the following new paragraph BA6.2—

> *"BA6.2 Except where new or amended charges are directed or determined by Office of Communications ("Ofcom") or where such charges are required by a notification or an enforcement notification given by Ofcom under sections 94 or 95 of the Act, the Dominant Provider shall send to the Director and to every Third Party with which it has entered into an Access Contract covered by Condition BA1 a written notice of any amendment to the charges on which it provides Network Access or in relation to any charges for new Network Access (an "Access Charge Change Notice") not less than 90 days before any such amendment comes into effect."*

Part II – Proposed withdrawal of Direction

NOTIFICATION UNDER SECTIONS 49 OF THE COMMUNICATIONS ACT 2003

Proposal to withdraw a Direction given to British Telecommunications plc under SMP services condition AA1(a) in respect of its application to the market for inter-tandem conveyance and transit on fixed public narrowband networks in the United Kingdom excluding the Hull Area

1. OFCOM hereby make, in accordance with section 49 of the 2003 Act, a proposal to withdraw, to the extent specified in paragraph 2, the Credit Vetting Direction given under SMP services condition AA1(a) set out in Part 2 of Schedule 1 to the November 2003 Notification.

2. The Credit Vetting Direction is proposed to be withdrawn only to the extent that it applies to the services market for inter-tandem conveyance and transit on fixed public narrowband networks in the United Kingdom excluding the Hull Area, which market is identified in sub-paragraph (viii) of paragraph 1(a) of the November 2003 Notification. The proposed withdrawal is set out in the Schedule to this Notification.

3. The effect of the proposed withdrawal, and the reasons for making the proposal, are set out in Sections 4 and Annex 6 of the accompanying explanatory statement hereto.

4. **In making the proposal set out in this Notification, OFCOM have considered and acted in accordance with their general duties set out in section 3 of the 2003 Act and the six Community requirements set out in section 4 of the 2003 Act.**

5. **Representations may be made to OFCOM about the proposals set out in this Notification and the accompanying explanatory statement by 1 June 2005.**

6. In accordance with section 50 of the 2003 Act, copies of this Notification have been sent to the Secretary of State, the European Commission and to the regulatory authorities of every other Member State.

7. In this Notification—

   a) "**2003 Act**" means the Communications Act 2003 (c.21);

   b) "**BT**" means British Telecommunications plc, whose registered company number is 1800000, and any of its subsidiaries or holding companies, or any subsidiary of such holding companies, all as defined by section 736 of the Companies Act 1985, as amended by the Companies Act 1989;

   c) "**Credit Vetting Direction**" means the Direction given by the Director General of Telecommunications and signed on 27 November 2003 concerning BT's credit vetting proposals published at Annex F of the November 2003 Notification;

   d) "**November 2003 Notification**" means the Notification published by the Director General of Telecommunications on 28 November 2003 at Annex A to his document entitled 'Review of the fixed narrowband wholesale exchange line, call origination, conveyance and transit markets — Identification and analysis of markets, determination of market power and

the setting of SMP conditions — Final Explanatory Statement and Notification'; and

e) "**OFCOM**" means the Office of Communications.

DAVID K S THOMAS
DIRECTOR OF REGULATORY FINANCE

A person duly authorised in accordance with paragraph 18 of the Schedule to the Office of Communications Act 2002

23 MARCH 2005

SCHEDULE 1

[Proposed] Withdrawal of the Credit Vetting Direction given under SMP services condition AA1(a) in respect of its application to the market for inter-tandem conveyance and transit on fixed public narrowband networks in the United Kingdom excluding the Hull Area

WHEREAS:

A. as a result of the November 2003 Notification, BT has been determined as a person having SMP in the services market for inter-tandem conveyance and transit on fixed public narrowband networks in the UK excluding the Hull Area and certain SMP services conditions have been set to apply to BT in respect of that market, such as Condition AA1(a);

B. on 28 November 2003, the Director published a Direction at Annex F of the November 2003 Notification, which Direction was given under Condition AA1(a) concerning BT's credit vetting proposals;

C. for the reasons set out in [to be inserted] of the explanatory statement accompanying the publication of this withdrawal, OFCOM are satisfied that, in accordance with section 49(2) of the 2003 Act, the withdrawal of the direction referred to in recital (B) above in respect of its application to the identified services market referred to in recital (A) above is:

   i. objectively justifiable in relation to the networks, services, facilities, apparatus or directories to which it relates;

   ii. not such as to discriminate unduly against particular persons or against a particular description of persons;

   iii. proportionate to what it is intended to achieve; and

   iv. in relation to what it is intended to achieve, transparent;

D. in withdrawing the said direction to the above-mentioned extent, for the reasons set out in [to be inserted] of the explanatory statement accompanying the publication of this withdrawal, OFCOM have considered and acted in accordance with their general duties set out in section 3 of the 2003 Act and the six Community requirements set out in section 4 of the 2003 Act;

E. on 23 March 2005, OFCOM published a notification of the proposed withdrawal in accordance with section 49 of the 2003 Act;

F. OFCOM have considered every representation about the proposed withdrawal duly made to them; and

NOW, therefore, pursuant to section 49 of the 2003 Act, OFCOM have decided:

1. The Credit Vetting Direction shall be withdrawn only to the extent it applies to BT in the services market for inter-tandem conveyance and transit on fixed public narrowband networks in the United Kingdom excluding the Hull Area, as identified in sub-paragraph (viii) of paragraph 1(a) of the November 2003 Notification.

2. In this withdrawal—

a) "**2003 Act**" means the Communications Act 2003 (c.21);

b) "**BT**" means British Telecommunications plc, whose registered company number is 1800000, and any of its subsidiaries or holding companies, or any subsidiary of such holding companies, all as defined by section 736 of the Companies Act 1985, as amended by the Companies Act 1989;

c) "**Credit Vetting Direction**" means the Direction given by the Director General and signed by him on 27 November 2003 concerning BT's credit vetting proposals published at Annex F of the November 2003 Notification, as referred to in recital (B) above;

d) "**Director**" means the Director General of Telecommunications as appointed under section 1 of the Telecommunications Act 1984;

e) "**November 2003 Notification**" means the Notification published by the Director on 28 November 2003 at Annex A to his document entitled 'Review of the fixed narrowband wholesale exchange line, call origination, conveyance and transit markets — Identification and analysis of markets, determination of market power and the setting of SMP conditions — Final Explanatory Statement and Notification'; and

f) "**OFCOM**" means the Office of Communications.

3. Except insofar as the context otherwise requires, words or expressions shall have the meaning ascribed to them in paragraph 2 above and otherwise any word or expression shall have the same meaning as it has been ascribed in the November 2003 Notification or, if the context so permits, in Schedule 1 thereto, as appropriate.

4. For the purpose of interpreting this withdrawal, the Interpretation Act 1978 (c. 30) shall apply as if this withdrawal were an Act of Parliament.

5. This withdrawal shall take effect on the day it is published.

[Name]
[Title]

A person duly authorised in accordance with paragraph 18 of the Schedule to the Office of Communications Act 2002

[date]

Annex 6

Detailed explanation of remedies including assessment against legal tests

Aims of regulation

Where Ofcom has made a determination that a person has SMP in an identified services market, it shall set such SMP conditions authorised by section 87 of the 2003 Act as it considers appropriate to apply to that person in respect of the relevant network or relevant facilities and apply those conditions to that person. Annex 4 to this explanatory statement sets out the reasoning, by reference to the SMP Guidelines, as to why Ofcom is obliged to impose at least one appropriate SMP condition.

In Sections 3 to 4, and Annexes 4 and 7, Ofcom explains why it considers that it is necessary for it to control the charges that BT can set in the markets for call origination, call termination, local-tandem conveyance and local-tandem transit, and single transit. In addition, those parts of this document explain why Ofcom considers that it is necessary to control the charges that BT levies for the provision of ISB services, PPP, and FRIACO. As explained, charge controls are designed to promote the development of competition in downstream narrowband markets, as competing providers would be able to purchase services on the basis of BT's increasingly efficient costs in the provision of wholesale services. In the absence of charge control regulation, BT would have an incentive to set charges that were above its costs.

However, Ofcom does not believe that charge controls, in isolation, would be sufficient to prevent SMP being used for anti-competitive purposes. As a consequence, Ofcom considers that it is necessary to set additional remedies requiring, amongst other things, price publication and cost accounting. This Annex therefore sets out in detail Ofcom's reasons for proposing to set SMP services conditions, as required by section 48(2) of the 2003 Act. It also sets out why Ofcom believes that it has satisfied the tests that are set out in the 2003 Act.

As explained in Section 4, Ofcom, is proposing to make a new market power determination in the market for LTC and LTT, and to re-set existing SMP services conditions on BT in relation to that market, with the exception of the new charge control and amended notification period conditions. For other markets, only new charge control conditions are proposed to be set under the notification in Annex 5, therefore the discussion of other markets in this annex is limited to the justification for new NCCs. However, the SMP services conditions referred to in this Annex equally apply in the markets for call origination, call termination, and single transit, despite the fact that those conditions are not being re-set.

Requirement to provide network access on reasonable request

Section 87(3) of the 2003 Act authorises the setting of SMP services conditions requiring the dominant provider to provide network access as Ofcom may from time to time direct. These conditions may, pursuant to section 87(5), include provision for securing fairness and reasonableness in the way in which requests for network access are made and responded to and for securing that the obligations in the conditions are complied with within periods and at times required by or under the conditions. When considering the imposition of such conditions in a particular case, Ofcom must have regard to the six factors set out in section

87(4) of the 2003 Act including, inter alia, the technical and economic viability of installing other competing facilities and the feasibility of the proposed network access.

As the market analysis set out in Section 3 has shown, considerable investment would be needed to offer a service comparable to LTC and LTT at each BT DLE. It may be economically viable to connect at each local exchange in some areas of the UK. However, in other areas, the level of investment that would be needed to achieve the same extensive coverage as BT is high and it is difficult for competing providers to compete on an even basis, and therefore enter the market for local-tandem conveyance on a national basis. Ofcom therefore considers that BT should be required to provide LTC and LTT, as this product helps to enable competitors who only interconnect at tandem exchanges to offer competing retail services in downstream markets without needing to invest in interconnection at hundreds of local exchanges.

Ofcom considers that BT should be required to provide LTC and LTT on reasonable request and as Ofcom may from time to time direct. Any contravention of a direction may therefore result in a contravention of the condition itself and thus subject to enforcement action under sections 94-104 of the 2003 Act.

Communications Act tests

Ofcom considers that proposed SMP services Condition AA1(a) is appropriate as, in particular, it is based on the competition problem identified in Section 3. Furthermore, Ofcom considers that it meets the tests set out in the 2003 Act in so far as it applies to LTC and LTT.

Ofcom has considered all the Community requirements set out in section 4 of the 2003 Act. In particular, the proposed continued condition promotes competition and secures efficiency and sustainable competition for the maximum benefits for retail consumers by enabling providers to compete in downstream markets. For the same reasons, Ofcom considers that the proposed condition would further the interests set out in section 3 of the 2003 Act.

Section 47 requires conditions to be objectively justifiable, non-discriminatory, proportionate and transparent. The proposed condition is objectively justifiable, in that it relates to the need to ensure that competition develops to the benefit of consumers. It does not unduly discriminate, as it is imposed on BT in the national market for LTC and LTT and it is the only company operating on a national basis. It is proportionate, since it is targeted at addressing the market power that Ofcom considers that BT retains in the market for LTC and LTT and does not require it to provide access if it is not technically feasible or reasonable. Finally, it is transparent in that it is clear in its intention to ensure that BT provides access to its network in order to facilitate competition.

Ofcom has also taken into account all the factors set out in section 87(4). In particular, the economic viability of constructing alternative networks that extend to each of BT's local exchanges that would make the proposed network access provisions unnecessary. As explained, Ofcom does not consider that it is economically viable to connect at all of BT's local exchanges and therefore competing providers will need to purchase LTC and LTT from BT in some instances.

Requirement to provide new Network Access

Ofcom also considers that BT should be required to meet requests for new Network Access in the market for LTC and LTT. Ofcom considers that a condition requiring BT to meet reasonable requests for new Network Access would help to secure fairness and reasonableness in the way in which BT responds to such requests (section 87(5)(a)). Ofcom

considers that this is best achieved through the publication of guidelines that set out, amongst other things, the form and detail that requests for new Network Access should be made and the information that BT requires to consider such requests for new Network Access. Ofcom considers that the provisions of this condition, and the associated guidelines, would help to secure fairness and reasonableness in the way in which BT meets requests for new Network Access in so far as these requests relate to a request for new Network Access in the market for LTC and LTT.

Ofcom considers that its proposals add clarity and robustness to the process for seeking new Network Access. In proposing to set the condition, Ofcom has considered the factors set in section 87 in particular Ofcom considers that the proposed condition would help to secure effective competition in the long term (87(4)(d)), as the timely provision of new products would ensure that communications providers were able to make effective use of BT's network and compete in downstream markets.

Communications Act tests

As to the application of the tests to be applied under the 2003 Act (see further detail at Annex 4), Ofcom considers that proposed SMP services Condition AA1(b) is appropriate as, in particular, it is based on the competition problem identified in Section 3. Furthermore, Ofcom considers that it meets the tests set out in the 2003 Act in so far as it applies to LTC and LTT.

Ofcom has considered all the Community requirements set out in section 4 of the 2003 Act. In particular, under section 4(8) Ofcom considers that the provisions would help to secure efficiency and sustainable competition in the market for LTC and LTT, as it would enable other communications providers to make effective use of BT's network in order to offer their downstream products. For the same reasons, Ofcom considers that the proposed condition would further the interests set out in section 3 of the 2003 Act.

Ofcom has also considered the tests for setting conditions set out in section 47 of the 2003 Act. Ofcom considers that the condition is objectively justifiable because BT should be required to publish clear guidelines setting the form and content of requests for new Network Access requests. It does not discriminate unduly against BT, as it is imposed on BT in the national market for LTC and LTT and it is the only company operating on a national basis. It is proportionate, as in its absence the process for new Network Access requests might not be clear and for same reasons it is transparent in its intention to ensure that BT has a reasonable process for dealing with requests for new Network Access.

Requirement not to unduly discriminate

Section 87(6)(a) of the 2003 Act authorises the setting of an SMP services condition requiring the dominant provider not to unduly discriminate against particular persons, or against a particular description of persons, in relation to matters connected with the provision of Network Access.

Providers with SMP in wholesale markets that are vertically integrated would have incentives to provide Network Access on terms and conditions that discriminate in favour of their own retail activities in ways which might have a material effect on competition. In particular, there would be incentives to charge competing providers more for Network Access than the amount charged to their own retail activities. This would increase competitors' costs and would therefore give the dominant provider an unfair competitive advantage. They might also provide services on different terms and conditions, for example with different delivery timescales, which would disadvantage competing providers and in turn consumers.

A requirement not to unduly discriminate is intended, principally, to prevent BT from discriminating in favour of its own retail activities and to ensure that competing providers are placed in an equivalent position to BT's retail arm. In this case, BT should not discriminate in the provision of conveyance between its local and tandem exchanges and the use of the tandem exchange processor and in the provision of any equivalent products and components.

A prohibition of discrimination might have disadvantages if it prevented discrimination that was economically efficient or justified. However, the proposed condition provides that there should be no undue discrimination. Ofcom considered how it would treat undue discrimination in the document entitled Imposing access obligations under the new EU Directives (see http://www.ofcom.org.uk/static/archive/oftel/publications/ind_guidelines/acce0902.htm). Ofcom explained that the objective of undue discrimination obligation is to prevent behaviour that might have a material adverse effect on competition. This does not mean that there should not be any differences in treatment between undertakings. However, any differences should be objectively justifiable, for example, by differences in underlying costs of supplying undertakings. Nonetheless, a vertically integrated SMP operator discriminating in favour of its own retail activities or between its own different activities would be likely to have a material adverse effect on competition. This would equally apply to discrimination in relation to the underlying components of services.

Also, Ofcom set out its reasons for proposing minor changes to this requirement not to unduly discriminate that would apply to additional markets, such as call origination.

Communications Act tests

Ofcom considers that proposed SMP services Condition AA2 meets the tests set out in the 2003 Act in so far as it applies to local-tandem conveyance.

Ofcom has considered all the Community requirements set out in section 4. In particular, the proposed condition promotes competition and secures efficiency and sustainable competition by preventing BT from leveraging its market power into downstream markets.

Ofcom considers that this proposed condition is objectively justifiable, in that it provides safeguards to ensure that competitors, and hence consumers, are not disadvantaged by BT discriminating in favour of its own retail activities or between its own different activities. It does not unduly discriminate, as it is imposed on BT in the national market for local-tandem conveyance and it is the only company operating on a national basis in this market. It is proportionate, since it only prevents discriminatory behaviour that has a material effect on competition. Finally, it is transparent in that it is clear in its intention to ensure that BT does not discriminate unduly.

Basis of charges

Section 87(9) authorises the setting of SMP services conditions which impose rules in relation to the recovery of costs and cost orientation.

In competitive markets, the prices of services would be driven down to competitive levels. However, in markets in which competition is not effective ex-ante regulation to prevent excessive pricing is required. The objective of this regulation should be to move the market from a situation of monopoly to one of effective competition.

In the absence of regulation, dominant providers are likely to set excessive prices. This would have the dual intention of maximising profitability and increasing competitors' costs. Higher charges for Network Access would be likely to result in higher retail prices and make it harder for competitors to flourish. In the long-term, this may result in market exit.

Ex-ante regulation requiring charges to be based on long run incremental costs ("LRIC"), with appropriate mark-ups for costs which are common across products and for recovery of the cost of capital, is appropriate in many communications markets. Economies of scale combined with high sunk costs pose particular competition problems in the communications industry. Under normal competition principles, a price that was as low as short-run marginal cost might not be anti-competitive. However, in communications markets, short run marginal costs can be very low or even zero. An incumbent's price based on short run marginal costs could deter entry as it would not reflect the price that potential entrants would need to charge to cover fixed sunk costs. LRIC is therefore preferred as the cost floor in communications markets as this includes fixed costs.

X.23 For these reasons, Ofcom considers that BT should be subject to a requirement to charge on the basis of LRIC plus an appropriate mark-up for common costs including an appropriate return on capital employed. An appropriate mark-up could be interpreted as that within a reasonable range determined by parameters such as the incremental cost floor and ceiling, or more specifically, use of an 'Equal Proportionate Mark-Up ("EPMU") methodology. The proposed condition allows Ofcom to determine that a price need not be set on such a basis.

Communications Act tests

As to the application of the tests to be applied under the 2003 Act (see further detail at Annex 4), Ofcom considers that proposed SMP services Condition AA3 is appropriate as, in particular, it is based on the competition problem identified in Section 3. Furthermore, Ofcom considers that it meets the tests set out in the 2003 Act in so far as it applies to LTC and LTT.

Ofcom has considered all the Community requirements set out in section 4. In particular, Ofcom considers that the proposed condition would promote competition and would secure efficiency and sustainable competition as it would ensure that the charges for LTC and LTT were based on BT's incurred costs. For the same reasons, Ofcom considers that the proposed condition would further the interests set out in section 3 of the 2003 Act.

Ofcom considers that the proposed condition is an objectively justifiable and proportionate response to the extent of competition in the provision of LTC and LTT, as it would enable competitors to purchase services at charges that were based on BT's incurred costs and they would therefore be able to develop competitive services to the benefit of consumers. At the same time, BT would be able to earn a fair rate of return. It does not unduly discriminate, as it is imposed on BT in the national market for LTC and LTT and it is the only company operating on a national basis in this market. Finally, it is transparent in that it is clear in its intention to ensure that BT charges on a LRIC plus mark-up basis.

Ofcom considers that the tests in section 88 of the 2003 Act have been met. For the reason set out above, in markets in which SMP is persistent, it is unlikely that prices would be set at competitive levels. The proposed condition is appropriate in order to promote efficiency and sustainable competition and provide the greatest possible benefits to end users by enabling competing providers to buy LTC and LTT at a level consistent with a competitive market.

As also required by section 88 of the 2003 Act, the extent of BT's investment has been taken into account as the proposed conditions provide for a mark-up to cover common costs and allows BT to earn an appropriate return on capital employed.

Charge controls

Section 87(9)(a) of the 2003 Act allows Ofcom to set SMP services conditions that would be designed to control the level of the charges for Network Access.

In markets in which SMP persists, a charge control with transparent, easy to monitor compliance conditions can ensure that firms do not price excessively and would help competition to develop to the benefit of consumers.

The need for ex-ante regulation in the form of a charge control is further demonstrated by the issue of common cost recovery. Within communications markets, there are frequently significant economies of scope. This means that it is more efficient for the same firm to supply a number of different services rather than for each service to be provided by a different firm. It also means that there are likely to be significant common costs that cannot be attributed to the provision of any one service.

The existence of significant common costs complicates the assessment of excessive pricing under ex-post powers, as it may be difficult to establish that prices in any one market are excessive without taking into account the extent of common cost recovery from other markets. A requirement for prices simply to be below stand-alone costs (the sum of incremental and common costs) could allow the firm to make excess profits, as it would in effect allow multiple recovery of common costs. The corollary of these excess profits is the reduction in consumer welfare caused by prices being above and hence quantities below the competitive level.

Charge controls should, therefore, apportion common costs associated with the provision of certain services across those services and this would avoid the problem of multiple cost recovery.

Charge controls can also introduce benefits. In particular, the RPI-X form of charge control creates incentives on the charge controlled operator to increase its efficiency, thereby imitating the effect of a competitive market. If Ofcom were to rely on its ex-post powers to prevent excessive pricing, this efficiency benefit would be foregone and there could be an incentive to disguise high profits by inflating costs.

Type of charge control

The two main forms charge control regulation are those based on RPI-X controls and those that set a specified rate of return. The former prevents the firm from increasing prices on average by more than inflation minus X percent per annum. Rate of return regulation, however, would allow the firm to earn no more than a pre-specified rate of return in each year. In terms of the latter, the allowable return is set prior to the financial year in question and then charges are adjusted down to that allowed return once actual costs are known.

RPI-X regulation has a number of advantages over a rate of return control. Crucially, it provides very clear incentives to the firm to minimise costs. If the firm can reduce its costs below the level expected when the cap was set, then the firm retains the increased profits for the period until the cap is next reviewed. In addition, it avoids overly intrusive and bureaucratic regulation. RPI-X controls are set for a pre-specified period and would only be

revisited in exceptional circumstances such if there was a distortion of competition. Re-opening controls in the middle of a charge control period can diminish incentives to increase efficiency.

Rate of return controls, however, provides poor incentives to productive efficiency, because the firm does not benefit from cost reductions. Indeed, rate of return controls may encourage the firm to expand its asset base beyond the efficient level in order to increase its total allowed return.

As RPI-X regulation can result in prices being either above or below costs, the undertaking is exposed to greater risk than under rate of return regulation. This point was considered in the National Audit Office (NAO) report on Pipes and Wires, HC723, April 2002. The NAO noted that the corollary of this is "two very significant benefits: first that the uncertainty is borne by the companies and their shareholders…rather than by customers; and second…price cap regulation is associated with strong incentives on companies to reduce costs by increasing efficiency." The NAO concluded that "RPI-X has been successful to date" in achieving "substantial improvements…in efficiency" at the same time as "customers have seen lower prices and higher quality of service".

On balance, Ofcom considers that the promotion of efficiency is more likely to benefit customers and result in lower prices than re-setting prices annually and basing these on costs that are not necessarily efficiently incurred. This is substantiated by the illustrative results of a cost-benefit analysis conducted for five of the current charge control baskets. Although the results can only be illustrative because they are based on certain parameter assumptions, they are an indication of the very significant benefits that regulation can bring to consumers. These benefits do not vary by a significant degree even when sensitivities within a broad range are carried out on the assumptions. The quantified cost benefit analysis can be found in Annex 10.

In markets where competition has started to develop, and charges become increasingly driven by competitive forces, charge controls are less appropriate because of the potential for a charge control to adversely distort behaviour in the market to the detriment of consumers. Instead, a safeguard cap (e.g. an RPI-0% price control) is usually applied. In other words, such a cap is designed to ensure that BT cannot increase its charges by more than inflation. This is less likely to create perverse incentives in the market and will provide continued protection for consumers while competition continues to develop. It is intended that safeguard caps will be kept until competition has developed to a sufficient extent that consumers no longer need protection in this form. Ofcom would then be able to rely on competition and its general competition law powers to ensure that competition continues to develop and consumers are protected.

Proposed charge controls

In many of the markets considered in this review, a charge control is already in operation. The controls set under the now repealed regime established in the Telecommunications Act 1984 were known as the Network Charge Controls and were last set to run for a four year period. The level of 'X' applied varied according to the type of service.

As explained in Section 4, Ofcom believes that it is appropriate to set charge controls for a four year period, and in that Section it has also set out the proposed structure of the charge control baskets.

Value of 'X'

In setting the values of 'X', Ofcom needs to consider the benefits of regulatory stability; the incentive properties of RPI-X regulation; the need to ensure that any forecast assumptions are reasonably derived from available data; and consumers' best interests. The 'X' factor also needs to ensure that BT is required to make real efficiency gains whilst ensuring sustainability. Ofcom has considered all of these factors in putting forward its proposals for the values of 'X'.

Market share and growth are two key variables used in modelling the appropriate value of 'X'. Overestimating or underestimating market growth or market share could lead to charge controls being either too lenient (if they are underestimated) or too severe (if they are overestimated). Ofcom has considered these and all the other key assumptions in considering the appropriate value of 'X' for each basket. At present, it has identified a proposed range of 'Xs' for each basket and will refine its analysis further to produce specific values of 'X' for each basket. Annex 8 gives fuller details on the derivation of values of 'X'.

More generally, Ofcom proposes to set the value of 'X' for each basket at a level that would allow BT to earn its cost of capital by the end of the period. It should also ensure that BT has increased its efficiency by the end of the charge control period. This means that 'X' needs to be set to incentivise and ensure that BT can remove inefficiencies and further improve its efficiency beyond this.

Charge control conditions

The proposed SMP services conditions require that charges for services do not increase by more than RPI minus a value of 'X' that varies according to each proposed relevant basket. The services and the proposed ranges of 'X' for each basket are set out in the proposed SMP services conditions. The reasoning behind the structure of each basket is set out in Section 4. The proposed conditions are:

- AA4(a) for call origination;
- AA4(b) for single transit;
- AA4(c) for local-tandem conveyance;
- AA4(d) for local exchange flat rate internet access components;
- AA4(e) for tandem exchange flat rate internet access components;
- BA4(a) for fixed geographic call termination; and
- PA1(a) for interconnection circuits and product management, policy and planning.

Price Control Monitoring

The proposed charge control conditions require BT to show that the average effect of any charge changes is such that the overall revenue accrued equates to that which it would have accrued if all changes had been made on 1 April (the weighted average date). The conditions provide BT with a certain amount of flexibility in how it chooses to meet the control. The proposed requirement is for average price movements for services within the 'basket' to meet the control. For example, charges can go up or down as long as on average BT meets the Controlling Percentage (i.e. the RPI-X% control).

Communications Act tests

As to the application of the tests to be applied under the 2003 Act (see further detail at Annex 4), Ofcom considers that the proposed SMP services conditions are appropriate, as in particular, they are based on the competition problem identified in Section 3. Furthermore, Ofcom considers that the proposed conditions meet the tests set out in the 2003 Act.

Ofcom has considered all the Community requirements set out in section 4. In particular, the proposed (new) conditions are likely to promote competition and secure efficiency and sustainable competition as they would ensure that charges for wholesale services were set at a level that would enable competitors to compete. For the same reasons, Ofcom considers that the proposed condition would further the interests set out in section 3 of the 2003 Act.

The proposed conditions are objectively justifiable in that the benefits of RPI-X price controls are widely acknowledged as an effective mechanism to reduce prices in a situation where competition does not act to do so. The charge control conditions are not unduly discriminatory as BT maintains SMP in each of these markets in the UK except for the Hull area. Ofcom believes that the ranges of the values of 'X' set out in the proposed SMP services conditions are proportionate, as they reflect the upper and lower limits, as derived from Ofcom's detailed charge control modelling, that Ofcom proposes to set. Finally, the conditions are transparent in that they are clear in their intention to control BT's charges whilst encouraging BT to increase its efficiency.

Ofcom considers that the tests in section 88 of the 2003 Act have been met. For the reason set out above, in markets in which SMP is persistent, it is unlikely that prices would be set at competitive levels. There exists, therefore, a relevant risk of adverse effects arising from price distortion. The proposed condition is also appropriate in order to promote efficiency and sustainable competition and provide the greatest possible benefits to end users as it acts to reduce charges for wholesale inputs to retail prices, in the absence of competition reducing those prices.

As also required by section 88, the extent of BT's investment has been taken into account as the proposed conditions provide for a mark-up to cover common costs and allows BT to earn an appropriate return on capital employed. Ofcom is currently consulting on the appropriate regulated cost of capital for BT, and pending the outcome of that consultation the ranges of X on which Ofcom is consulting in this document include an allowance for different values for the cost of capital as a result of the cost of capital consultation.

Transparency

Section 87(6)(b) of the 2003 Act allows Ofcom to set SMP services conditions which require a dominant provider to publish all such information that Ofcom considers necessary for the purpose of securing transparency. Section 87(6)(c) of the 2003 Act authorises the setting of SMP services conditions requiring the dominant provider to publish, in such manner as Ofcom may direct, the terms and conditions on which the dominant provider would be willing to enter into an access contract. Section 87(6)(d) also permits Ofcom to set SMP services conditions requiring the dominant provider to include specified terms and conditions in its reference offer. Finally, section 87(e) permits the setting of SMP services conditions requiring the dominant provider to make such modifications to the reference offer as Ofcom may direct from time to time.

This section considers the following transparency requirements:

- requirement to publish a reference offer;

- requirement to notify charges;
- requirement to notify technical information; and
- transparency as to quality of service.

Requirement to publish a Reference Offer

A requirement to publish a reference offer ("RO") has two main purposes. These are to assist transparency for the monitoring of potential anti-competitive behaviour and to give visibility to the terms and conditions on which other providers would be able to purchase Network Access. This helps to ensure stability in markets. In its absence, incentives to invest might be undermined and market entry therefore less likely.

Ofcom considers that a published RO would potentially quicken negotiations for Network Access, avoid possible disputes and give confidence to those purchasing Network Access that they are being provided on non-discriminatory terms.

The proposed (continued) SMP services condition requires BT to publish a RO, specifies the information to be included in that RO and sets out how the RO should be published. The condition prohibits BT from departing from the charges terms and conditions in the RO and requires it to comply with any directions that Ofcom may make from time to time under the condition.

It is proposed that the published RO set out such matters as:

- a clear description of the services on offer;
- terms and conditions including charges and ordering, provisioning, billing and dispute resolution procedures;
- information relating to technical interfaces and points of interconnection;
- conditions relating to maintenance and quality; and
- the amount applied to network components .

In addition, the proposed condition requires BT to state in its published RO the amount that it charges its own retail activities and the underlying components from which those charges are derived. This would enable Ofcom and competitors to ensure that charges were derived from the same underlying costs components. BT would need to show the amount applied to 'sticks' and reconcile these to the amounts paid by other communications providers. BT currently does this in its List of Standard Services in which it includes the costs applied to all components whether bought by BT or others and which combined make the relevant wholesale services.

Communications Act tests

As to the application of the tests to be applied under the 2003 Act (see further detail at Annex 4), Ofcom considers that proposed SMP services Condition AA5 is appropriate as, in particular, it is based on the competition problem identified in Section 3. Furthermore, Ofcom considers that it meets the tests set out in the 2003 Act in so far as it applies to the market for LTC and LTT.

Ofcom has considered all the Community requirements set out in section 4. In particular, the proposed (continued) condition promotes competition and secures efficiency and sustainable competition for the maximum benefits of consumers by ensuring that providers have the necessary information to allow them to make informed decisions about competing in the

relevant markets. For the same reasons, Ofcom considers that the proposed condition would further the interests set out in section 3 of the 2003 Act.

The proposed condition is objectively justifiable in that it requires that terms and condition are published in order to encourage competition and provide stability in markets. It is proportionate, as only information that is necessary to ensure that that there is no material adverse effect on competition is required to be provided. It does not unduly discriminate, as it is imposed on BT in the national market for local-tandem conveyance and it is the only company operating on a national basis in this market. Finally, it is transparent in that it is clear in its intention to ensure that BT publishes details of their terms and conditions.

Requirement to notify charges

Notification of changes to charges for Network Access services can further assist competition by giving advanced warning of charge changes to competing providers purchasing wholesale access services. This is important to ensure that competing providers have sufficient time to plan for such changes, as they may want to restructure retail prices in response to charge changes at the wholesale level. Notification of changes therefore helps to ensure stability in markets. In its absence, incentives to invest might be undermined and market entry made less likely.

Prior notification of changes to charges has certain disadvantages, particularly in markets where there is some competition. It can lead to a 'chilling' effect where other communications providers follow BT's prices rather than act dynamically to set competitive prices.

On balance, however, Ofcom does not consider that this consideration undermines the importance of this obligation. In markets where SMP remains persistent, there is a high level of reliance by competitors on the provision of access services to enable them to compete. It is possible, however, to reflect the development of competition in adjusting the notification period for particular markets.

In Network Access markets in which competition has started to develop, competing providers might not be quite so reliant on BT's Network Access services. In these markets Ofcom, therefore, considers that 28 days notification provides sufficient time to competitors to consider adjusting retail prices or choosing to purchase services from other providers. Ofcom considers that competition has started to develop in the market for local-tandem conveyance.

Ofcom considers that the notice should include the following information:

- description of the access service;
- the location of terms and conditions within the RO;
- the effective date or period from which changes will have effect;
- the current and proposed charge and the relevant usage factors applied to each network component;
- other charges for services that would be directly affected by the proposed change; and
- the network tariff gradient.

Communications Act tests

As to the application of the tests to be applied under the 2003 Act (see further detail at Annex 4), Ofcom considers that the proposed SMP services Condition AA6(a) is appropriate as, in particular, it is based on the competition problem identified in Section 3. Furthermore, Ofcom considers that it meets the tests set out in the 2003 Act in so far as it applies to LTC and LTT.

Ofcom has considered all the Community requirements set out in section 4. In particular, the proposed condition promotes competition and secures efficiency and sustainable competition for the maximum benefits of consumers by ensuring that providers have the necessary information to allow them to make informed decisions about competing in the relevant markets. For the same reasons, Ofcom considers that the proposed condition would further the interests set out in section 3 of the 2003 Act.

The proposed condition is objectively justifiable, in that the benefits of publication and notification of changes to charges outweigh any possible disadvantages. It is proportionate, as the period of notice is significantly reduced in markets where competition is developing. It does not unduly discriminate, as it is imposed on BT in the national market for LTC and LTT and it is the only company operating on a national basis in that market. Finally, it is transparent in that it is clear in its intention to ensure that BT provide notification of changes to charges.

Requirement to notify technical information

Under the proposed requirement to publish a RO, BT is required to include technical information in its RO.

However, advance notification of changes to technical terms and conditions is important to ensure that competing providers are able to make effective use of Network Access services provided by BT. Changes to technical information must be published in advance so that competing providers have sufficient time to prepare for them. For example, a competing provider may have to introduce new equipment or modify existing equipment to support a new or changed technical interface. Similarly, a competing provider may need to make changes to their network in order to support changes in the points of network access or configuration.

Scope of the requirement

Technical information includes new or amended technical characteristics, including information on network configuration, locations of the points of Network Access and technical standards (including any usage restrictions and other security issues). Relevant information about network configuration is likely to include information about the function and connectivity of points of access, for example, the connectivity of exchanges to end users and other exchanges.

The scope of the proposed condition is defined by reference to the market for LTC and LTT. This includes the information provided currently in the standard interconnection agreement and the network information publication principles ("NIPP") and may also include other information where it is necessary to make use of products provided in the relevant market.

Ofcom notes that changes to BT's EBC matrix would normally reflect actual updates to BT's network configuration and that these changes may affect the optimal network configuration for interconnecting providers. Therefore, Ofcom considers that it is appropriate to consider BT's ECB matrix as falling within the scope of this condition, as it provides information on

network configuration that is necessary to make effective use of the Network Access that BT provides.

Notification period and consultation for major changes

The proposed condition requires the notification of new technical information a minimum of 90 days in advance of providing new Network Access services or amending existing technical terms and conditions. Ofcom considers that 90 days is the minimum time that competing providers would need to modify their network to support a new or changed technical interface or support a new point of access or network configuration.

However, in order for BT to meet its obligations under the proposed requirement to provide Network Access on reasonable request, longer periods of notification may be appropriate in certain circumstances. BT is required to 'provide the Network Access requested' and to do so 'on fair and reasonable terms'. In the event of major changes to BT's terms and conditions, the proposed minimum notification period might not be sufficient to enable competing providers to make use of the Network Access provided. In such cases, depending on the circumstances, BT may be in breach of its obligation to provide the Network Access reasonably.

BT's standard interconnection agreement already provides for longer notification periods for major "System Alterations" and changes, such as the closure or modification of a switch, and BT should continue to use longer notification periods for these major changes.

For other major changes, such as the move to Next Generation Networks ("NGNs"), Ofcom considers that consultation with industry through the network interoperability consultative committee ("NICC") would continue to be the best way for BT to meet its obligations in relation to the provision of Network Access on fair and reasonable terms. Therefore, Ofcom considers that the onus is on BT to ensure that it provides longer notification and where appropriate, consults, on major changes so that it complies with the proposed requirement to provide Network Access on reasonable request as well as this condition.

If providers considered that a technical change notified by BT was not consistent with its requirement to provide Network Access on fair and reasonable terms, then they have the option of referring a dispute to Ofcom for resolution or making a complaint regarding a breach of an SMP condition.

Communications Act tests

As to the application of the tests to be applied under the 2003 Act (see further detail at Annex 4), Ofcom considers that the proposed SMP services condition AA6(b) is appropriate as, in particular, it is based on the competition problem identified in Section 3. Furthermore, Ofcom considers that it meets the tests set out in the 2003 Act.

Ofcom has considered all the Community requirements in section 4. In particular, the proposed (continued) condition promotes competition and encourages service interoperability for the purpose of securing efficiency and sustainable competition and the maximum benefits for consumers by ensuring that providers have sufficient notification of technical changes to BT's network to enable them compete. For the same reasons, Ofcom considers that the proposed condition would further the interests set out in section 3 of the 2003 Act.

The proposed condition is objectively justifiable in that it enables competing providers to make full and effective use of Network Access. It does not unduly discriminate, as it is imposed on BT in the national market for LTC and LTT and it is the only company operating

on a national basis. It is proportionate in that 90 days is the minimum necessary to allow competing providers to modify their networks. Finally, it is transparent in that it is clear in its intention that BT notifies technical information.

Transparency as to quality of service

Where a vertically integrated dominant provider has SMP in a specific wholesale market, it has the potential to leverage this into downstream retail markets by providing a different quality of service to different wholesale customers.

It may be possible to address this concern by requiring BT to provide Network Access to competing providers using the same operational processes and interfaces that it uses to supply itself. However, the high cost of replacing legacy systems means that this will not always be practical. Instead, Ofcom considers that the dominant provider should deliver the same operational performance to competing providers as it delivers to itself. Specifically, this means that Key Performance Indicators ("KPIs") such as ordering times and fault response times must be the same for other operators as for itself.

The proposed quality of service condition would ensure that the necessary information would be collected at the time point in time the services in question was provided, ensuring that the dominant provider's competitors have timely and transparent information about the quality of service being provided.

Ofcom therefore proposes that BT be should be subject to a requirement to publish data on a specified set of KPIs, the format and frequency of which would be determined by Ofcom. BT does not currently have to publish KPIs for LTC and LTT specifically, but does have to for ST FRIACO, the requirement for which is partly dependent on BT's SMP in local-tandem conveyance. However, the obligations set out in SMP services Condition AA7 may be applied to LTC and LTT.

Communications Act tests

Ofcom considers that proposed SMP services Condition AA7 meets the tests set out in the 2003 Act.

Ofcom has considered all the Community requirements in section 4. In particular, the proposed condition promotes competition and secures efficiency and sustainable competition by ensuring that BT provides an equivalent quality of service to competing providers as it provides to itself.

The proposed condition is objectively justifiable because without an ex-ante obligation to publish it is not possible to monitor that there is no undue discrimination in the quality of service provided. The proposed condition does not unduly discriminate, as it is imposed on BT in the national market for local-tandem conveyance and it is the only company operating on a national basis in that market. The condition is proportionate because BT has not, as yet, been required to publish specific KPIs for local-tandem conveyance, but may be required to do so in the future. Finally, it is transparent in that it is clear in its intention to monitor quality of service and that Ofcom may decide what information is required in the event that it believed that such information was required.

Financial reporting and cost accounting

In the statement entitled *The regulatory financial reporting obligations on BT and Kingston*, which was published on 22 July 2004, Ofcom explained that, as a result of its conclusions that BT had SMP in the market for, amongst other services, LTC and LTT, BT should be

subject to various cost accounting and financial reporting obligations. In the market for LTC and LTT, Ofcom believed that BT should be required to separately account for local-tandem conveyance and should be required set out its cost accounting arrangements in its regulatory financial statements.

Full details of the requirements placed on BT are set out in the statement and accompanying SMP services conditions set out in the aforementioned document[29].

As a result of its analysis set out in Section 3 in which it has found that BT continues to have SMP in the market for LTC and LTT, Ofcom considers that BT should be subject to requirements to financially report and cost account for local-tandem conveyance services.

Communications Act tests

Ofcom believes that the imposition of wholesale cost accounting arrangements meet the tests outlined in sections 3, 4 and 88 of the 2003 Act and the tests in Section 47(2)(a) and (b) and that requirements to accounting separately meet the tests outlined in sections 4, 87(7) and 87(8) of the 2003 Act and the tests in section 47(2)(a) and (b).

In particular, the tests set out in section 4 are met by the imposition of regulatory financial reporting obligations because the obligations of cost orientation, cost recovery, price controls and non-discrimination are important in ensuring that dominant providers do not abuse their power in markets. The regulatory financial reporting obligations are of paramount importance in monitoring and enforcing cost orientation, cost recovery and non-discrimination obligations. Therefore, the regulatory financial reporting obligations assist in the promotion of competition by restraining the market power of dominant providers. Additionally, reliable cost-orientation, price controls and non-discrimination assist in encouraging network access for the purpose of securing efficiency and sustainable competition and the maximum benefit for customers of communications providers.

Ofcom considers that measures set out in this document meet the tests included in sections 47 of the 2003 Act of being objectively justifiable, proportionate, transparent and not unduly discriminatory.

Ofcom considers that these measures are objectively justifiable because the maintenance of accounting systems; preparation, audit, delivery and publication of regulatory financial statement; transparent accounting documentation; and reasonable amendment powers are necessary for Ofcom to effectively monitor and enforce compliance of BT's obligations for non-discrimination, cost-orientation, cost recovery and price controls.

Ofcom considers that the measures are proportionate, since they are targeted at addressing the market power that Ofcom considers that BT has in the market for local-tandem conveyance. They do not unduly discriminate, as they are imposed on BT in the national market for LTC and LTT and it is the only company operating on a national basis in this market. Finally, Ofcom considers that they are transparent in that they are clear in their intention to ensure that BT provides sufficient data to ensure that it complies with its obligations in the market for LTC and LTT to, amongst other things, set cost-oriented charges

Requirement to provide FRIACO

Flat rate internet Access call origination at the tandem exchange (ST FRIACO) is an unmetered narrowband product that enables communications providers who are connected to tandem exchanges only to purchase circuits linking the local and tandem exchanges on a

[29] http://www.ofcom.org.uk/consult/condocs/fin_reporting/fin_report_statement/finance_report.pdf

fixed (unmetered) basis. This product therefore allows competing providers to offer retail unmetered narrowband internet products to end-users when purchased in combination with call origination products. In the absence of a requirement to provide ST FRIACO, BT might choose not to offer an unmetered product between its local and tandem exchanges as this product helps competitors enter the market for narrowband unmetered internet products. Ofcom therefore considers that BT should be required to offer ST FRIACO.

Section 87(1) of the 2003 Act provides that, where Ofcom has made a determination that a person has significant market power in particular market, Ofcom shall set such SMP services conditions as it considers appropriate. In Section 3, Ofcom proposes that BT has SMP in the market for LTC and LTT. BT also continues to have SMP in call origination. It is these markets which are relevant for the purposes of setting any provisions in relation to ST FRIACO.

Communications Act tests

Ofcom considers that proposed SMP services Condition AA12 meets the tests set out in the 2003 Act in so far as it applies to ST FRIACO.

Ofcom has considered all the Community requirements in section 4. In particular, the requirement to provide ST FRIACO should promote competition in the provision of electronic communications networks and services.

The proposed condition is objectively justifiable because in the absence of a requirement to provide ST FRIACO BT might not do so and this might harm competition in the provision of unmetered narrowband internet products. The proposed condition does not unduly discriminate, as it is imposed on BT in the national market for local-tandem conveyance and it is the only company operating on a national basis in that market. The condition is proportionate because BT only has to supply ST FRIACO to third parties if in receipt of a reasonable request. It is also transparent in that the proposed condition is clear that BT is required to provide ST FRIACO and it sets out the basis on which BT should charge for ST FRIACO and the components on which the charge should be calculated.

The FRIACO Adjustment Ratio

Annex 9 analyses the case for making a change to the FRIACO adjustment ratios (FRIACO AR). These ratios are part of the calculation of FRIACO charges, and contribute to the derivation of the charges for FRIACO. Ofcom has previously consulted on the appropriate methodology and use of data for calculating the adjustment ratio and believes that the methodology and the type of data used in its November 2004 Statement is still a reasonable approach.

Ofcom is of the view that it has now a more complete data set on which to base the value of the AR and the value of the AR it is proposing here reflects the best estimate of the AR over a particular year. Ofcom proposes at Annex 9 that the adjustment ratio should be changed for the DLE FRIACO AR, from a value of 1.78 to 1.70, as the value constitutes the best estimate on the basis of the data available. This proposed amendment is reflected in the notification in Annex 5.

Communications Act tests

Ofcom considers that proposed SMP services Condition AA12 is appropriate as, in particular, it is based on the competition problem identified in Section 3. Furthermore, Ofcom considers that it meets the tests set out in the 2003 Act in so far as it applies to the DLE FRIACO Adjustment Ratio.

Ofcom has considered all the Community requirements in section 4. In particular, the value of the DLE FRIACO adjustment ratio should promote competition in the provision of electronic communications networks and services. For the same reasons, Ofcom considers that the proposed condition would further the interests set out in section 3 of the 2003 Act.

The proposed condition is objectively justifiable because without amending the FRIACO adjustment ratio as proposed, the charges for FRIACO would not accurately reflect the true cost of providing DLE FRIACO services, which might harm competition in the provision of unmetered narrowband internet products. The proposed condition does not unduly discriminate, as it is imposed on BT in the market for call origination in the UK (excluding the Hull area) in which BT is the only company with SMP, and as BT is the only communications provider that provides FRIACO. The proposed condition is proportionate because it updates the DLE FRIACO adjustment ratio to ensure that BT is able to charge for DLE FRIACO in relation to the true cost of providing the service. It is also transparent, in that the proposed condition is clear in its intention that the DLE FRIACO ratio should be updated to reflect the true cost of providing the DLE FRIACO service.

Certain Modifications to SMP services conditions

As already mentioned above, Ofcom has taken this opportunity to make proposals to modify certain SMP services conditions. Those relatively minor modifications concern the following obligations imposed on BT:

- requirement not to unduly discriminate;
- requirement to notify charges; and
- requirement to notify technical information.

Given that the reasons for modifying the latter two would be essentially the same, these 'notification requirements' will be considered together in the following.

Notification requirements

Under SMP services conditions AA6(a) and AA6(b), BT is required to notify charges and technical information in a manner, form and within time-scales specified in these conditions. Those conditions apply, at present, to each of the following markets and to interconnection circuits:

- call origination;
- local-tandem conveyance and transit;
- inter-tandem conveyance and transit; and
- single transit

on fixed public narrowband networks for the United Kingdom (excluding the Hull area). For the sake of completeness, it is to be noted that those conditions also apply for certain wholesale fixed narrowband exchange line services markets. However, Ofcom is not proposing to make any proposed modifications in respect of the latter as they fall outside the scope of Ofcom's considerations and proposals set out in this document.

In addition, under SMP services condition BA6, BT is required to notify charges in the market for fixed geographic call termination provided by it. In that market, however, no SMP services condition has been imposed on BT to require it to notify technical information.

As to the four above-mentioned markets, but not in relation to inter-tandem conveyance and transit as Ofcom is proposing to revoke SMP services conditions in this market) as well as for interconnection circuits, Ofcom proposes to modify SMP services conditions AA6(a), AA6(b) and BA6 to make it clear that the obligations on BT to give prior notification of amendments to its charges for Network Access (including the charges for new Network Access) and technical information do not apply where such amendments have been directed or determined by Ofcom or where such charges are required by a notification or an enforcement notification given by Ofcom under sections 94 or 95 of the 2003 Act.

The reason for these proposed modifications is to avoid a situation where important changes are unnecessarily delayed, to the possible detriment of competition and the interests of consumers. Ofcom recognises the importance of giving stakeholders sufficient time to react to changes to the provision of Network Access by BT. However, Ofcom notes that any changes directed or determined by Ofcom (or, as the case may be, or where such charges are required by a notification or an enforcement notification given by Ofcom under sections 94 or 95 of the 2003 Act) would normally be subject to prior consultation, thereby giving interested parties advance notification of Ofcom's proposals. Moreover, if necessary, Ofcom would consider requiring a lead-in time before any changes directed or determined by Ofcom are introduced by BT.

Communications Act tests

Ofcom considers that these proposed modifications are appropriate as, in particular, they are based on the competition problems identified. Furthermore, Ofcom considers that they meet the relevant tests set out in the 2003 Act.

Ofcom has considered and acted in accordance with its duties under section 3 and all the Community requirements set out in section 4 of the 2003 Act. In particular, the proposed changes are aimed at promoting competition and securing efficient and sustainable competition for the maximum benefit of consumers, by preventing the unnecessary delay of changes to the provision of Network Access.

Section 47 requires conditions to be objectively justifiable, non-discriminatory, proportionate and transparent. Ofcom considers that its proposed modifications are objectively justifiable, in that they are aimed at avoiding any unnecessary delay in changes to the provision of Network Access, where such changes are directed or determined by Ofcom. The proposed modifications are not inherently discriminatory, as Ofcom would consider any non-discriminatory effects by any direction or determination would have on BT at the time such directions or determinations are made. The proposed modifications are proportionate, as they represent an appropriate balance between avoiding any unnecessary delay in changes to the provision of Network Access, whilst still allowing for safeguards to be imposed by Ofcom where it is appropriate to have a lead-in time before any changes are introduced by BT. Finally, the proposed modifications are transparent in that they are clear in their intention to remove the notification requirements for changes directed or determined by Ofcom or where such charges are required by a notification or an enforcement notification given by Ofcom under sections 94 or 95 of the 2003 Act.

Requirement not to unduly discriminate

Ofcom has set out above in this Annex its reasons for proposing the continued setting of the SMP services condition AA2 concerning the requirement not to unduly discriminate in respect of the market for LTC and LTT on fixed public narrowband networks for the United Kingdom (excluding the Hull area). However, that condition applies, at present, also to each of the following markets and to interconnection circuits:

- call origination;
- inter-tandem conveyance and transit; and
- single transit

on fixed public narrowband networks for the United Kingdom (excluding the Hull area). Again, Ofcom is not proposing to deal in this document matters concerning wholesale fixed narrowband exchange line services markets.

In addition, under SMP services condition BA2, BT is also required not to unduly discriminate in the market for fixed geographic call termination provided by it.

As to the four above-mentioned markets, but not in relation to inter-tandem conveyance and transit as Ofcom is proposing to revoke SMP services conditions in this market) as well as for interconnection circuits, Ofcom proposes to modify SMP services conditions AA2 and BA2 to by deleting the 'deeming provision' in those conditions.

That 'deeming provision' provides that "[i]n this Condition […], the Dominant Provider may be deemed to have shown undue discrimination if it unfairly favours to a material extent an activity carried on by it so as to place at a competitive disadvantage persons competing with the Dominant Provider." This provision was intended only to be a specific example of how the undue discrimination obligation in the above-mentioned SMP services conditions would apply in practice. Ofcom intends to consult on guidelines on interpreting non-discrimination regulatory requirements in Spring 2005. To avoid confusion in the meantime, Ofcom therefore considers it appropriate to remove the specific example of undue discrimination given in those conditions. The substance of the undue discrimination obligation, however, remains unaltered.

Communications Act tests

Ofcom considers that these proposed modifications are appropriate as, in particular, they are based on the competition problems identified. Furthermore, Ofcom considers that they meet the relevant tests set out in the 2003 Act.

Ofcom has considered and acted in accordance with its duties under section 3 and all the Community requirements set out in section 4 of the 2003 Act. The proposed modification does not alter the underlying undue discrimination obligation. That obligation is aimed at promoting competition and securing efficient and sustainable competition for the maximum benefit of consumers, by preventing BT from discriminating in favour of its own activities in downstream markets, thereby leveraging its market power.

Section 47 requires conditions to be objectively justifiable, non-discriminatory, proportionate and transparent. Ofcom considers that the proposed modifications are objectively justifiable, in that they are aimed at avoiding any confusion as to the scope of the undue discrimination obligation, whilst leaving the undue discrimination obligation itself unaltered. The proposed amendment is non-discriminatory as the substantive obligation remains unaffected, since the condition was imposed in November 2003. The proposed modifications are proportionate, as they do not alter the substance of the undue discrimination obligation imposed on BT. Finally, the proposed amendment is transparent, as it is aimed at removing any confusion as to the scope of the undue discrimination pending the publication of Ofcom's guidelines on non-discrimination regulatory requirements.

Withdrawal of Direction on credit vetting

As a direct consequence of the proposed revocation of BT's obligations in the market for inter-tandem conveyance and inter-tandem-transit, Ofcom is proposing to withdraw BT's obligations with respect to an existing direction on credit vetting (see paragraph 4.40). The relevant notification of this proposal is at Annex 5, Part II.

Communications Act tests

Ofcom considers that the withdrawal of this Direction as regards the market for inter-tandem conveyance and inter-tandem-transit meets the tests set out in the 2003 Act.

In withdrawing BT's obligation in this regard, OFCOM have considered and acted in accordance with their general duties set out in section 3 of the 2003 Act and the six Community requirements set out in section 4 of the 2003 Act

Ofcom is satisfied that the tests under section 49(2) of the 2003 Act are met because the withdrawal of BT's obligations under this direction is a direct consequence of the proposed revocation of BT's SMP in the relevant market. Ofcom's assessment of SMP in the relevant market, and its proposed revocation of SMP services conditions are explained in Sections 3 and 4 respectively.

Annex 7

Continuing regulation for BT services with stable market conditions

A7.1 This Annex covers the basis for imposing new charge controls, and where relevant for maintaining other obligations, on the following BT products and services:

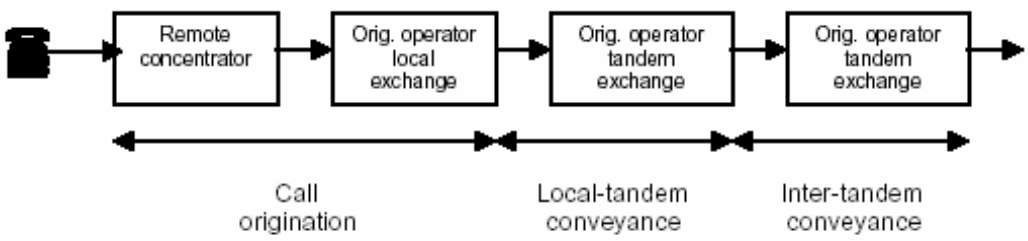
- Call origination;
- Call termination;
- Single transit;
- Interconnection circuits (ISB services);
- Product management, policy and planning (PPP);
- DLE FRIACO; and
- Single tandem FRIACO.

Wholesale narrowband call origination

A7.2 Ofcom does not consider that there has been a material change market for wholesale narrowband call origination in the UK (excluding the Hull Area) since BT was determined to have SMP in that market in November 2003. Ofcom therefore considers that the 'material change test' under section 86 of the Act, which empowers Ofcom to modify or set new SMP services conditions without presenting a market analysis (see Annex 4), has been met for this market. Ofcom's reasons for setting a new charge control condition for call origination on this basis are outlined below.

A7.3 Call origination is the service that conveys calls originating on a customer's exchange line from the remote concentrator to and over the local exchange. The market in the Hull area differs from that in the rest of the UK, in that in the Hull area, Kingston is the only provider of call origination services. Call origination differs from that provided in the rest of the UK because there are no separate local and tandem exchanges and all originated calls use a single, averaged origination service that may or may not include conveyance between the local/tandem exchanges.

Figure A7.1 Call origination



Retail markets

A7.4 As discussed in Annex 4, market definitions are first carried out at the retail level because the demand for wholesale services is derived from the demand for retail services. In summary, Ofcom is satisfied that that there has been no material change in these markets since they were defined in the Narrowband Market Reviews, and that there is unlikely to be such change for the duration of the next NCCs that might lead to different market definitions.

Separate markets for fixed and mobile voice calls

A7.5 The Narrowband Market Reviews discussed that, on the demand side, mobile access is not a substitute, but more of an adjunct to fixed access. The Narrowband Market Reviews also discussed the results of an Oftel survey which showed that 78% of UK households had a fixed access phone in addition to a mobile phone, and suggested that if mobile access was to be regarded as a substitute to fixed access, this figure would have been lower. The Narrowband Market Reviews concluded that given the price differential between mobile voice calls and fixed voice calls, it was unlikely that there would be effective demand side substitution in response to a SSNIP by a hypothetical monopolist.

A7.6 Ofcom is satisfied that the same reasoning in the Narrowband Market Reviews still applies to this part of the market definition. This is also supported by Ofcom's Communications Market Update[30]. This update showed that in the third quarter of 2004, mobile calls accounted for more than 31% of all UK originated calls, while fixed call origination showed a decrease, but total voice volume (origination) per fixed line was stable at 71 minutes per week even while the volume of mobile calls increased. This happened despite an increase in BT's line rental prices (although the increase might have been offset by a decrease in call charges). Also, Ofcom's January 2005 TSR consultation[31] described how mobile voice traffic has grown dramatically over the years, while fixed voice traffic is now declining. Consumer research[32] carried out for that document found that 42 percent of consumers said that they sometimes used their mobile phone to make a call instead of their fixed phone. However, the research suggests that this trend is the result of a behavioural change by a proportion of consumers who particularly value the mobility of the service and/or functionality of the handset. Hence, although there has been a move to using mobile services, it is not clear that consumer sensitivity to a small increase in relative prices is sufficient for fixed and mobile calls to be placed in the same market on the basis of a SSNIP test.

A7.7 On the supply side, Ofcom believes that there continues to be limited scope for substitution between mobile and fixed narrowband access services, largely due to the high sunk costs associated with building a fixed narrowband access network, and the economies of scale and density that characterise communications access networks.

A7.8 Hence, Ofcom remains of the view that mobile voice services are in a separate market to fixed voice services.

30 http://www.ofcom.org.uk/research/industry_market_research/m_i_index/cm/jan2005_update/update.pdf

31 http://www.ofcom.org.uk/consult/condocs/telecoms_p2/tsrphase2/maincondoc.pdf

32 http://www.ofcom.org.uk/consult/condocs/telecoms_p2/tsrphase2/AnnexM.pdf

Separate markets for fixed narrowband access and broadband internet access

A7.9 The Narrowband Market Reviews discussed that the main characteristics that distinguish broadband internet access from narrowband internet access are:

- the service is always-on
- the possibility of using voice and data simultaneously
- it has a faster downstream speed

A7.10 On the demand side, substitution is limited due to the distinct functionalities and the underlying cost differences between broadband and narrowband internet access. The Narrowband Market Reviews discussed whether there is a chain of substitution between the two services particularly in view of the fact that the price differential between broadband and narrowband internet access was small.

A7.11 Since the publication of that document, broadband prices have fallen further and a significantly higher speed always-on connection is now available at prices closer to dial-up unmetered narrowband (see Ofcom's quarterly update on the Communications Market[33]). However, the move to broadband seems to have taken place in the absence of significant changes in narrowband prices. This suggests that users upgrading to broadband do so not only for the faster speed and the 'always-on' facility, but also for the content that is available through broadband. The quarterly update discusses that, as well as increasing the use of traditional internet services such as emailing and general surfing, the rise of broadband has also seen an increase in the use of content such as gaming, gambling, music, movies and videos. There has also been an increase in the number of consumers using the internet to purchase goods or services.

A7.12 This suggests that it plausible to argue that there is a chain of substitution between narrowband and broadband such that narrowband is constrained by broadband. However, there are narrowband users for whom the increased content and higher speed capability is not valued sufficiently enough in relation to the price they have to pay. Such users could be either metered narrowband internet users or unmetered narrowband internet users.

A7.13 Metered narrowband internet users are likely to be those whose main usage is restricted to emails and surfing the internet rather than downloading music, games and videos. The prices they pay are based on the time of the day they use the internet and their monthly costs are likely to be significantly lower than broadband internet access. For these users, a limited price rise may not incentivise them to switch to a high speed service, particularly given switching costs such as the connection fee and modem.

A7.14 Unmetered narrowband users on the other hand are likely to be those who would like the flexibility to use the internet at any time during the month and pay one fixed monthly fee. Although prices for unmetered internet access are generally lower than for broadband, the highest adoption of broadband has come from the users of unmetered narrowband. However it is not clear that switching between narrowband and broadband is sensitive to small changes in relative prices. It could be argued that those who have upgraded to broadband were those marginal users who valued the high speed and extra functionality of broadband enough to be willing to pay a higher price for broadband. Whereas, current narrowband users may have a lower

33 http://www.ofcom.org.uk/research/industry_market_research/m_i_index/cm/qu_10_2004/cm_qu_10_2004.pdf

willingness to pay for their requirement and may be unlikely to switch due to the higher switching costs. Given the closeness in the monthly prices of unmetered internet access and some broadband internet access products, it is reasonable to suggest that those continuing on unmetered narrowband do not have a preference for the always-on or the extra content available at current prices. Differing consumer requirements for narrowband and broadband internet access supports a view that they are separate markets.

A7.15 The potential for supply side substitution to constrain the price of broadband internet access is not relevant due to the fact that the UK's largest broadband internet access providers are already present in narrowband and hence cannot exert any additional constraint on a hypothetical monopolist in narrowband internet access if prices were raised by 10% above the competitive level.

A7.16 At this stage, therefore, Ofcom believes that there are separate markets for narrowband and broadband internet access at the retail level.

Separate markets for metered and unmetered narrowband internet services

A7.17 Both retail voice calls and retail data calls are available on a variety of tariff packages. The provision by suppliers of metered internet access on various tariff packages is based on the fact that that consumers' willingness to pay for daytime weekday calls and evening and weekend calls may differ. Consumer research, undertaken for the November 2003 Review, demonstrated that there was limited substitution between metered and unmetered internet access and that any switching that occurred was mainly from metered to unmetered. Those switching to unmetered access were likely to do so due to considerations other than price; such as the flexibility and freedom of anytime access. Ofcom believes that this is still the case – those continuing on metered access continue to do so not only because they may prefer to pay only when the service is used, but also because they are likely to be lighter users of the internet and may be unwilling to pay the premium required for unmetered access.

A7.18 On the supply side, a potential entrant would need to incur significant costs to build a fixed narrowband network that could provide both metered and unmetered internet calls, because unmetered provision requires build-out to DLE. This is because DLE FRIACO is the wholesale product that has been considered as suitable in most business models for providers who provide unmetered internet access at the retail level. In order to purchase DLE FRIACO, providers have to build out to DLEs or purchase Interconnection Extension Circuits (IECs) from BT, both of which entail a significant barrier to entry.

A7.19 Ofcom therefore believes that there are separate markets for metered and unmetered narrowband internet access at the retail level.

Separate markets for geographic and non-geographic voice calls

A7.20 Geographic calls are calls to a specific geographic location. Non-geographic calls are made of a number of types of calls that offer the consumer an information service or a value added service, such as directory enquiries ("DQ") service, personal numbering services ("PNS") or number translation services ("NTS"). Calls to NTS make up the majority of non-geographic calls and include calls to freephone charitable helplines and premium rate information services.

A7.21 Ofcom does not consider that dial-up internet access is a substitute for voice telephony. Voice non-geographic calls also have characteristics that differentiate them from geographic calls. In particular, non-geographic calls are based on a single number and a tariff charge that does not depend on the location of the caller and called party. In consumer's perception, as geographic and non-geographic calls provide different types of services, it is unlikely that consumers will find one an effective substitute for the other.

A7.22 On the supply side, the only competitive constraint on the pricing of these calls can come from potential entry, but, given the significant sunk costs involved, the price constraint of potential entry is weakened. However, the only retailers of non-geographic calls are those retailing geographic calls already; hence supply side substitution cannot provide any additional constraint to that already identified on the demand side.

A7.23 Ofcom therefore believes that there are separate retail markets for geographic and non-geographic calls.

Disaggregation of non-geographic call types

A7.24 The following discussion relates to whether different types of non-geographic calls belong to different markets because such a distinction will inform the need to impose different remedies at the wholesale level. Such an analysis is not necessary at the level of geographic calls because the differences between types of geographic calls is only distance and the remedies are not affected by the distance.

A7.25 There are broadly three types of non-geographic calls: DQ services; PNS; and NTS. Each call type serves a particular purpose, such as DQ services provide directory information, PNS allows the called party to be reached anywhere regardless of location, and NTS provide emergency, freephone and value added services (such as customer support, call centres) and dial-up internet access. It could be argued for example, that if a price of a DQ call was raised above the competitive level, customers might switch to a DQ service provided behind an NTS number. But the fact that these numbers belong to specific number ranges means that customers would have to remember a longer number range and a different number range each time they decided to switch. From a customer's viewpoint this may be a barrier to switching. Any demand side substitutability that might occur would therefore not likely to be sufficient to constrain the hypothetical monopolist.

A7.26 On the supply side, since each non-geographic call type has its own specific number range, in order for a retailer of one type of non-geographic all to substitute to another type of non-geographic call, a retailer would have to persuade consumers to use a different number range and that would involve significant marketing costs and pricing below the monopolist's price for particular non-geographic numbers. This would limit supply side substitutability. On the other hand, it could be argued that the wholesale input into all types of non-geographic calls is the same across all services and a retailer would only need to request an allocation of new number ranges in order to supply substitute. However, there are different levels of expertise and different business models associated with each type of non-geographic call and supply side substitution may not be easy.

A7.27 Ofcom therefore believes that there are separate retail markets for non-geographic call types.

Separate markets for residential and business calls

A7.28 Demand side substitution is unlikely given that suppliers are able to identify residential and business customers and charge different tariffs. As residential and business customers tend to be different geographic locations, a potential competitor would need to incur significant sunk costs to switch supply between residential and business markets. This limits the potential for supply side substitution as well.

A7.29 In recent times, new types of voice services, using VoIP has been made available to retail consumers. This voice service presently is offered as voice over broadband ("VoB"). Therefore it is also necessary to consider if such voice services are part of the same market as traditional PSTN voice services.

Retail markets for fixed narrowband voice and voice services originating on broadband

A7.30 Voice over Broadband services allow the end-user to make and receive calls using a broadband connection by, for example, using digital subscriber line ("DSL") or cable broadband links. They typically use Voice over Internet protocol ("VoIP") technology for the conveyance of calls rather than traditional telephone networks. Access to VoB services can be provided through an analogue telephone adapter, which allows the use of an ordinary telephone handset with the existing broadband internet connection. VoB services therefore have the potential to offer consumers access to alternative service providers, cheaper lines and calls, and advanced features, such as call messaging.

A7.31 VoB services that originate on broadband technology are as yet a small proportion of the market, and it is unclear if current VoB tariffs are at the competitive level, or are above it, making the SSNIP test difficult to use. A more important consideration in comparing the two types of services is that the tariffs reflect different uses of the respective network. Fixed (PSTN) voice tariffs are composed of the cost of origination and conveyance and termination on the PSTN network. On the other hand, VoB users do not have to pay for broadband access and origination.. The cost of broadband access is included in the cost the user pays to obtain broadband internet access. The VoB service therefore currently carries only an incremental cost to the broadband access and origination product already purchased by the consumer. At this stage, it is unclear if VoB would be part of the market as PSTN services on the basis of a SSNIP test.

A7.32 In addition, since VoB is only provided to those customers who have chosen to take broadband internet access, it clearly cannot be a substitute to others who have no broadband internet access. Currently only about 5 million customers have chosen broadband internet access, whereas PSTN voice is available to 48 million customers.

A7.33 Broadband internet access services are likely to grow further and it is reasonable to assume that VoB services will also grow. For the foreseeable future, there are likely to continue to be significant number of consumers on narrowband voice services and therefore the current market definitions are likely to hold. Ofcom believes that fixed narrowband voice services are in a separate market to voice services that originate on broadband.

Retail geographic market

A7.34 The Narrowband Market Reviews discussed that, although there could be different competitive pressures in different geographic areas (such as where cable providers

compete with BT), the definition of markets using the hypothetical monopolist test would lead to a proliferation of markets. This, when considered along with the dynamic nature of communications markets, would be likely to mean that the boundary between areas where there are different competitive pressures would be unstable and change over time, rendering the market definition obsolete. It is not clear that that determining ex-ante where the boundary would be is an exercise that can be carried out with any degree of accuracy. Therefore an alternative approach would be to define a single geographical market but recognising that this single market has local geographical characteristics. This policy seemed justified, by BT's policy (whether or not this is a regulatory requirement) of setting uniform national prices.

A7.35 BT's uniform pricing means that any response by BT to competition in a given area in the form of lower prices would apply throughout the UK (excluding the Hull area). This suggests that the geographical extent of the relevant markets should be regarded as the whole of the UK (excluding the Hull area), and the Hull area. Therefore the extent of the geographical market is the whole of the UK, excluding the Hull area where a uniform constraint holds.

Wholesale Market definitions

Fixed narrowband call types

Demand side substitution

A7.36 The analysis of the retail markets leads to the view that at the retail level different call types are not substitutes on the demand side. This is because each call type has a different functionality (e.g. metered and unmetered, geographic and non-geographic) that is not perceived to be substitutable by consumers. Where different call types require different wholesale inputs (eg. metered call origination and unmetered call origination), those inputs are unlikely to be viewed as effective demand side substitutes. There may be some call types where the wholesale input is the same such as for geographic and non-geographic calls. However, non-geographic calls require an additional wholesale origination input that provides suppliers of such calls with billing access to the customer. Where this is the case, such types of wholesale call origination would also not be viewed as demand side substitutes.

Supply side substitution

A7.37 A characteristic of fixed communications networks is the existence of significant economies of scale and scope. As any provider of call origination will seek to exploit the economies of scale and scope, it will tend to provide call origination services for a number of different call types. Therefore, supply side substitution into any particular call type is unlikely to provide any additional competitive constraint because all providers would provide call origination for all call types.

Cluster market

A7.38 This suggests that competing providers of call origination services compete for customers rather a particular service to different customers. This distinction is important because it reinforces the view that providers of call origination compete to provide a range of services across a customer's access line rather than limited services across many access lines. Such competition means that customers choose the provider who can provide the range of services at the lowest price. The fact that

all call origination services are purchased in a cluster from the same provider suggests that all call origination services should be treated as part of the same market.

A7.39 However, consumers choose to purchase either narrowband PSTN or narrowband ISDN calls from a provider. This suggests that PSTN and ISDN call origination cannot both be part of the same market on the basis of the cluster market argument. However, in practice, only BT provides both types of call origination and BT's costs and prices do not differ. Customers purchasing call origination services would still face a common pricing constraint. Hence both PSTN and ISDN may be treated as part of the same wholesale market for call origination.

Residential and business calls

A7.40 Unlike in the retail sector, where customers have different demand characteristics, wholesale call origination charges to competing providers are the same, irrespective of whether they provide residential or business services. On the supply side, the scope for substitution is limited, given the high costs facing a business call origination provider seeking to build out its network to residential customers.

Conclusion

A7.41 Ofcom's provisional conclusion is that there is a single wholesale market for residential and business calls.

Wholesale geographic market

A7.42 Ofcom's approach to defining geographic markets is set out in Annex 4.

A7.43 A strict definition of markets using the hypothetical monopolist test could lead to a proliferation of markets unless call origination, call termination or single transit at different exchanges could be regarded as substitutes. This, when considered along with the dynamic nature of communications markets, would be likely to mean that the boundary between areas where there are different competitive pressures would be unstable and change over time, rendering the market definition obsolete. It is not clear that determining ex-ante where the boundary would be is an exercise that can be carried out with any degree of accuracy. For instance, there may be areas that have uniform competitive conditions (such as cable companies providing a retail constraint on BT), but it may not be possible to find a suitable aggregator for such areas. For all these reasons, Ofcom believes that it is reasonable to consider there to be a national market, albeit with differing local conditions.

Assessment of SMP in wholesale narrowband call origination the UK excluding the Hull Area

A7.44 The Narrowband Market Reviews discussed that BT had SMP in the market for wholesale call origination. This conclusion was arrived at on the basis of analysing market shares, the ease of market entry, economies of scale, countervailing buyer power and switching costs.

A7.45 Ofcom has considered the market with respect to the same criteria and finds no material change in each of the above criteria used to determine SMP. BT's share of call origination minutes remained at 79% at the second quarter of 2003/04 (see table A7.1 below). There has been no new entry in the market. Economies of scale combined with sunk costs continues to be a serious obstacle to entry (even if cable

company consolidation occurs, those companies would together hold only 12% of the market).

Table A7.1 BT's market share in call origination (%)

	BT	Cable	Others
All calls			
2000	75.2	12.1	12.7
2001	73.1	14.6	12.3
2002	77.2	13.0	9.8
2003	80.0	11.7	8.3
2000 Q1	78.8	8.6	12.7
2000 Q2	74.6	10.2	15.2
2000 Q3	73.8	14.7	11.4
2000 Q4	73.8	14.8	11.4
2001 Q1	73.5	14.8	11.6
2001 Q2	72.3	14.7	13.1
2001 Q3	73.4	14.4	12.2
2001 Q4	73.4	14.4	12.2
2002 Q1	75.0	14.1	10.9
2002 Q2	76.1	13.3	10.6
2002 Q3	77.6	12.4	10.0
2002 Q4	80.0	12.1	7.9
2003 Q1	79.7	11.6	8.7
2003 Q2	80.1	11.6	8.3
2003 Q3	79.8	11.6	8.6
2003 Q4	80.4	11.8	7.7
2004 Q1	79.2	11.8	9.0
2004 Q2	79.4	12.1	8.5

Source: Ofcom

Conclusions and forward look on SMP in wholesale call origination

A7.46 Ofcom's view is that the definition of the market for wholesale call origination on narrowband networks will remain unchanged through the duration of this review as providers will continue to purchase the same service at their existing PSTN interfaces irrespective of how the service is provided by BT. Consequently, BT's current SMP in the market is unlikely to be eroded until such time that other direct access networks expand their customer base and are able to compete in a significant manner with BT. New entry into this market is constrained by the high entry barriers in the form of sunk costs. Therefore Ofcom believes that BT is likely to have SMP in wholesale call origination for the duration of the next NCCs.

Market for single transit

Service definition

A7.47 Single transit is the service an operator provides when a call originates and terminates on networks other than its own, and the originating and terminating operators are directly connected at the same transit operator's tandem exchange. The call is therefore transited through a single tandem exchange.

Market definition

Demand side substitution between single transit and inter-tandem transit

A7.48 If a hypothetical monopolist were to increase the price of single transit, providers could not easily substitute to purchasing ITT because this would involve a transmission element, involving higher costs, which may not be required.

A7.49 If a monopolist supplier increased the price of ITT/ITC, an operator purchasing these services could switch to purchasing single transit if the originating and terminating operator were connected to the same tandem exchange of the transit operator. Single transit therefore requires a much higher level of connectivity than ITT/ITC. The costs of establishing this level of connectivity are significant, especially for small providers with limited traffic. Given current rates of build out, it is unlikely that providers will create a level of interconnection that will allow buyers of ITT/ITC to substitute to purchasing single transit.

Supply side substitution between single transit and ITT/ITC

A7.50 Providers supplying single transit services are already likely to be supplying ITC/ITT services and therefore no additional competitive constraints are introduced by supply side substitution.

A7.51 An operator currently offering ITT/ITC services would need a much higher level of connectivity with other providers to supply substitute to offer single transit services. This would require significant investment and build to a large number of other providers' tandem exchanges. Therefore, it is unlikely that a provider of ITT/ITC would be able to supply substitute in a way that constrained the prices of a hypothetical monopolist.

A7.52 In conclusion, Ofcom is of the view that single transit is in a separate market to ITT/ITC.

Mobile substitution

A7.53 The Narrowband Market Reviews discussed that, although mobile providers are now increasingly building direct interconnections instead of purchasing traffic from BT, there was no evidence that this would constrain the prices of fixed transit by a hypothetical monopolist on fixed networks. During the preparation of this consultation document, BT has reiterated that it believes mobile-to-mobile traffic should be considered as part of the market since mobile providers were switching from fixed transit to direct interconnections.

A7.54 Although the bigger mobile providers may have switched to direct interconnections, these interconnections are only justified where providers have the required scale of traffic that will make such direct interconnection cost effective. Providers with smaller

scale need to depend on the transit services offered by fixed network providers. On the demand side, there is no evidence, nor has BT provided any, to suggest that such switching away by some large providers can constrain prices to the competitive level. On the supply side, a mobile communications provider can only enter the market for fixed transit at a significant cost, which includes the cost of the network, systems for dealing with wholesale customers, including billing and management. Additionally, a mobile provider may need to have sufficient spare capacity on its own network in order to be able to provide third party transit; even if it were so, there may simply not be sufficient traffic that may make returns on the investment worthwhile. Ofcom is not aware of any mobile network operator offering fixed transit.

A7.55 Ofcom retains the view held in the Narrowband Market Reviews that there is not sufficient demand or supply side substitution from mobile to fixed conveyance and transit to constrain the price of a hypothetical monopolist in ITT/ITC or single transit.

Geographic market

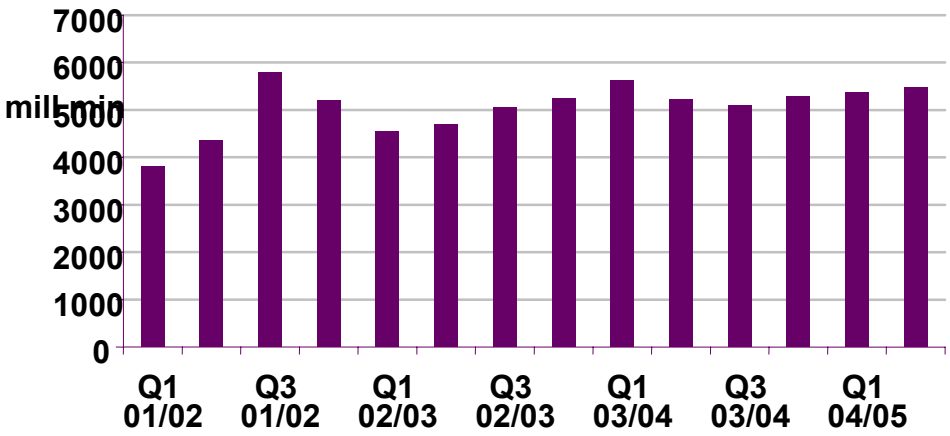
A7.56 Since BT is the only provider of single transit, the terms of competition are homogenous across different geographical areas. Therefore it is reasonable to conclude that the scope of the geographical market for single transit is the whole of the UK.

Assessment of SMP in the market for Single Transit

Market shares

A7.57 BT is the only provider that provides single transit to any notable extent. Ofcom acknowledges that as more providers have built out connections to various tandem exchanges of BT, they are able to replace ITT with ITC. However, although providers connect to BT's tandem switches, there is lack of scale that justifies them building direct interconnections with each other. However, the connectivity and presence of many providers at different tandem switches means that providers can now interconnect with each other by purchasing single transit. This is reflected in the increasing volumes of single transit purchased by providers as seen in Figure A7.2. However, at present BT is the only provider that can provide connectivity between different providers at the same switch. BT has nearly a 100% market share of the single transit market.

Figure A7.2 Single transit sold by BT



Ease of market entry

A7.58 In order to provide a single transit service, an operator needs a high level of connectivity. As already discussed above, establishing direct connections with providers other than BT is only justified where there is sufficient flow of traffic between two providers. Achieving sufficiently high volumes is in practice inhibited by the fact that BT originates and terminates the largest volume of calls. Therefore, most traffic will flow to and from BT's network and not between other providers' networks. The low volume of calls over which investment costs can be recovered is a substantial barrier to entering the single transit market.

A7.59 In the Narrowband Market Reviews, Oftel stated that over time, it was possible that with the growth in CPS and mobile traffic, providers might find that there are sufficient volumes to justify the cost of direct connections and Oftel stated that developments would continue to be monitored. Ofcom is of the view that providers have not been able to achieve sufficient volumes to impose a competitive constraint.

Economies of scale

A7.60 There are significant economies of scale that characterise fixed communications networks, where total costs can be minimised at large levels of volume. In particular, for operators to exploit economies of scale, they must be able to achieve a high utilisation of their interconnect links which is only possible with large volumes of traffic. Economies of scale are therefore very important to commercially justify offering a single transit service.

Overall size of the undertaking

A7.61 BT is the operator with the largest network. It has the majority of access lines to retail consumers in the UK and most calls originate and terminate on its network. As a result, most operators have to connect to its network and it therefore has a high level of connectivity with all operators. It is this level of connectivity that enables BT to provide single transit services.

A7.62 BT's size and ubiquity is a key factor in BT's continuing level of market power in the single transit.

Easy or privileged access to capital markets/financial resources

A7.63 BT is a large and well-established company with a long track record and a relatively diversified business and is perceived to have stable cash flows. It has a strong credit rating and investors are likely to view it a less risky proposition than relatively newer entrants. It is therefore likely that BT would face lower borrowing premiums than its competitors.

Conclusions and forward look on SMP in Single Transit

A7.64 Ofcom is of the view that until such time that providers have an alternative and cheaper means of interconnecting with each other they will continue to depend on BT for single transit if direct interconnection is not economically viable. Therefore, Ofcom believes that BT is likely to have SMP in single transit for the duration of the next NCCs.

Note on bad debt in PSTN transit

A7.65 Operators making use of BT transit services should note that Ofcom is, at BT request, currently investigating the issue of bad debt in relation to BT's PSTN transit services. Originating operators use BT to transit PSTN traffic to networks for which the originating operator does not have a direct interconnect agreement. BT transits the traffic, levies a charge for transit services and remits payment to the terminating operator in accordance with the appropriate tariff for the call. In the event of payment default by the originator, BT may have to make a significant bad debt provision for payments already made to the terminator. Ofcom plans to issue a recommendation/statement on this issue by mid-2005, to aid the effective functioning of the PSTN transit market.

Market for fixed geographic call termination

Retail level definitions

A7.66 At the retail level a customer does not in practice purchase geographic call termination as a separate service. The customer buys the retail end-to-end calls from his or her provider and the provider will need to buy call termination if the call is destined for another network. In terms of end-to-end calls, on the demand side at the retail level, there are no effective substitutes for a caller who wishes to call a given party's fixed geographic number to making that call.

Substitution between calls to PSTN numbers and VoB numbers

A7.67 As 21CN technology is being deployed in tandem with switched technology, a voice call could be delivered either through the circuit switched network (PSTN) or the IP network. However, to the end-user the call is received in the same manner as the calls is terminated on the fixed line held by the end-user, who is likely to pay the same charges for a call that is PSTN presented.

A7.68 However, end-users might receive calls differently, i.e., through a broadband telephone adaptor which allows the use of a traditional telephone handset with an existing broadband internet access connection. These calls are also delivered using VoIP technology as the above type of voice call.

A7.69 Is there a substitution between calls to PSTN numbers and calls to VoB numbers? That is, if an end-user had the choice of calling a party on their PSTN number or the

VoB/VoIP number would there be effective substitution between the two in the event of a price rise? It must be noted that although both types of calls might be conveyed over an IP network, a PSTN number is associated with a geographic location and terminates essentially at a geographic location on the PSTN whereas a VoB number would essentially be terminated on an internet address on an IP network.

A7.70 For end-users to react to an increase in the price of calls to PSTN numbers by switching to a VoB number, absent regulation, it is likely that three conditions need to be satisfied:

- end-users must be sufficiently aware that they are calling a particular terminating network number;
- end-users must be sufficiently aware of the price of calling that particular number on that network;
- end-users must be sensitive to changes in the prices of calling the PSTN number they want to reach, i.e. an increase in the termination charge above the competitive level must cause consumers to adapt their behaviour to find an alternative satisfactory way of contacting the person they want to call (eg., through VoB).

A7.71 At this stage of development in the VoB market, it is not possible to be definitive on the above issues. Since VoB providers or retailers are now able to use geographic numbers, it is quite likely that end-users will not be sufficiently aware that they are calling a VoB number unless it is a very regularly called number where the called party is well known to the caller. If specific number ranges are used for VoB numbers then callers may be more aware that they are calling a VoB number. It is unlikely however, that callers are aware of the prices of calling a particular VoB retailer or operator's network.

A7.72 There would be constraints on termination charges if the called party had a VoB service where the subscriber chose their network on the basis of the prices of incoming calls and, thus, was able to choose a provider who offered the lowest termination charges for incoming calls. However, the UK has a Calling Party Pays principle (see below) , which implies that the calling party, and not the called party, pays the total price of a retail call. Therefore, the called party, who makes the choice of the terminating network/provider, is not affected by the level of the prices of calls to her/him (and thus by the level of mobile termination charge of her/his network).

A7.73 Given this, it is as yet unclear if calls to VoB numbers would be in the same market as calls to PSTN numbers.

Supply side substitution at the retail level

A7.74 Ofcom considers that although there exists competition between providers in the retail market for end to end calls on the basis of the availability of wholesale products, this does not have an effect on the competitive conditions in the wholesale provision of fixed geographic voice termination, as providers do not compete on call termination charges. This is explained further below.

Wholesale level definitions

Relevance of the Calling Party Pays principle

A7.75 For fixed geographic telephone calls, the UK telecommunications industry has a system whereby the calling party (and not the called party) pays the total price of the retail call (unless the called party accepts the responsibility for payment, e.g., reverse charge calls). This means that the call termination charge will be included in the originating network provider's cost base and is likely to be reflected in the retail price it sets for calls. Increases in call termination prices are of less consequence to the called party, as the called party does not bear them, and it is therefore unlikely that a customer would decide to connect to a network on the basis of that network's call termination charge.

Demand side substitution at the wholesale level

A7.76 As the calling party pays, customers of terminating providers do not choose their suppliers on the basis of inbound calls. Terminating providers thus face little competitive pressure and have an incentive to raise the charge for termination to maximise their call termination profitability. In providing terminating services to competitors in the retail market, a terminating provider has a further incentive to increase its call termination price. This not only increases call termination revenues but also increases the costs that a terminating provider's rivals will have to pay.

A7.77 As at the retail level, when purchasing wholesale fixed geographic call termination, the originating network provider will not find termination on any other network than the one its customer is trying to reach, as a possible substitute. Therefore a hypothetical monopolist of termination would be able to profitably sustain an increase in charges above the competitive level.

A7.78 The lack of demand side substitutes for terminating on a specific network suggests that termination on an individual network constitutes a separate economic market under a calling party pays principl

Supply side substitution at the wholesale level

A7.79 On the supply side, competitors cannot offer an equivalent wholesale fixed geographic call termination service because technically they cannot terminate call over each other's networks. The terminating fixed network provider supplies the service between its local exchange and the retail customer and the originating network provider has to hand over the call to the terminating network provider for the call to take place. Supply-side substitution would require the entrant to win the customer from the hypothetical monopolist at the retail level. However as already explained, retail customers are not sensitive to termination charges due to the calling party pays principle. Thus supply-side substitution is not relevant in this context.

The relevant geographic market

A7.80 As call termination on each fixed network is in a separate market, the geographic extent of each market matches the geographic scope of a fixed geographic terminating provider's network.

Assessment of SMP in the geographic call termination market

A7.81 As call termination on each fixed network is in a separate market, each fixed network terminating provider has SMP in that market. As call termination on each fixed network is in a separate market, each fixed network terminating provider has SMP in that market. Since BT has approximately 80% of the origination market, it has the highest share of customers connected to its network. As a result it is crucial for BT's competitors to purchase call termination from BT if they wished to compete on offering end to end calls. On the other hand, it is not imperative for BT to purchase call termination from other networks in order to have a profitable business, since most termination is likely to be on its own network.

A7.82 In this situation, other providers would have no countervailing buyer power with BT and BT can profitably raise its termination prices above the competitive level. On the other hand, since BT has to terminate a majority of the calls originated by other networks, it has countervailing buyer power. It can use this countervailing power to force other network providers to charge below their costs of termination.

A7.83 Ofcom is of the view therefore that BT continues to have SMP in fixed geographic call termination in the UK.

Conclusions and forward look on SMP in geographic call termination

A7.84 Ofcom's view is that the definition of the market for geographic call termination on narrowband networks will remain unchanged through the duration of this review as providers will continue to purchase the same service at their existing PSTN interfaces irrespective of how the service is provided by BT. Consequently, BT's current SMP is likely to continue as there is little countervailing buyer power that any interconnecting provider can impose on BT. Therefore Ofcom's view is that BT will continue to have SMP in the market for geographic call termination.

Basis for regulating interconnection circuits

Introduction

A7.85 An interconnection circuit links the exchanges of two interconnecting operators in order to enable traffic to pass between their networks.

A7.86 BT provides the following types of interconnection circuits:

- Customer-Sited Interconnect ("CSI"). BT provides a point of interconnection at the site of the interconnecting operator by extending its network using a 2Mbit/s circuit;
- In-Span Interconnect ("ISI"). Two operators build out their networks to a handover point located between their switches. The handover point is normally close to the BT exchange and therefore most of the build is the responsibility of the interconnecting operator; and
- Interconnection Extension Circuit (IEC). IECs allow an interconnecting operator with an existing ISI to extend this point of interconnection to a new building. In order to do this, BT provides a 2MBit/s circuit between the two buildings. An IEC is subject to the same per km charge as a CSI but has a reduced fixed charge.

Achieving an overall solution

A7.87 All operators purchasing interconnection services from BT, such as call origination, local-tandem conveyance, inter-tandem conveyance/transit or single transit services, must interconnect with them and therefore also purchase interconnection circuits.

A7.88 Oftel and Ofcom have between them assessed the markets for interconnection services in the following markets:

- call origination on fixed public narrowband networks and single transit on fixed public narrowband networks in the UK (excluding the Hull Area) in which markets BT was determined by Oftel to have SMP in 2003; and
- local-tandem conveyance and transit on fixed public narrowband networks in the UK (excluding the Hull Area) in which Ofcom proposes to confirm its market power determination in 2003 as BT continuing to have SMP (see {section x} of this document).

A7.89 In order to remedy SMP in these markets, Oftel imposed remedies on BT as to the first two above-mentioned markets in 2003 and has proposed to re-set remedies in the LTC market (see Section 4 of this document) However, Ofcom considers that regulation of these markets is insufficient to achieve an overall solution to BT's market power in these markets.

A7.90 To achieve an overall solution, Ofcom believes that it is also necessary to regulate BT's provision of interconnection circuits, in the absence of which, BT would have incentives to charge prices well above the cost of provision of such circuits. As operators must purchase these circuits to interconnect and purchase interconnection services, this would have the same effect as charging excessive prices for the regulated interconnection services in each SMP market and would undermine the remedies that are being proposed by the Director.

A7.91 The European Commission has not identified a market for interconnection circuits in its Recommendation on relevant product and service markets. However, the third paragraph of section 3.3 of the Explanatory Memorandum to the Recommendation states that:

> *"…In dealing with lack of effective competition in an identified market, it may be necessary to impose several obligations to achieve an overall solution. For instance, it may often be the case that adjacent or related remedies are applied to technical areas as part of the overall obligation that addresses SMP on the analysed market. If specific remedies are thought to be necessary in a specific narrow technical area, it is not necessary or appropriate to identify each technical area as a relevant market in order to place obligations in that area…"*

A7.92 Ofcom considers that interconnection circuits should properly be considered as a technical area as set out by the European Commission. Ofcom also notes that in 2003, when interconnection circuits were discussed in the Narrowband Market Reviews, BT agreed that regulation of interconnection circuits was necessary and appropriate where those circuits enable access to regulated wholesale products.

CSI, ISI and IECs

A7.93 Ofcom considers that it would be insufficient to regulate only one type of interconnection circuit product.

CSI

A7.94 CSI does not involve building out to BT exchanges and the significant costs of doing so. Therefore, it is the normal mode of interconnection for a new operator or where an interconnection route is expected to carry a limited volume of traffic. Regulation of CSIs is essential to ensure that barriers to entry for new interconnecting operators are low. If operators can only interconnect using ISI links that involve the significant costs of building to the BT exchange, this could deter market entry and therefore affect the development of competition.

ISI

A7.95 ISI is the preferred method of interconnection when operators have reasonably extensive network infrastructure. An interconnecting operator will aim to interconnect as close as possible to BT's exchanges in order to minimise the charges payable to BT.

A7.96 Regulation of ISIs is necessary to ensure that operators have the option of building out their own networks and connecting closer to BT's exchanges. This therefore assists an operator's ability to extend their own infrastructure and reduces their reliance on BT.

IECs

A7.97 IECs are used when an interconnecting operator has already connected to one exchange and is seeking to interconnect to other exchanges in the same area (for example, local exchanges close to a tandem exchange). It will, in general, be difficult for an interconnecting operator to justify constructing ISI links to exchanges where traffic volumes are low, such as at local exchanges. Therefore, regulation of IECs is necessary to ensure that operators are able to interconnect to these exchanges, particularly local exchanges, where it would otherwise be uneconomic to build their own links.

Product management, policy and planning

A7.98 BT makes a product management, policy and planning (PPP) surcharge to cover its administrative costs in dealing with interconnection relationships in narrowband markets. The charges cover BT's internal costs in managing such relationships over and above the charges that it incurs for actually conveying and switching calls across its network. At present, the PPP charge is currently levied on a once per call minute basis in the following markets:

- call origination on fixed public narrowband networks;
- local-tandem conveyance and transit on fixed public narrowband networks;
- inter-tandem conveyance and transit on fixed public narrowband networks;
- single transit on fixed public narrowband networks; and
- fixed geographic call termination.

A7.99 Any competiting provider purchasing any of the above services individually, or in any combination, is required to pay the PPP surcharge on a once per minute per call basis. In markets in which BT has SMP, the surcharge therefore covers one part of BT's costs (i.e. its administative costs) in handling such calls, in the same way as the local exchange processor covers BT's costs in switching the call. Any competing

provider wishing to offer retail services to BT's customers via carrier pre-selection or carrier selection, needing BT to terminate calls on its network, or needing to use BT's trunk network for the purpose of conveying a national call, is therefore required to pay PPP. Therefore, to the extent that BT maintains SMP in these markets, the competing providers have little alternative but to pay BT to either originate, terminate or deliver the call nationally, and pay BT PPP. In competitive markets, competing providers could choose to purchase conveyance services from alternative providers and they would a portion of the charge they would pay would directly or indrectly be attributable to a function of a similar nature to BT's PPP activity.

A7.100 However, as explained in Section 3 above, Ofcom is proposing that BT does not retain SMP in the market for inter-tandem conveyance and inter-tandem transit. With the consequent lifting of all SMP conditions in that market, BT would not therefore have to publish its charges for either service, nor would it be required to set out in its regulatory financial statements the costs associated with either of these products, including the PPP costs attributed to them. Therefore, for inter-tandem conveyance and transit services, the PPP cost would not need to be separately published. Nonetheless, in the absence of SMP in that market, Ofcom would expect competition to constrain BT's ability to price in excess of costs - including any element of PPP-type costs incurred in selling ITT and ITC. Ofcom would continue to regard ITT and ITC charges as including an element to allow for PPP cost recovery for the purposes of setting the PPP charge control.

Annex 8

Detailed charge control modelling

Introduction

A8.1 As set out in Section 4, Ofcom has developed a cost forecasting model in order to calculate a value of X for the various services covered by the Network Charge Control (NCC) over the period 2005-2009. The value of X is the amount, in real terms, by which BT will, on average, be required to reduce charges each year within each charge control basket. This annex:

- Sets out Ofcom's general methodology;
- Provides an overview of the cost forecasting model;
- Provides details of the construction of the model and the model's calculations; and
- Provides results based on different assumptions of key inputs.
-

Ofcom's methodology

The technology neutral basket

A8.2 As the 21CN replaces the PSTN, some existing wholesale products are likely to be replaced by new products which fulfil the same function.

A8.3 The issue of how charges for PSTN-based services should be controlled, and how the cap should reflect the transition to the 21CN are key issues for any new NCC to apply from 2005. Ofcom proposes to have a "technology neutral basket" approach under which the same charge would apply to a given service whether it was provided over the PSTN or over the 21CN. This would give BT good incentives to utilise whichever network minimised costs and also avoid the need for detailed projections of the costs of the 21CN and the rate of migration.

A8.4 Consistent with this approach, Ofcom has developed a cost forecasting model which is "technologically neutral" (see Section 4). The implication of this is that the calculation of unit costs by service type will be based on the total volume of such services going over BT's network, irrespective of the underlying technology used to convey them (i.e. narrowband network switched or IP).

Overview of model

High level structure of model

A8.5 The following sections outline how the model is structured and provide details of the data inputs and main calculations in the model.

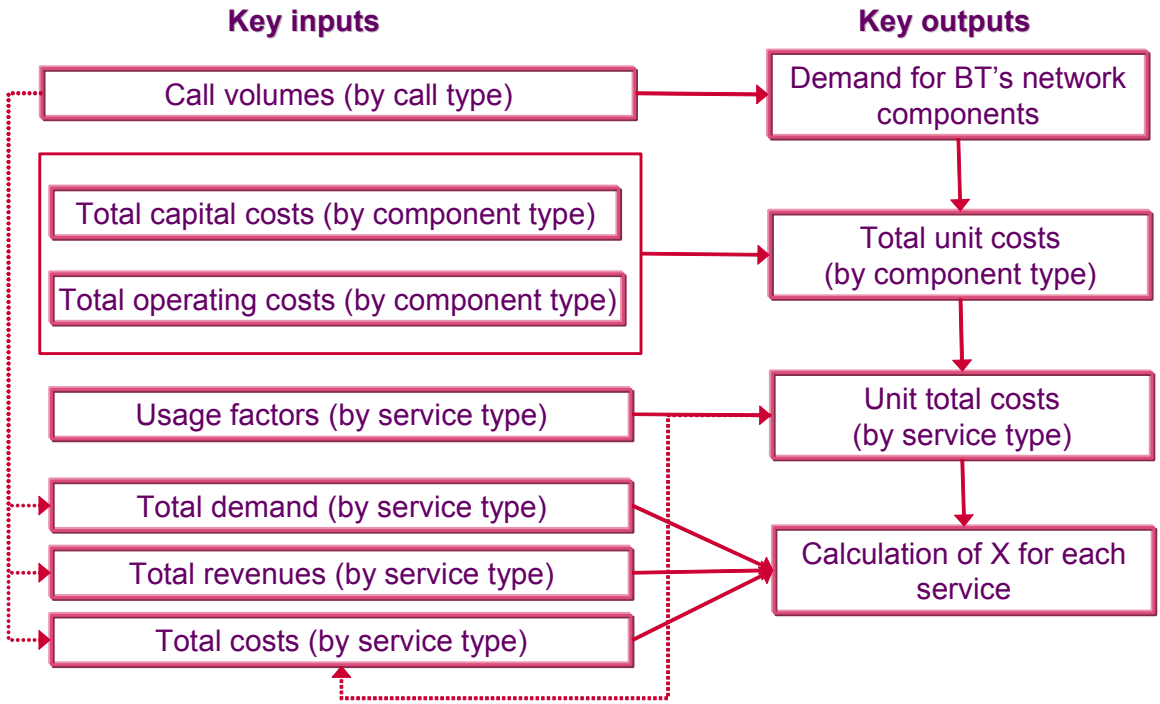
A8.6 The objective of the cost forecasting model is to forecast how BT's costs for the services included in the NCC will change over the period of the next charge control. This then allows different groups of costs to be combined into different possible charge control baskets.

A8.7 The model can be described in four blocks. These are:

- **Inputs**, in the form of base year financial data and key assumptions;
- **Key calculations**, such as total capital and operational costs;
- **Interim outputs**, in the form of unit costs for the regulated services; and
- **Key outputs**, such as the construction of the charge control baskets and the calculation of the value of X for these.

A8.8 It is useful to understand in broad terms how these different blocks within the model are related and the calculation flow to determine the values of X. The calculation flow involving these blocks is represented simply in Figure A8.1.

Figure A8.1 High level flow diagram of the NCC model



Key inputs to the model

A8.9 The inputs to the model are described in Table A8.1. Key inputs to the model are either in the form of key assumptions or base year data provided by BT. Key assumptions and the sensitivity analysis conducted on these are discussed in detail in paragraph A8.74.

Table A8.1 – Description of the key inputs to the NCC model

Name	Description
Ofcom call volume forecasts by call type	This sets out Ofcom's forecasts for call volumes (voice and data) between 2004/05 and 2009/10 for BT, Direct Access Operators and Indirect Access Operators. The size of the total market is calculated as the sum of these.
BT call volume forecasts by call type	This sets out BT's forecasts for all call volumes (voice and data) between 2004/05 and 2009/10 that are expected to use BT's network. These can be used as alternatives to Ofcom's forecasts.
Inflation	This includes historical actual data on inflation rates between 1999/00 and 2003/04 (obtained from the Office of National Statistics).
Cost of capital	This is an estimate of BT's real and nominal pre-tax cost of capital.
Routing factors	These are provided by BT for each call type and network component type from 2003/04 to 2009/10. They measure the average usage of a particular network component by a specific retail call type.
Usage factors by service type and network component	These are provided by BT in their regulatory financial statements for the year ended 31 March 2004 and measure the average usage of a network component by specific regulated services (e.g. call origination). Usage factors for 2003/04 are forecast unchanged up to 2009/10.
Usage factors by service type and call types	These are provided by BT for each service and call type from 2003/05 to 2009/10. They measure the average usage of a service (i.e. call origination) by a particular call type (i.e. local calls).
Asset price changes	This sets out BT's historic asset price changes between 2000/01 and 2003/04. Asset price changes by component type for the forecast period (2004/05-2009/10) are calculated by taking the average of the historical values by asset type and weighting these by the gross replacement cost (GRC) of each component by asset type for 2003/04.
Factor price changes	This sets out BT's historic factor price changes for the pay and non-pay operational cost categories between 2000/01 and 2003/04. Factor price changes for the forecast period (2004/05-2009/10) are calculated by taking the average of the historical values.
Asset volume elasticities (AVE)	This sets out Ofcom's view of the AVEs by asset type for 2003/04. AVEs by component type for 2003/04 are calculated by taking the values by asset type and weighting these by the GRC of each component by asset type for 2003/04. Values for

	2003/04 are forecast unchanged to 2009/10.
Cost volume elasticities (CVE)	This sets out Ofcom's view of the CVEs for the pay and non-pay cost categories for 2003/04. CVEs by component type for 2003/04 are calculated by taking the above values and weighting these by the AVE of each component type. Values for 2003/04 are forecast unchanged to 2009/10.
Efficiency gains	Ofcom has calculated the constant volume underlying rate of unit cost reduction in BT's PSTN network that it expects to continue in the future (see paragraphs from A8.52 for a detailed discussion).
Network capital costs	These are capital cost schedules provided by BT for the year ended 31 March 2004. They include a breakdown of costs by asset type and component type for various cost components such as Gross Replacement Cost, Net Replacement Cost, Net Current Asset, FCM depreciation, HCA depreciation, CCA Supplemental Depreciation, Capital Expenditure and Disposals.
Network operational costs	These are operational cost schedules provided by BT for the year ended 31 March 2004. They include a breakdown of costs by component type for the pay, non-pay and depreciation cost categories.
Average asset lives	Values for the base year (2003/04) are calculated as the ratio of GRC and OCM depreciation in the base year. Values for 2003/04 are forecast unchanged to 2009/10.

Key calculations performed in the model

A8.10 There are five key calculations performed by the model:

- Calculation of network component volumes using call volume forecasts by call type;
- Calculation of total network capital costs;
- Calculation of total network operational costs;
- Calculation of total unit costs by service type; and
- Calculation of the value of X for each regulated service.

A8.11 These will be described in detail in the following paragraphs. Calculations are first performed in nominal terms and then converted to real terms using RPI inflation rates. Therefore all calculations explained in the tables below are in nominal terms unless otherwise stated.

Calculation of network component volumes

A8.12 Network component volumes are calculated as the product of call volumes by call type and the associated routing factor by component type.

Calculation of total network capital costs

A8.13 Total capital costs are calculated in two stages:

- First the "steady state", i.e. no volume growth, level of costs is forecast.
- Second the "additional", i.e. with a change of volume, level of costs is forecast.
- The output of this calculation is the sum of these two stages.

The steady state capital costs

Table A8.2 - The steady state capital and depreciation cost

Calculation	Description
Gross replacement cost (GRC)	The base year (2003/04) GRC values by asset type and component type are provided by BT. The forecasts are calculated as the addition of: a) the sum of the previous year GRC and the product of half of the difference between the previous year capital expenditure and disposals, both multiplied by the asset price trend and b) half of the difference between the current year capital expenditure and the current year disposals.
Operating capability maintenance (OCM) depreciation	The base year (2003/04) OCM depreciation is calculated by summing the HCA depreciation and the CCA supplemental depreciation in the base year. The forecasts are calculated by dividing the GRC in the relevant year by the average asset life, described in table A8.1.
Capital expenditure (capex)	The base year capital expenditure is equal to the OCM depreciation. The forecasts are calculated by multiplying the previous year value by the nominal asset price change and the year on year efficiency gains assumed by Ofcom.
Net replacement cost (NRC)	The base year (2003/04) NRC values by asset type and component type are provided by BT. The forecasts are calculated as the addition of: a) the previous year NRC and the product of half of the difference between the previous year capex and OCM depreciation, both multiplied by the asset price trend and b) half of the difference between the current year capex and the current year OCM depreciation. This allows for the cost of capital to be earned on the mean capital employed for the year.
Net current assets (NCA)	The base year (2003/04) NCA values by component type are provided by BT. The forecasts are calculated by multiplying the previous year net current assets by the inflation rate.

The additional capital costs

A8.14 For the additional capital costs, the base year data is always equal to zero because by definition, there is no additional volume growth in the base year.

Table A8.3 – Additional capital and depreciation costs associated with volume growth

Calculation	Description
Additional capex	The forecast is calculated by multiplying the previous year total GRC by the current year asset price trend, multiplying this by the current year AVE and multiplying this by the component volume change.
Additional GRC	The forecast is calculated by adding: a) the product of the previous year additional GRC and the asset price trend and b) half the sum of the previous year additional capex times the asset price change and the current year additional capex. This is calculated over two years because this makes the calculation consistent with a mid-year value.
Additional OCM depreciation	The forecast is calculated by dividing the current year additional GRC by the average asset life.
Additional cumulative OCM depreciation	The forecast is calculated by multiplying the previous year additional cumulative depreciation by the asset price trend, and then adding the current year additional OCM depreciation.
Additional NRC	The forecast is calculated by subtracting the additional cumulative OCM depreciation from the additional GRC.

A8.15 From this point it is possible to calculate the total capital and depreciation costs. The model does this in the way described in Table A8.4.

Table A8.4– Total capital and depreciation costs

Calculation	Description
Total GRC	This is the sum of steady state GRC and additional GRC.
Total capex	This is the sum of steady state capex and additional capex.
Total NRC	This is the sum of steady state NRC and additional NRC.
Total OCM depreciation	This is the sum of steady state and additional OCM depreciation.
Total return on capital	This is the sum of steady state NCA plus total NRC, multiplied by the nominal pre tax cost of capital.
Total holding loss	This is calculated by multiplying the nominal price change by the total NRC minus half the difference between total capex and total OCM depreciation. The total holding loss calculates the decline in the value of the asset base due to asset price changes.
Total capital and depreciation costs	This is calculated by summing the return on capital plus the total OCM depreciation plus the total holding loss.
Real total return on capital	This is the sum of steady state NCA plus total NRC divided by the compound rate of RPI inflation, and then multiplied by the real pre tax cost of capital.
Real total holding loss	This is calculated by multiplying the real price change by the real total NRC minus half the difference between the real total capex and the real total OCM depreciation.
Real total capital costs	This is calculated by summing the real return on capital plus the real total OCM depreciation plus the real total holding loss.

Calculation of total operational costs

A8.16 Operational costs are forecast in a similar manner to capital costs described above.

Table A8.5 – Operating costs

Calculation	Description
Productivity adjusted operating cost change	This is the operating expenditure price changes calculated as the difference between factor price changes and assumed efficiency gain, split by pay and non-pay categories.
Total operating costs (non-pay)	The base year data for 2003/04 is provided by BT. The forecast is calculated by multiplying the previous year value by the productivity adjusted operating cost change, the inflation rate and the product of the component volume change with the CVE for the non-pay cost category.
Total operating costs (pay)	The base year data for 2003/04 is provided by BT. The forecast is calculated by multiplying the previous year value by the productivity adjusted operating cost change, the inflation rate and the product of the component volume change with the CVE for the pay cost category.
Total nominal operating expenditure	This is calculated by summing the total non-pay and pay operating costs.
Total real operating expenditure	This is calculated by dividing the total nominal operating expenditure by the compound inflation rate.

Calculation of total unit costs by service type

A8.17 Total unit costs by service type are calculated as follows

Table A8.6 – Total costs

Calculation	Description
Real total costs	This is calculated as the sum of the total real capital costs (Table A8.4) and the total real operational costs (Table A8.5)
Real total unit costs	Real total unit costs are calculated as the ratio of real total costs and network component volumes. For FRIACO services, real unit costs are calculated as the ratio of real total costs and total local exchange circuit numbers (or total number of local tandem circuit numbers in case of single tandem FRIACO).
Real unit costs by service type	Total unit costs for each service type are calculated as the product of the real unit costs (on a per minute or per circuit basis) and the usage factors by component type for each service.

Key outputs of the model

A8.18 The key output of the model is the calculation of the value of X, for the following services:

- Call termination;
- Call origination;
- Single transit;
- Interconnect Specific Basket (ISB);
- Product management, Policy and Planning (PPP); and
- FRIACO at the DLE and Single Tandem FRIACO.

A8.19 For each service, the value of X is determined so as to ensure zero super-normal profits by the end of the next charge control period (i.e. the end of 2009/10) by following the calculations as set out in Table A8.7 below. Super-normal profits are calculated as the difference between total revenues and total costs (including the return on capital employed) for each service.

Table A8.7 – Calculation of the value of X

Calculation	Description
Unit charges	Unit charges for the base year (2003/04) are provided by BT in their regulated accounts for the financial year end 31 March 2004. Unit charges are forecast to change in proportion to the value of X. The values of X for the new charge control period are calculated by the model so as there are no super-normal profits by 2009/10. For two or more services that fall within the same basket (such as Call Origination) this is calculated so that the sum of their costs is equal to the sum of their revenues by the end of the charge control period.
Total revenues	These are calculated as the product of unit revenues and service volumes.
Unit costs	These are calculated as explained in Table A8.6.
Total costs	These are calculated as the product of unit costs and service volumes.
Super-normal profits	These are calculated as the difference in total revenues and total costs for each service. X is set so that super-normal profits for 2009/10 are equal to zero for each service.

A8.20 Although the calculation of X for each basket is as explained in Table A8.7 above there are some differences introduced for some of the baskets. These are briefly described below.

FRIACO

A8.21 The key differences introduced when calculating the value of X for FRIACO are as follows:

- Unit costs are calculated on a per circuit basis i.e. taking into consideration the total number of circuits; and
- The construction of the charge for FRIACO has different components as explained further in the paragraphs below.

A8.22 Unit costs for FRIACO at the DLE are calculated by taking into consideration the total numbers of Local Exchange circuits. Similarly unit costs for single tandem FRIACO are calculating by taking into consideration the total numbers of Local Tandem circuits.

A8.23 The charge for FRIACO at the DLE level has three components and the value of X calculated for FRIACO at the DLE level is applied to each of these cost components individually. The cost components are:

- (A) Local exchange call origination (LECO) circuit
- (B) FRIACO port at the DLE
- (C) PPP per FRIACO port

A8.24 In calculating the FRIACO charge at the DLE level, the charge for the LECO circuit is multiplied by an adjustment ratio[34] which reflects the number of call origination circuits required per FRIACO port. Therefore the charge for FRIACO at the DLE can be represented as:

A x adjustment ratio (LECO) + B + C

A8.25 A similar approach is taken for calculating the charge for single tandem FRIACO. For this two further charges would need to be specified (in addition to the ones listed above) which are:

- (D) Local tandem circuit (excluding FRIACO port at tandem switch)
- (E) FRIACO port at tandem switch

A8.26 There is again the need to identify the relevant adjustment ratio reflecting the number of DLE ports and local tandem circuits required per tandem port. Therefore the charge for single tandem FRIACO can be represented as:

A x adjustment ratio (LECO) + (B+D) x adjustment ratio (L-T) + C + E

PPP

A8.27 The base year costs and revenues for PPP have been adjusted to take into account the changes introduced by the recent PPP decision[35]:

- £5.1m of Service Centre costs are excluded from the PPP basket and reflected in part in the ISB basket (£ 3.7m);
- PPP costs are recovered over all call volumes, including BT to BT minutes (in the past cost recovery was over interconnect call volumes only); and
- £3.4m of wholesale product costs are added to the PPP basket, this being the cost of supplying BT's Retail division.

ISB

A8.28 The ISB basket is modelled on a stand alone basis as the cost drivers (circuits rather than minutes) and individual cost components (circuits rather than PSTN network components) making up this basket are different to those of the core model. The approach taken to model the ISB basket can be summarised as follows:

- The basket is made up of three key services: connections, fixed rental and per km rentals. Each of these different services is made up of Customer Sited Interconnect (CSI), Intra Building Circuits (IBC) and Interconnection Extension Circuits (IEC).
- Base year charges are calculated as base year total actual revenues (as per BT's regulatory financial statements for the year end 31 March 2004) divided by total volumes. Unit charges are then forecast to change in proportion to the value of X. Total forecast revenues are calculated as the product of the forecast unit charges and volumes of the services.
- Total costs for base year are calculated as the sum of the return on capital employed and operational costs. These are then forecast in proportion to exogenous variables such as AVE, CVE, efficiency gain, input price changes and volumes changes.

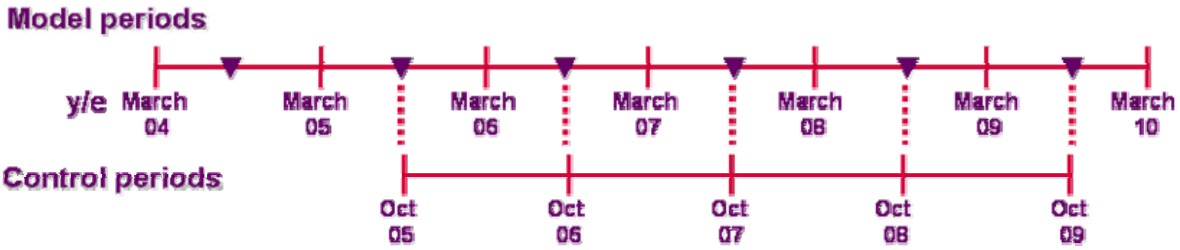
[34] For more detailed discussion on the AR for DLE FRIACO please see Annex 9.
[35] http://www.ofcom.org.uk/consult/condocs/rev_bt_pm/statement/statement.pdf

- Unit forecast costs are calculated as total forecast costs divided by total volumes.

Model periods

A8.29 The model uses BT's base year data for the financial year end 31 March 2004 (2003/04) and forecasts values between 2004/05 and 2009/10. The next NCC period starts in October 2005 which is half way through 2005/06.

A8.30 The model is based on BT's financial years and assumes that all expenditure occurs halfway through the year. By taking this approach the cost forecasts calculated by the model align with the start of the charge control periods.



Sensitivity analysis on key parameters

A8.31 The value of X calculated for each of the regulated services depends on a number of key model parameters which are discussed below. Ofcom identified reasonable ranges for these key parameters and these together with the results of the sensitivity analyses undertaken by Ofcom are set out in the Table A8.8 below.

Cost basis

A8.32 In previous charge control reviews, Oftel modelled the charge control on two different cost basis; Long Run Incremental Costs plus an Equal proportional Mark-up for common costs (LRIC+EPMU) and Current Cost Accounting with Fully Allocated Costs (CCA FAC). The final charges were based on LRIC+EPMU. In this consultation, Ofcom has calculated values of X based on both methods, and the final values of X selected within the ranges on which Ofcom is consulting will vary partly on the basis of which cost basis is chosen.

A8.33 As explained in Section 4 paragraphs 4.68-4.71, Ofcom has been using CCA FAC data in its charge control modelling. BT estimates that the adjusted LRIC+EPMU data will be around 1.6% higher than the CCA FAC data. To allow for the possibility of moving to LRIC+EPMU data for the purpose of determining final charge controls, Ofcom has inflated the CCA FAC data by 1.6% and reflected this adjustment in the range of Xs on which Ofcom is consulting.

Volumes

A8.34 Telecommunication networks are characterised by significant economies of scale and an increase in retail volumes, caused by market growth or increased market share, is likely to lead to a much smaller proportionate increase in total costs than total revenues. Hence, BT's profitability is highly affected by the total retail market

growth rates and BT's share of it. Ofcom has prepared its own retail volume forecasts based on recent past trends of BT, Direct Access and Indirect Access call volumes (both voice and data).

A8.35 Ofcom receives quarterly information from BT and other operators on line and retail traffic volumes as part of its ongoing market intelligence work. Ofcom has looked at recent trends in these data, together with additional information provided by BT in the context of this review, to produce forecasts of volumes over the next four years. Call volumes for any call type are calculated as the product of the moving average number of calls per line and the average number of lines.

A8.36 The Ofcom base case scenario is based on the following total market growth trends.

Table A8.8 – Ofcom market growth forecasts for 2005-2009

Ofcom central case	Average rate of market growth 2005-2009
Business Access Lines	-4.5%
Residential Access Lines	-0.04%
Local Calls	-4.5%
National Calls	-4.5%
NTS calls	+0.4%
Data Dial	-3.8%
FRIACO	-14.1%
Incoming International Calls	-5.6%
Calls from Mobiles	-8.9%
Outgoing International Calls	-4.5%
Calls to mobiles	-4.5%
Voice over IP (VoIP)	+48.9%

A8.37 Similarly Ofcom's base case scenario assumes the following market share for BT by the end of the next charge control period in 2009.

Table A8.9 – Ofcom's assumptions for BT's market share in 2009/10

Ofcom central case	BT market share 2009/10
Business Access Lines	78.9%
Residential Access Lines	82.2%
Local Calls	41.9%
National Calls	34.8%
NTS calls	66.3%
Data Dial	66.3%
FRIACO	100.0%
Incoming International Calls	48.9%
Outgoing International Calls	22.4%
Calls to mobiles	47.5%
Voice over IP (VoIP)	47.1%

A8.38 When preparing the volume forecasts for the next charge control Ofcom has taken four key factors into consideration:

- Number of fixed telephone lines and average usage patterns
- The level of competition
- The growth of Voice over Broadband (VoB)
- The growth of data traffic over Broadband

The number of telephone lines and average usage pattern

A8.39 Ofcom has considered trends in both the number of telephone lines and the average usage pattern in its forecasts. While there has been a small decline in the total number of fixed lines over the last couple of years a large proportion of this is thought to be accounted for by the reduction in second lines for internet access following increased broadband migration. The rate of decline has slowed in recent quarters and further significant falls seems unlikely. This is reflected in the forecasts.

A8.40 Second, overall traffic volumes will be affected by average usage patterns. Average volumes per line have shown a clear downward trend over recent years although again this fall has slowed over 2004. This slowdown is likely to reflect mobile penetration reaching saturation levels reducing the rate of any substitution effect. Average usage may also have been stimulated by the reduction in call costs.

The level of competition

A8.41 The total volume of traffic over BT's network will be influenced by the level of competition. This has been most obvious in recent quarters through the take off of competition from carrier-pre-selection (CPS) although this is unlikely to significantly affect the volume of originating and terminating traffic on BT's network.

A8.42 Ofcom assumes CPS call volumes in 2009/10 to be around 30% of total lines, roughly twice the current levels and believes this to be a reasonable assumption.

The growth in Voice over Broadband

A8.43 VoB forecasts prepared by Ovum[36] suggest a total user base of around 6 million by 2008, which is equivalent to around 20% of total lines. In preparing its volume forecasts Ofcom has assumed VoB call minutes to be 20% of total call minutes by 2009/10.

A8.44 VoB calls include four basic types of service: a) basic PSTN-presented services, b) PSTN-presented services partly delivered over 21CN, c) IP-presented services which are equivalent to PSTN and d) IP-presented new services.

A8.45 Ofcom is of the belief that a proportion of VoB calls should be included in the volume forecasts and therefore in the calculation of unit costs. One reason is that there is likely to be an economy of scope in that some network components are common to the PSTN and the 21CN. In the situation where non price controlled services are direct substitutes for price-capped services there is a further reason to take growth in the volumes of these services into account. If this were not done, BT would have the benefit of a looser price control purely as a result forecasting a migration of customers onto substitute services. Ofcom believes it is reasonable for narrowband customers to benefit from the economies of scale and scope generated by the growth of such services.

A8.46 Ofcom therefore takes into consideration approximately 50% of the VoB call minutes in any year through the application of routing factors which are specific to this call type. Ofcom is still considering the reasonableness of this modelling approach.

The growth of Data traffic over Broadband

A8.47 In preparing its volume forecasts Ofcom has also made explicit assumptions about broadband data substitution during the next charge control period. Significant falls in metered and unmetered narrowband internet usage are projected for the next control period for the NCC (Ofcom and BT agree on this although differ as to the amount). The greater the extent to which this reduction is reflected in the projections used to derive the values of X in the NCC, the lower will tend to be the values of X produced (ie it loosens the control, possibly significantly). There are, however, arguments for not reflecting the forecast reduction in its entirety in the model.

A8.48 The arguments in favour of not allowing for the full forecast reduction in narrowband volumes due to broadband substitution are as follows:

- Ofcom is of the view that, there is an economy of scope at both the retail and network level between narrowband and broadband traffic. If a minute of BT narrowband traffic switches to BT broadband, some of the network components used will be the same, as will the retailing activity.

[36] Consumer VoIP forecasts, Ovum, August 2004.

- If broadband substitution were fully reflected in the narrowband forecast, BT would have an incentive to maximise the forecast amount of such substitution in order to get a lower X on the NCC i.e. the argument set out in paragraph A8.45.

A8.49 The counter-arguments are based on limits to the economy of scope:

- BT may well lose share to LLU and cable operators when customers switch to broadband. It would not be able to recover network or retail costs from LLU customers. Ofcom forecasts total LLU take-up by 2009/10 to be about 30%-40% of the broadband total currently assumed in the model. So if one removes all LLU from the total for PSTN forecasting purposes on the grounds that LLU operators will not use BT's network, this leaves a maximum of about 60%-70% for possible inclusion in narrowband volumes.
- During the control period, BT will be running both PSTN and 21CN and the degree of commonality between them is limited. If one assumes the common costs between PSTN and 21CN to be ducts, copper, fibre and a proportion of building costs this would represent around 15%-25% of BT's PSTN costs (calculated on a GRC basis).

A8.50 From the above discussions Ofcom has concluded that the proportion of broadband substitution that could be added back to narrowband volumes is between 20% (to represent a minimum level of possible economies of scale based on network commonality) and 60% (representing the portion of volumes left after forecast migration to LLU ie the maximum view of economies of scope and the incentive effects described above).

A8.51 Ofcom has assumed that total broadband take up doubles from 2003/04 to 2009/10, increasing on a straight-line basis (actual take-up will probably be faster initially but this should not affect the value of X as long as the final year volume is unchanged). Of the annual growth in broadband subscriber numbers, 90% is assumed to come from narrowband users. It is then assumed that a certain percentage (between 20% and 60% as suggested in the paragraph above) of substitution should be treated as remaining on the narrowband network for modelling purposes to reflect economies of scope and incentives. The annual growth in broadband subscribers is then multiplied by (90% x the percentage of broadband substitution not remaining on the narrowband network) to give the reduction in forecast narrowband volumes due to broadband substitution. This is then divided between metered and unmetered narrowband subscribers according to the proportions of each in total narrowband subscriber numbers. The relevant calculated reduction is then subtracted from the metered and unmetered narrowband subscriber bases in each year and then expressed as a percentage decline. BT's forecast rates of the decline in narrowband data are then adjusted for the difference between its own forecast reduction due to broadband substitution and this Ofcom-calculated figure. The results are then used as the forecast rates of decline in the NCC model.

Efficiency

A8.52 The efficiency factor is an important parameter as it determines the rate by which real unit capital and operational expenditure are expected to decrease by year on year before taking account of volume and input price changes. When calculating the efficiency assumption to be included in the model Ofcom has taken into account three key factors, which are all discussed below:

- BT's underlying rate of real unit cost reduction over the period 1999/00 and 2003/04;
- BT's efficiency relative to that of appropriate comparator companies; and
- Accounting adjustments to BT's financial data for 2003/04.

BT's underlying rate of real unit cost reduction

A8.53 Ofcom has assumed that BT will be able to achieve the same underlying rate of real unit cost reduction over the period 2005/06-2009/10 as it has over the period 1999/00 and 2003/04 (i.e. BT's latest completed financial year). The method used was to estimate the underlying rate of unit cost reduction for each network component and then aggregate this to a single figure for the unit cost reduction as follows:

- First, the actual rate of year on year total cost reduction over the period 1999/00 to 2003/04 was calculated for each component. This was based on operational costs excluding depreciation. Certain accounting adjustments which occurred over this period were reversed from the 2003/04 data to ensure that the starting (1999/00) and closing (2003/04) periods were stated on a comparable basis (for more discussion see paragraphs A8.60-A8.61).
- Second, the year on year volume changes were calculated for each component.
- Third, the year on year constant volume change in unit costs was calculated by dividing the year on year total cost change by the product of volume change and the cost volume elasticity for each component. An average change in real unit costs for the period over 1999/00 and 2003/04 was then calculated.
- The average real unit cost reduction over the period 1999/00 and 2003/04 was further adjusted by excluding the extent to which this reflected catch up of BT's inefficiency at the start of the period[37] and changes in input prices[38] that had occurred over the same period and including the expected catch up of current BT inefficiency over the next six years (2004/05 to 2009/10)[39].
- Finally, the average real unit cost reduction as calculated above for each network component was aggregated to a single figure by using the cost weights by network component.

BT's efficiency relative to that of appropriate comparator companies

A8.54 As in the last price control review, Ofcom has commissioned economic consultants NERA to carry out studies to examine the efficiency of BT's network relative to

[37] This was calculated by comparing the level of BT inefficiency at the total cost level (compared to the US LECs) as calculated by NERA for the years 2003/04 and 1999/00.

[38] Changes in input prices are the weighted average of the pay and non-pay category input prices between 1999/00 and 2003/04.

[39] It is reasonable to expect inefficiency existing at the start of the charge control period to be eliminated over the life of the control, just as competitive pressure would force companies to become efficient in a competitive market. The underlying rate of cost reduction over the period of the charge control is therefore adjusted to reflect expected catch-up of current inefficiency. This is equal to the level of BT inefficiency at the total cost level (compared to the US LECs) calculated by NERA for 2003/04.

appropriate comparator companies, principally the US Local Exchange Carriers (LECs). These studies expand upon the comparative efficiency analysis which has previously been undertaken by NERA for Oftel in relation to other charge controls in place on BT.

A8.55 The study uses data for the US LECs for the years 1996 to 2003 to model the determinants of total network costs. Based on this model, the study then makes use of accounting and other data produced by BT, to assess BT's comparative efficiency in 2002/03 to 2003/04. The model tries to explain the level of a firms' costs by reference to a number of cost drivers such as service volumes and other observable (exogenous) variables, such as geographic and demographic differences in the areas in which the firms operate. From the remaining unexplained costs, those due to relative efficiency are then identified.

A8.56 NERA's conclusion is that, when measured at the level of total costs BT is in the region of 0.8% to 3.8% inefficient in its provision of services over its network as a whole relative to the top performing decile of the US LECs. The lower bound of this range is determined by analysis using a constant cost of capital across all firms (BT's comparative efficiency varies from 0.8% to 1.3% as the cost of capital used varies from 11% to 13%). The 3.8% upper bound is determined by regression analysis which allows the cost of capital to vary between different firms.

A8.57 The approach used by NERA to identify the asset base and resulting capital costs of the US LECs reflects the actual asset base of each firm. In previous studies NERA had, owing to a lack of publicly available data, imposed the characteristics of BT's asset base on the US LECs (for example, by imposing BT's asset lives, cost of capital rate and NBV/GBV ratio on the LECs' asset bases). This change to the approach for quantifying the LECs' asset bases now allows the capital requirments faced by each individual firm to influence the capital costs used in the study. Given this, NERA considered it appropriate to allow the cost of capital to vary between the different firms in the sample. However, the identification of appropriate cost of capital rates for each company was found to be a non-trivial exercise. Therefore, given the potential inaccuracies in the rates identified by NERA, regressions were also run applying a constant cost of capital across all firms.

A8.58 NERA also assessed BT's comparative efficiency at the level of operating cost plus depreciation as this measure of cost is not reliant on the identification of an appropriate cost of capital rate to apply to the firms in the sample. This analysis indicated that BT is in the region of 0.5% inefficient relative to the top performing decile of the US LECs.

A8.59 The NERA study also provided figures for the annual rate of cost reduction, independent of volume changes, experienced by the US LECs. This can be thought of as the rate at which efficient firms should be getting more efficient over time. These figures suggest a real unit cost reduction of 1.5% per annum. This however is less appropriate for use in the NCC model than the rate calculated from BT's data discussed above as it is derived from data which include access costs. To the extent that possibilities for cost reductions in access are relatively limited, it might be thought likely to be an underestimate of core network cost reductions but may be useful as a "sense-check".

Accounting adjustments for BT's data in 2003/04

A8.60 During the current charge control period BT introduced new cost allocation systems and implemented a number of improvements on how costs are measured and

captured. These developments have had a direct impact on BT's financial performance as measured in the regulatory financial statements and in particular have reduced operational costs (excluding depreciation) in BT's core network through accounting adjustments. BT has argued that that some of these adjustments are one-off (non-repeatable) annual savings that are unlikely to be repeated in the future. BT's view is whilst they are included through the base year data in Ofcom's charge control model they should be re-instated by Ofcom when assessing BT's operational efficiency. The accounting adjustments in question amounted to £78m.

A8.61 Whilst Ofcom is satisfied that all material accounting adjustments were reflected and properly accounted for, Ofcom believes that two of them may in fact be regarded as relating to efficiency gains rather than simply a one-off accounting adjustment. The two adjustments in question relate to the apportionment of accommodation costs within the network components and the reclassification of costs out of the core network into select services. The effect of these adjustments was to reduce network costs by £43m. Ofcom believes that a proportion of these savings arise as a result of 'economies of scope' and thus should be treated as a genuine cost reduction when calculating BT's efficiency. Ofcom has carried out a sensitivity analysis of the effect of including the items on BT's measured efficiency.

Asset-volume elasticities (AVEs)

A8.62 An asset-volume elasticity is defined as the percentage increase in gross assets, valued at replacement cost, for a 1% increase in volume. Ofcom has assumed, as a central case, asset-volume elasticities of 0.38 for inland conveyance (network) costs with upper and lower cases of 0.45 and 0.32 respectively. Again, these are based on assumptions used in the last price control review, which were based on a top-down model of BT's costs.

A8.63 Ofcom has also considered whether the AVEs used in the model for the next charge control period should be materially different to the ones used for the last charge control period because of the projected decline in PSTN volumes, especially of narrowband data traffic. Ofcom believes the use of the same AVEs as the last charge control is appropriate given Ofcom's "technologically neutral" approach. As noted earlier this models a hypothetical ongoing network rather than explicitly modelling the transition to the 21CN. As such large decreases in overall call volumes are not forecast. In addition, previous controls have not adjusted AVEs to take account of growth in predominantly off-peak traffic (which would have resulted in tougher Xs).

Cost-volume elasticities (CVEs)

A8.64 A cost-volume elasticity is defined as the percentage increase in costs for a 1% increase in volume. CVEs in telecommunications are typically significantly less than one, reflecting the economies of scale. Ofcom has assumed, as a central case, a cost-volume elasticity of 0.25 for inland conveyance (network) costs, with upper and lower cases of 0.3 and 0.2 respectively. These are based on assumptions used in the last price control review.

A8.65 As with AVEs, Ofcom has considered whether the CVEs used in the model for the next charge control period should be materially different to the ones used for the last charge control period because of the projected decline in PSTN volumes, especially of narrowband data traffic. Ofcom believes the use of the same CVEs as the last charge control is appropriate given Ofcom's "technologically neutral" approach. As noted earlier this models a hypothetical ongoing network rather than explicitly

modelling the transition to the 21CN. As such large decreases in overall call volumes are not forecast. In addition, previous controls have not adjusted CVEs to take account of growth in predominantly off-peak traffic (which would have resulted in tougher Xs).

Investment levels

A8.66 Two approaches to the forecasting of investment were considered in the last price control review. One was to incorporate BT's own forecasts for PSTN investment which reflect the rundown of the PSTN over time. However, given the level of uncertainty over the need for future investment in the PSTN, and the level of investment required for the new IP network, it is unlikely that a meaningful forecast could be made based on BT's investment figures.

A8.67 The second approach was to use the model to derive projections for investment. This is most consistent with Ofcom's technology neutral approach of modelling a single ongoing network and the assumption that wholesale services will continue to be provided over either the 21CN or PSTN. In a steady state, and if actual asset lives are properly reflected in BT's regulatory financial statements, capital expenditure should be equal to CCA (OCM) depreciation. Capital expenditure can then be forecast as the sum of two components, one equal to the OCM depreciation at base year volumes and one to allow for investment necessary to support volume growth over the period, determined by the AVE. This has the merit of producing projections of investment that are consistent with whatever level of traffic growth is forecast. The proposed values of 'X' are based on this second approach.

Cost of Capital

A8.68 The cost of capital is the minimum rate of return which investors require in order to be persuaded to invest in BT. In a competitive market; one would expect competitive pressure on prices and profits to reduce returns approximately to the cost of capital. Whilst actual returns in any year might differ from the cost of capital, for example, if a firm introduced an innovative product, one would not expect to see returns persistently above (or below) the cost of capital in a competitive market.

A8.69 Ofcom's practice is to set 'X' so that the value of BT's rate of return projected by the financial model for the last year of the price control is equal to the cost of capital. This approximates to the workings of a competitive market in which excess profits are gradually eroded by competition.

A8.70 Ofcom is currently reviewing BT's cost of capital as discussed in Section 4.

Change in asset and other input prices

A8.71 BT has provided data on changes in nominal asset prices between 2000/01 and 2003/04. The average of these values has been used as the basis for forecasts of future changes in real asset prices over the next price control period. The implied average change in real asset prices across inland call conveyance is a reduction of 2.14% per annum.

A8.72 BT has provided data on changes in nominal prices per unit of labour or other inputs between 2000/01 and 2003/04. The average of these values has been used as the basis for forecasts of future changes in real input prices over the next price control period. A real increase in labour costs (per unit of labour) of 1.37% per annum has

been assumed. A real reduction in other input costs (per unit of input) of 1.99% per annum has been assumed.

A8.73 Asset and other input price assumptions have been based on past trends as discussed above.

Results of sensitivity analysis of key parameters

Ofcom's results of sensitivity analysis on key parameters are summarised in the table below. The impact of a parameter is summarised for call origination only. The impact on other services is directionally similar.

Table A8.10 – Results of sensitivity analysis

Parameter	Range	Impact on the value of X	Comment
Individual parameters varied			
Cost basis	CCA FAC LRIC EPMU	-3.08 -2.73	 It is assumed that LRIC EPMU is 1.6% higher than CCA FAC.
Volumes	50% of broadband substitution 80% of broadband substitution	-3.08% -2.08%	Ofcom believes it is not appropriate to allow the full forecast reduction in narrowband volumes due to broadband substitution as a result of possible economies of scope that exist between narrowband and broadband technologies and also in order to ensure that BT has the correct incentives for migration.
Efficiency	4.5% 2.5%	-3.84% -2.31%	The range of the efficiency factor is influenced by the level of the accounting adjustments which are included and the cost weightings used to convert the efficiencies at the network component level to an aggregate level.
Cost of capital	12.6% 10.6%	-2.64% -3.53%	Ofcom is currently consulting on the appropriate level of BT's cost of capital for the core network.
AVE (at the local tandem conveyance level)	0.45 0.32	-3.33% -2.48%	The range of AVE's by asset type chosen by Ofcom for the next charge control are equal to the ones used for the last charge control. Ofcom believes this to be a reasonable range.
CVE (at the local tandem conveyance level)	0.30 0.20	-3.05% -2.76%	The range of CVE's by asset type chosen by Ofcom for the next charge control are equal to the ones used for the last charge control. Ofcom believes this to be a reasonable range.
Combined parameters varied			
Scenario 1	Cost basis LRIC EPMU Broadband substitution 80% Efficiency 2.5% Cost of capital 12.6%	-0.48%	This scenario demonstrates the level of key parameters that would give rise to a low number for X.
Scenario 2	Cost basis CCA FAC Broadband substitution 40% Efficiency 4.5% Cost of capital 10.6%	-4.60%	This scenario demonstrates the level of key parameters that would give rise to a high number for X.

Annex 9

FRIACO adjustment ratio revision

Revision of the value of the Adjustment Ratio for DLE FRIACO

Introduction

1. Flat Rate Internet Access Call Origination (FRIACO) is an unmetered interconnection service available from BT that is used by other Communications Providers to be able to provide unmetered narrowband internet access services.

2. The Adjustment Ratio (AR) is used in the derivation of the regulated charges for FRIACO and captures the average number of Local Call Exchange Call Origination (LECO) circuits per FRIACO port. The average number of LECO circuits required can be measured by the ratio of the Erlangs Per Circuit (EPC) of FRIACO ports to the EPC of FRIACO circuits.

3. The charge for DLE FRIACO is as follows:

   Charge for FRIACO (£/circuit) = Cost of the LECO circuit (excluding FRIACO port) × AR + cost of the FRIACO port + PPP

   Since each FRIACO port may use more than one LECO circuit, the AR measures how many such circuits are required per FRIACO port to meet the demand for FRIACO. The AR therefore recovers the true cost of providing LECO circuits from FRIACO users, unlike metered internet access, where users pay LECO charges on a pence per minute basis.

Background to the November 2004 Statement

4. Ofcom published its Final Statement on the Review of the Adjustment Ratio for DLE FRIACO in November 2004 "(the November 2004 Statement"). In that Statement, Ofcom decided that no change was required to the value of the AR (ie, it should remain at its previous value of 1.78), but stated that this value would be reviewed during the Review of the NCC. This was because, at the time of the November 2004 Statement, Ofcom was calculating the AR based on a set of data that had only recently been available, and was a sparse data set. However, Ofcom stated that it would request BT to provide more information going forward such that the value of the AR could be assessed against a longer time series data.

5. Briefly, the methodology for calculating the AR for DLE FRIACO is:

$$\frac{\text{EPC of FRIACO ports in the Network Busy Hour}}{\text{EPC of LECO circuits in the Network Busy Hour}}$$

   The Network Busy Hour (NBH) is determined as the hour that has sustained the highest overall level of traffic that is used to dimension the network (ie traffic data measured in a 15 minute period is aggregated and the hour with the highest aggregate traffic in four consecutive 15 minute periods is the Network Busy Hour).

6. Based on information provided by BT for certain days from February to August 2004, Ofcom determined in the November 2004 Statement, the NBH, the EPC of LECO circuits in that BH, and the EPC of FRIACO ports in that BH, for each day. Since there were 13 data points available for the calculation of a single value of the AR, Ofcom used several different methods of using the above data to calculate a single AR. The range of values that these methods provided was between 1.66 – 1.88. Since there was no compelling reason to choose any of the values within the above range, Ofcom stated that the then current value of 1.78 was reasonable to use going forward, and that it provided certainty and facilitated business planning.

Calculations of the AR for the NCC

7. For the preparation of the NCC, Ofcom requested BT to provide similar information for a day within each fortnight in the months September 2004 – January 2005 to add to the data set that BT had provided to Ofcom during the preparation of the November 2004 Statement. BT has since provided 9 more data points. Based on the analysis of BT's data, the LECO EPC and FRIACO EPC for the different days are provided in Table 1. Ofcom has used the same four methods as was used in the November 2004 Statement to calculate the value of the Adjustment Ratio. These methods are explained below.

Table 1: LECO EPCs and FRIACO EPCs

	LECO data				FRIACO data
	Network peak (15 min period beginning)	BH calculation	Network peak falls within BH -Yes (Y), No (N)	EPC for the BH	EPC for the BH
02-Feb	18.45	18:30-19:30	Y	0.3433	0.7421
09-Feb	19.00	18:30-19:30	Y	0.3389	0.7213
23-Feb	18.45	18:30-19:30	Y	0.3310	0.7054
29-Mar	21.00	16:00-17:00	N	0.3153	0.5838
10-May	21.00	16:00-17:00	N	0.3084	0.5294
17-May	21.00	10:00-11:00	N	0.2962	0.3687
24-May	21:00	20:45-21:45	Y	0.3071	0.7066
02-Aug	10.30	10:15-11:15	Y	0.2998	0.3747
03-Aug	10.30	10:15-11:15	Y	0.2877	0.3798
04-Aug	10.15	10:15-11:15	Y	0.2827	0.3650
09-Aug	11.00	10:45-11:45	Y	0.3102	0.4153
10-Aug	11.00	10:15-11:15	Y	0.3051	0.4004
11-Aug	11.00	10:15-11:15	Y	0.2807	0.3579
06-Sep	10.30	10:15-11:15	Y	0.3039	0.3237
20-Sep	16.15	15:45-16:45	Y	0.3023	0.4367
04-Oct	16.15	10:15-11:15	N	0.3023	0.3174
18-Oct	21.00	16:00-17:00	N	0.2930	0.4315
01-Nov	18.45	18:30-19:30	Y	0.3052	0.5562
22-Nov	16.15	15:45-16:45	Y	0.3049	0.4347
13-Dec	16.15	18:30-19:30	N	0.2959	0.5360
20-Dec	10.15	10:00-11:00	Y	0.2861	0.2803
17-Jan	16.15	15:45-16:45	Y	0.3065	0.4581

Table 4: Calculations of the Adjustment Ratio

Method	LECO EPC	FRIACO EPC	AR (figures in brackets are shown with "mark-ups"40)	Brief Comments – further explanation in the following text
1. Simple average of all days	0.305	0.474	1.56 [1.58]	Each day is accorded equal weight
2. Average of the monthly averages	0.306	0.482	1.58 [1.60]	A monthly average is calculated and an equal weight is accorded to each monthly average
3. Weighted averages of the monthly averages	0.306	0.487	1.59 [1.62]	Weights depend on the number of such months in a year for which traffic patterns are assumed to be similar to those where data is available. March/April – 2 months, May/June – 2 months, Jul/Aug – 2 months
4. Weighted average of the period (am,pm,eve) averages			1.74 [1.77]	An average of the EPCs from days that have a busy hour in the same period is calculated; this average is used to calculated period-wise ARs. These ARs are then weighted to obtain a single AR. The weights are the percentage of LECO traffic in each time of day (weights may not add upto 1)

Explanation of the calculations

Method 1

8. The first method is a simple average of all the days for which information was obtained. As discussed in the November 2004 Statement, this method carries the risk of treating each day as if it was potentially a day on which investment decisions with respect to network dimensioning are made. In particular, since there are more data points in August, this month is given a larger weight relative to March or January which are the months in which it is more likely that network dimensioning would take place

Method 2

9. The second method involves the calculation of an average EPC for each month and then accords equal weights to each of the months in order to calculate the AR. In the November 2004 Statement, Ofcom stated that although this approach was reasonable, it did not take into account the effect of seasonality across the year given that the information available at that time was only fro a limited number of months during the year. Ofcom has now obtained updated data for both winter and summer and it could be argued that the impact of seasonality is therefore taken into account to a greater extent than was possible for the November 2004 Statement.

[40] BT stated that the data provided on the number of FRIACO ports in service may contain ports that are in the process of being provisioned or ceased. As in the November 2004 Statement, Ofcom has applied a 1.7% increase as mark-up to the FRIACO EPC to adjust for such data.

Method 3

10. Method 3 calculates the AR as a weighted average of the monthly average EPCs used above. As in the November 2004 Statement, weights have been given to reflect that months that are likely to have similar traffic profiles are assumed to have the same EPC. This is done by assuming that certain months for which data is available have higher weights:

    - March LECO and FRIACO EPC is accorded a weight of 2/12 because it has the closest traffic profile to April (for which no data is available) for both LECO and FRIACO
    - May average LECO and FRIACO EPC is accorded a weight of 2/12 because it has the closest traffic profile to June (for which data is not available) for both LECO and FRIACO
    - August average LECO and FRIACO EPC is accorded a weight of 2/12 because it has the closet traffic profile to July (for which data is not available) for both LECO and FRIACO

Method 4

11. This method uses a calculation similar to the so-called more complex methodology (see www.ofcom.org.uk/consultations/past/dle_friaco/statement/DLE_FRIACO). The more complex methodology considers the coincidence between FRIACO traffic on LECOs at times of day when those particular LECOs are experiencing their individual busy hours ie morning, afternoon and evening. When LECOs are outside their individual busy hours, no additional capacity is needed to serve FRIACO traffic.

12. The complex methodology calculation is based on the EPC of only those circuits that are actually busy in the morning, afternoon or evening. The EPCs that are used here are the average of all circuits whose aggregate traffic shows a morning, afternoon or evening busy hour, irrespective of whether each individual circuit's busy hour coincides with the network wide busy hour. This is only attempted as a reasonable proxy. To understand whether this proxy might be reasonable, the following table illustrate the EPCs of those circuits that have individual busy hours with the average EPC of the network in each of morning, afternoon and evening busy hours.

Table 3: BH EPCs of circuits in individual BHs

	Morning BH EPCs of circuits having a morning BH	Afternoon BH EPCs of circuits having an afternoon BH	Evening BH EPCs of circuits having evening BH
Jun-02	0.293	0.275	0.439
Oct-02	0.317	0.304	0.463
Mar-03	0.311	0.303	0.472
Jun-03	0.299	0.269	0.447
Oct-03	0.301	0.289	0.454

Table 4: BH EPCs of all circuits (used in Method 4)

Morning BH EPC	0.296
Afternoon BH EPC	0.305
Evening BH EPC	0.320

13. A comparison of the tables above shows that, the morning and evening busy hour EPCs used in Method 4 (and shown in Table 4) are in general, lower than the morning and evening busy hour EPCs provided for all the months in Table 3. This could mean that that Method 4 would result in an underestimate of the average EPC compared to the true EPC relevant to the complex methodology. Any understatement of the LECO EPCs would mean that the Adjustment Ratio is overstated. On the other hand, it is possible that LECO EPCs may fall further as traffic on the narrowband network moves to broadband and mobile originated services and this would mean that LECO EPCs are overstated. Given the uncertainty regarding the use of LECO circuits,(particularly in view of the fact that BT has plans to close down some DLEs), it is unclear whether this Method might overstate or understate the Adjustment Ratio.

14. Each of these figures in table 4, divided by the average of all of them, is multiplied by with the percentage of concentrators having busy hours in the morning, afternoon and evening periods - 30%, 16% and 54% respectively[41]. The percentage of concentrators is used a proxy of the percentage share of circuits. This calculation provides an estimation of the percentage of total busy hour traffic that originates on LECO circuits that have a morning, afternoon or evening busy hour. These percentages are used as the relevant weights to be applied to the LECO and FRIACO EPCs to estimate the AR.

The range of possible values of the AR

15. The November Statement discussed that within the range of 1.66-1.91 resulting from the application of the above four methods to the data available at that time, there was no compelling reason to choose any particular value over the current value of 1.78 and therefore 1.78 was a reasonable value as it was within the range.

16. The current range of values calculated by applying the above four methods to the most recently available data is now a lower range of 1.56 -1.74. This is because, although more data has become available especially for the winter months, the network busy hour has not coincided with the hour that FRIACO traffic would have been highest during the day. Indeed, in many cases the Network Busy Hour has been in the afternoon or morning, both periods when FRIACO usage is lower relative to the evening.

17. One of the aims of Ofcom in setting the Adjustment Ratio is to ensure stability in the charge. This is the reason Ofcom has chosen to consider the mature usage of

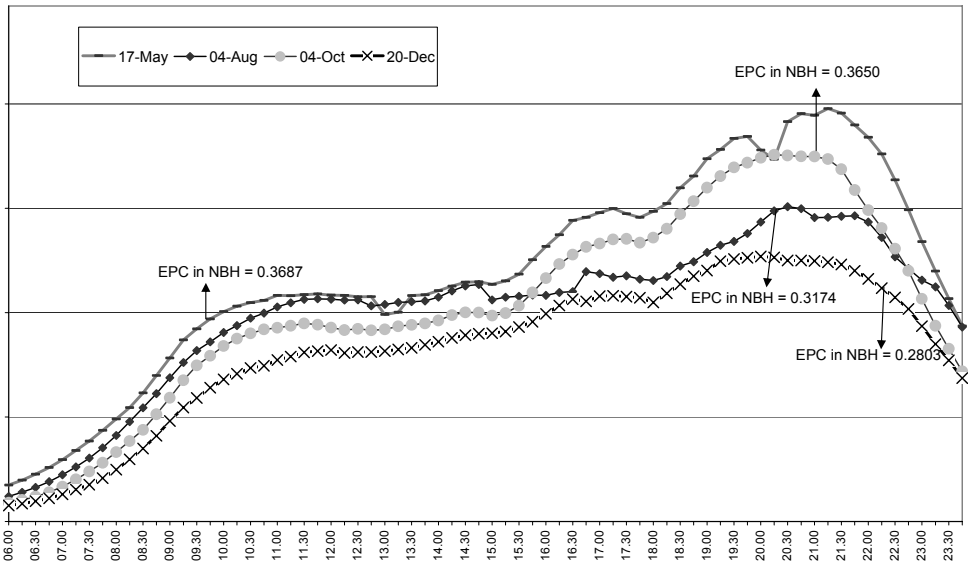
[41] This information on the percentage of concentrators was provided by BT for the November 2004 Statement and reflects BT data for selected months of 2002, 2003 and 2004. Ofcom has no reason to believe that this likely to change significantly over the coming years.

FRIACO. In past Statements, the mature usage has been considered to be the point where FRIACO traffic would have stabilised and there were no major shifts in such traffic. However, with the increasing takeup of broadband, total FRIACO traffic is declining and is likely to do so further. If such developments are not taken into account, it could be argued that the AR carries the risk that it overestimates the investment required in LECO circuits to meet FRIACO demand. Indeed, with the reduction in overall network traffic, it could be said that there is more capacity than earlier to meet FRIACO demand.

18. However, it is not the aggregate level of FRIACO traffic that is important for the AR, but the usage of FRIACO ports through which that traffic is flowing. Even if FRIACO traffic declines, there may be little effect on FRIACO EPCs if the volume of ports used was adjusted accordingly.

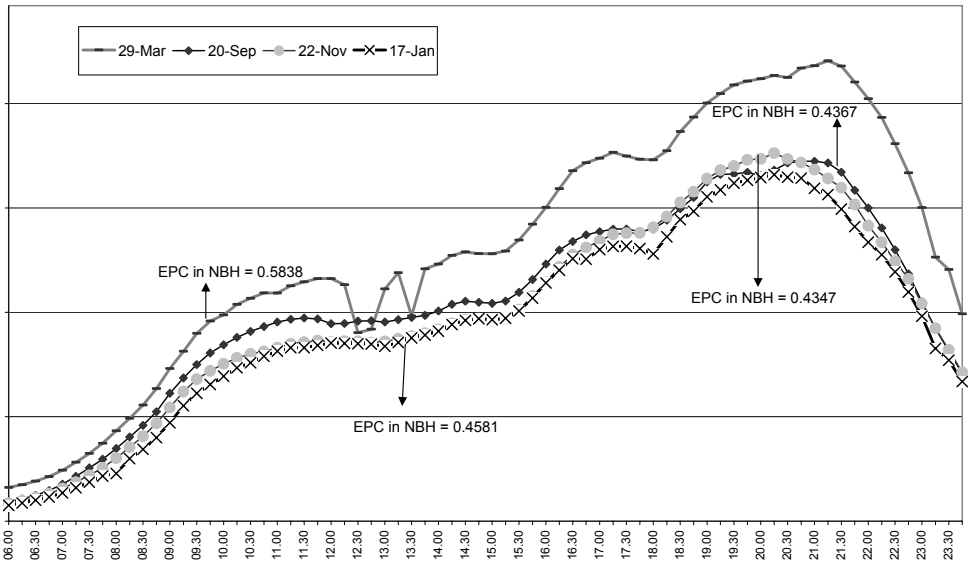
19. To understand if this is the case, the following figures compare the EPCs on those days that have a busy hour at similar times (morning, afternoon or evening).

Figure 1: Comparison of FRIACO traffic data between days when Network BH is in the morning



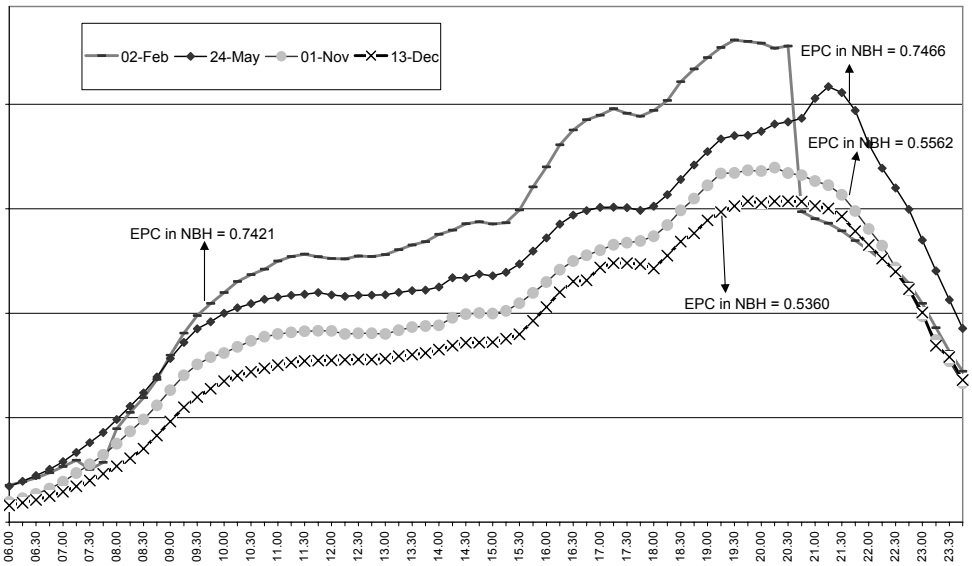
NBH:
17 May - 10:11:00
4 Aug - 10:15-11:15
4 Oct - 10:15-11:15
20 Dec - 10:00-11:00

Figure 2: Comparison of FRIACO traffic data between days when Network BH is in the afternoon



NBH:
29 Mar - 16:00-17:00
20 Sep - 15:45-16:45
22 Nov - 15:45-16:45
17 Jan - 15:45-16:45

Figure 3: Comparison of FRIACO traffic data between days with Network BH is in the evening



NBH:
2 Feb - 18:30-19:30
24 May - 18:30-19:30
1 Nov - 20:45-21:45
13 Dec - 18:30-19:30

20. The above figures show that not only has FRIACO traffic reduced between February 2004 and November/December 2004 (both of which are winter months), but the average EPCs have reduced as well. This explains why the range of ARs calculated now is lower than the range calculated in the November 2004 Statement. It is unclear if this is a seasonal effect or whether such patterns of falling traffic and falling EPCs are

likely to continue; and if so, whether the stable level of the AR going forward should be chosen from within the range rather than from the extremities of the range.

21. Ofcom is of the view (a view that BT concurs with) that FRIACO traffic is likely to reduce further during the Network Charge Control. It is also likely that overall network traffic on the PSTN network will reduce as mobile traffic increases. While it is unclear if these issues imply that the EPCs of FRIACO ports and LECO circuits will fall, this effect needs to be taken into consideration.

Proposed value of the Adjustment ratio

22. Ofcom is of the view that either Method 3 or Method 4 provides a reasonable estimate of the value of the AR. Hence Ofcom proposes a midpoint, between the values of 1.59 and 1.77 as the value rounded to the first decimal for the AR. **This value is 1.70[42].**

Reviewing the Adjustment Ratio in the NCC

23. Prior to the November Statement, BT suggested that in place of periodic reviews by Ofcom, BT could set the value of the AR each year in accordance with the method specified by Ofcom.

24. Ofcom considers that, whilst there is still a significant degree of judgement (as outlined above) in determining the appropriate value of the AR, it is more suitable for Ofcom to set the value rather than BT. However, Ofcom has considered whether a periodic review of the AR by Ofcom is needed and if so, the appropriate frequency of the review. Ofcom is of the view that it now has a more complete data set on which to base the value of the AR than in November 2004, and that the value of the AR it is proposing here (i.e. 1.7) reflects the best estimate of the AR using a reasonably lengthy time series of data. Therefore there could be a case that the proposed value of the AR does not need to be reviewed through the period of the NCC and a review will only be necessitated if there is a review of the relevant market. This provides stability and sustainability in the charge.

25. However, the most recent data shows that both LECO EPCs and FRIACO EPCs have fallen through the different months of the year. Since similarly measured data cannot be compared to previous years (data was not stored historically), it s difficult to judge if this is an effect of seasonality or a general downward trend. Given this uncertainty it could be argued that the FRIACO AR needs to be reviewed periodically, the period of review perhaps being annual.

26. Ofcom is consulting (see Section 4) on whether the value of the AR can be left constant throughout the duration of the NCC or whether it needs to be reviewed periodically.

ST FRIACO

27. The current value of the AR (LECO) is 2 and AR (LT) is 1.19. These values was set on the basis of the methodology and data provided for Oftel's February 2001 Direction on ST FRIACO. In the November 2004 Statement, Ofcom explained that it was not possible to review these values as there had been very limited takeup of ST FRIACO and traffic had not reached a mature or stable level. Ofcom however indicated that the

[42] Although in previous Determinations and Statements Ofcom has stated the AR at two decimal points, given the similar probability that either method 3 or 4 may produce an appropriate result, Ofcom has widened the range to 1.6-1.80 and chosen a midpoint between the two as 1.70.

Review of the NCC would be an appropriate time to consider if the values of the AR for ST FRIACO should be evaluated again.

28. Ofcom has obtained data from BT that shows that there continues to be very little takeup of ST FRIACO. The highest traffic on L-T routes for ST FRIACO was 1142 erlangs (in April 2004) and constituted about 1% of the DLE traffic at that time. Since then the traffic level has reduced further and the number of operators, the number of routes and the total traffic in relation to ST FRIACO are all very small.

29. Ofcom is of the view that this low level of traffic data cannot provide sufficient evidence to suggest that either the methodology or the value of the ARs for ST FRIACO should be changed. In the absence of any conclusive evidence to the contrary, Ofcom believes that it is still appropriate to retain the current values.

Annex 10

Quantified charge control cost benefit analysis

Introduction

J.1 This annex examines the benefits of imposing charge controls and principally examines the charge controls on call origination, local-tandem conveyance (LTC), single transit (ST) and flat rate internet access call origination (FRIACO).

J.2 In order to assess the benefits of charge controls, Ofcom's approach is to start from the prices and the resultant benefits of the current charge control regime and compare them with the prices and resultant benefits in the absence of a charge control. If the benefits of the current charge controls are calculated to be higher than those that would result in the absence of a charge control, it implies that there are positive benefits to charge control regulation.

The model

J.3 The benefits of a particular policy can generally be measured in terms of its impact on the welfare to producers and consumers from the production and consumption of the regulated good or service. One common measure of welfare is the sum of consumer and producer surplus.

J.4 Consumer surplus is defined as the difference between what consumers are willing to pay and what they are required to pay for the product in question. Consumer surplus is calculated from the demand curve, which reflects the value that consumers are willing to pay for each additional quantity of the product.

J.5 Producer surplus is defined as the difference between the revenues gained from the sale of the product and the cost of producing the product. Producer surplus is calculated from the supply curve, which reflects the marginal cost of producing the product.

J.6 For analytical convenience, Ofcom assumes a functional form for market demand to be the following:

$q = \alpha e^{-\beta p}$

where q is the quantity of the particular service demanded,

α and β are parameters, and p is the price charged for the service.

The point elasticity η, which measures the responsiveness of demand to a unit change in price, is $-\beta p$, and is calculated as below:

J.7 Consumer surplus is then q/β, calculated as below:

J.8 Producer surplus is defined as $(p-MC)q$ where MC is the marginal cost of the product.

The charge controlled regime

J.9 Starting with given values of p, q, MC and elasticity, it is possible to calculate the parameters α and β. Given this, Consumer Surplus (CS) can be calculated as q/β.

In the absence of charge controls

J.10 However, if BT's charges were left unregulated, it is expected that it would act as a monopolist that wished to maximise its profits. The charges that would result from a profit maximising exercise would then be in excess of a long run incremental cost, which would impact on consumer and producer welfare.

J.11 Formally, the profit function would be written as:

$\pi = p(q)q - C(q)$

where π are the profits, p(q) is the inverse demand function (and hence p(q)q is the revenue) and C(q) represents the total costs.

J.12 The inverse demand function is $p(q) = -\frac{1}{\beta}\ln(\frac{q}{\alpha})$

J.13 Profits are maximised at the point where marginal revenue is equal to marginal cost. That is, if the monopoly is maximising profits through its choice of q, ie the choice of the volume of services it wishes to supply, then it sets marginal profit to zero (or sets marginal revenue equal to marginal cost)[43]. Therefore the following applies:

$$\frac{\partial \pi}{\partial q} = p + \frac{\partial p(q)q}{\partial q} - \frac{\partial C}{\partial q} = 0$$

$$\text{or } p + \frac{\partial p(q)q}{\partial q} = MC$$

$$\text{or, } p = MC + 1/\beta$$

J.14 The monopolist would therefore set the profit maximising price at a mark-up to the marginal cost. This mark-up is determined by 1/□.

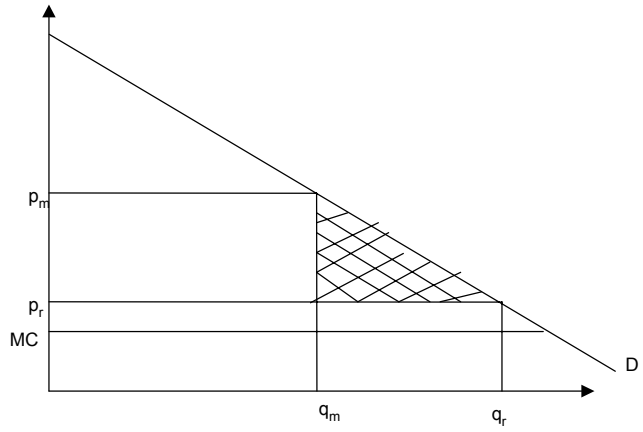
J.15 Using the values of α and β from the previous exercise, the new profit maximising price and quantity can be calculated.

J.16 The new consumer surplus and producer surplus are then determined from the new prices and quantities.

J.17 The change in welfare is the sum of the changes in producer and consumer surplus and is measured by the shaded triangle in Figure J.1.

[43] This is only a necessary condition for profit maximisation. A sufficient condition for profit maximisation is that the second derivative is less than zero.

Figure J.1: The change in welfare in moving from a regulated to an unregulated regime



where MC is the marginal cost, qr, pr and qm, pm are the quantities and prices in the regulated and unregulated (monopoly) regimes, respectively.

Assumptions

Marginal Cost

J.18 For each service, BT only provides a cost figure that is described as the Distributed Long Run Incremental Cost (DLRIC). This is the Long-Run Incremental Cost (LRIC) of the individual service with a contribution of intra-core common costs. Due to the significant economies of scale in the network, it is very likely that the marginal cost is lower than the DLRIC figure. Since the marginal cost of BT is not reported, it is assumed that the marginal cost is 80% of the DLRIC cost (sensitivities have been run on a 70%-90% range).

Elasticity

J.19 Since the market demand for each of the wholesale services considered here is a derived demand, it is expected that the demand for many of the services in which BT has enduring SMP would be quite inelastic. This is also because current prices have been regulated close to cost. In areas where prices are still above cost, elasticities could be higher. Sensitivities with respect to elasticities have been conducted within a range of –0.1 to –0.5.

Quantity

J.20 All figures used here relate to 2003/04. The quantities assumed in the charge control regime are as follows:

- For call origination, Ofcom has used 2003/04 volumes from its own Market Intelligence based on which market shares in Annex 7 are presented.
- For local-tandem conveyance (LTC) Ofcom has used a market share of 63% on the originating volumes from Ofcom's Market Intelligence above[44]

[44] The reason BT's figures on LTC volumes have not been used is because originating volumes and LTC volumes used in this document are form different sources and cannot be compared.

- For single transit, the volume of single transit sold by BT for 2003/04 have been used since that is the only information available
- For termination, it is assumed that terminated calls on BT's network would be roughly 70% of the volume of BT originated calls
- For DLE FRIACO, the total circuit volumes sold by BT in 2003/04 have been used.

J.21 As will be seen from the model results, the welfare effects are of such significance that the sensitivity of these volumes by a few percentage points does not make a material difference to the results. All of the above quantities include volumes sold by BT to BT Retail. It is assumed that BT passes on wholesale reductions to retail consumers.

Price

J.22 The price used is the average charge made by BT for that service according to its Financial Statements for the year ending 31 March 2004. For each service the price used is that which has prevailing under the various caps of the NCC. Therefore the regulated price is compared to the monopoly price (which is a mark-up on marginal cost) in order to determine the benefits from regulation. Since the regulated price is set such that BT a proportionate share of the common costs for each service, the regulated price will usually be higher than the DLRIC and hence higher than the marginal cost.

Results

J.23 The model therefore compares the difference in the producers surplus and consumers surplus between a monopoly price and a regulated price. The following tables illustrate the change in total welfare for 2003/04 in moving from a regulated regime to an unregulated regime for each of the services that are regulated within charge baskets. Quantities are represented in millions of minutes, except for FRIACO, which is represented in number of 64 kbit/s circuits. Prices are represented in pence per minutes (ppm), except for FRIACO, which is represented in £/circuit.

DLRIC (ppm)/£ per circuit		0.132		0.075		0.034		185		0.128	
		Call Origination		LTC		Single Transit		DLE FRIACO		Termination	
		Regulated	Monopoly	Regulated	Monopoly	Regulated	Monopoly	Regulated	Monopoly	Regulated	Monopoly
Marginal cost (ppm)	MC	0.11	0.11	0.06	0.06	0.03	0.03	147.77	147.77	0.12	0.12
Price (ppm)	p	0.21	1.17	0.12	0.54	0.06	0.33	335.92	1,827.37	0.24	2.51
elasticity	n	-0.20	-1.10	-0.25	-1.12	-0.20	-1.09	-0.20	-1.09	-0.10	-1.05
Quantity (mill. min)	q	265,016	107,839	208,700	87,089	21,220	8,721	480,171	197,584	185,511	71,874
Consumer surplus (CS) (£m)	CS	2,822	1,148	1,010	422	65	27	806	332	4,434	1,718
Change in CS (£m)			-1,674		-589		-38		-475		-2,716
Producer surplus (PS) (£m)	PS	285	1,148	127	422	7	27	90	332	230	1,718
Change in PS (£m)			864		294		19		242		1,488
Total welfare (£m)		3,107	2,297	1,137	843	72	53	897	664	4,663	3,436
Change in welfare from regulation (£m)		810		294		19		233			1,228

Conclusions on benefits

J.24 The above calculations are only an illustration of the effects of charge control regulation. Although sensitivities have been carried out on the assumptions, it is clear that there are positive benefits from regulating the services as is clear from the last row

of the above table. The reduction in welfare from deregulating the services would be very significant.

J.25 On the other hand, there are some costs in introducing regulation. The regulator incurs costs in monitoring BT's compliance, but this is insignificant in relation to the above benefits. Although monitoring costs are difficult to quantify, they are not as high as welfare gains from regulation. Similarly, BT might incur some administrative costs in preparing its accounts in respect of its regulatory obligations but again these costs would be insignificant in relation to the benefits of regulation.

J.26 In future, regulated prices may well fall further and approach DLRIC as the relevant caps take effect. However, this Consultation is proposing that safeguard caps be imposed on LTC. Hence LTC prices are not required to fall further than their current levels (2005) although they may do as a result of competitive pressure. Although the safeguard is not intended to be the binding constraint on prices, if in the event it turns out to be so, it should ensure that the current level of benefits to customers is preserved.

Annex 11

Glossary

This glossary contains definitions of terms used in this document. These definitions are for guidance only and have no legal standing.

ADSL (Asymmetric Digital Subscriber Line): a digital technology that allows the use of a copper line to send a large quantity of data in one direction and a lesser quantity in the other

Analogue: the direct representation of a waveform, as opposed to digital, which is a binary coded representation.

Barriers to entry: an additional cost which must be borne by entrants but not by firms already in the industry; or other factors, which enable an incumbent to maintain prices above the competitive level without inducing entry.

BT: British Telecommunications plc.

Communications provider: a person who provides an Electronic Communications Network or provides an Electronic Communications Service.

Carrier pre-selection (CPS): A facility enabling customers to choose their carrier for certain defined classes of call, by selecting the operator of choice in advance (and having a contract with the customer), without having to dial a routing prefix or follow any other different procedure to invoke such routing.

Dial-up Internet access: Internet access that uses a dial-up connection over an analogue or ISDN telephone line.

Digital: the binary coded representation of a waveform, as opposed to analogue, which is the direct representation of a waveform.

Digital Local Exchange (DLE) and Local exchange: the telephone exchange to which customers are directly connected, often via a remote concentrator unit.

Direct Access: the situation where a customer is directly connected to a telecommunications operator's network by a fixed link.

DLE FRIACO: digital local exchange FRIACO. The provision of Flat Rate Internet Access Call Origination via a wholesale unmetered Internet access product from BT at the local exchange.

DMSU (Digital Main Switching Unit): a tandem exchange primarily used for connecting calls between DLEs.

DSL (Digital Subscriber Line): a family of technologies generically referred to as DSL, or xDSL, capable of transforming ordinary phone lines (also known as "twisted copper pairs") into high-speed digital lines, capable of supporting advanced services such as fast Internet access and video-on-demand. ADSL (Asymmetric Digital Subscriber Line), HDSL (High data rate Digital Subscriber Line) and VDSL (Very high data rate Digital Subscriber Line) are all variants of xDSL.

DSLAM (Digital Subscriber Loop Access Multiplexer): apparatus sited in the same exchange building as is used to terminate DSL enabled copper loops, which comprises a bank of DSL modems and a multiplexer which combines many customer lines into one data path.

EPC (Erlang Per Circuit): Erlang is the unit of traffic volume corresponding to the number of simultaneous calls in progress at any given time or averaged over a period of time. The ratio of the traffic volume over a circuit is the Erlang per Circuit.

Exchange line: the telephone line that connects the customers' network terminating point to the local exchange.

Fully Allocated Costs (FAC): an accounting method for attributing all the costs of the company to defined activities such as products and services. Typically this method would follow the principle of cost causality.

FRIACO (Flat Rate Internet Access Call Origination): the provision of Flat Rate Internet Access Call Origination via a wholesale unmetered Internet access product from BT.

HDSL (High data rate Digital Subscriber Line): one of the earliest forms of DSL services to be widely used. It is symmetrical, offering the same data rates upstream and downstream. The maximum data rate is however lower than that for ADSL.

Hull Area: the area defined as the 'Licensed Area' in the licence granted on 30 November 1987 by the Secretary of State under section 7 of the Telecommunications Act 1984 to Kingston upon Hull City Council and Kingston Communications (Hull) plc.

Indirect Access: where a customer establishes a connection with a particular operator's network by dialling a short code to switch through the network on which his exchange line terminates. Such calls are usually billed by the Indirect Access operator.

Integrated Services Digital Network (ISDN): a network evolved from the digital PSTN which provides digital exchange lines to customers and 64kbps end to end digital connectivity between them. Two or more 64kbps connections can be combined to provide a higher speed connection, eg 128kbps.

INCA: Interconnect Call Accounting system. BT's system used for accounting and billing for interconnect calls to third parties.

Interconnection: the linking (whether directly or indirectly by physical or logical means, or by a combination of physical or logical means) of one Public Electronic Communications Network to another for the purpose of enabling the persons using one of them to be able:
(a) to communicate with users of the other one; or
(b) to make use of services provided by means of the other one (whether by the provider of that Network or by another person);

IP (Internet Protocol): the packet data protocol used for routing and carriage of messages across the Internet and similar networks.

IP network: a network that uses IP; for example the Internet is a public IP network.

Inter-tandem conveyance - Interconnection service that involves the use of a tandem switch and transmission between two tandem switches. It is sub-divided into three distance bands.

Inter-tandem transit - Interconnection service that involves the use of two tandem switches and one inter-tandem transmission link. It is sub-divided into three distance bands.

Internet Service Provider (ISP): a company that provides individuals and other companies access to the Internet and other related services.

Kbps (Kilo (thousand) bits per second): a measure of the speed of transfer of digital information.

Kingston: Kingston Communications (Hull) PLC – telephone company which operates in the Hull area.

Leased lines (also known as private circuits): a permanently connected communications link between two premises dedicated to the customers' exclusive use.

Local loop: the access network connection between the customer's premises and the local PSTN exchange, usually a loop comprised of two copper wires.

Local loop unbundling (LLU): a process by which BT's exchange lines are physically disconnected from BT's network and connected to other operators' networks. This enables operators other than BT to use the BT local loop to provide services to customers.

Long Run Incremental Costs (LRIC): The costs caused by the provision of a defined increment of output, taking a long run perspective, assuming that some output is already produced. The 'long run' means the time horizon over which all costs (including capital investment) are variable.

Modem: a device which converts digital signals into a voiceband form capable of being conveyed over an analogue connection, such as the public telephone network, and vice-versa.

Narrowband: A service or connection allowing only a limited amount of information to be conveyed, such as for basic voice telephony. This compares with broadband which allows a considerable amount of information to be conveyed. See also bandwidth.

Narrowband Internet termination: a wholesale service allowing the conveyance of narrowband Internet traffic between the end user and an ISP.

NRAs: the body or bodies, legally distinct and functionally independent of the telecommunications organisations, charged by a Member State with the elaboration of, and supervision of compliance with, telecoms authorisations.

Number Translation Services (NTS): telephone services using non-geographic numbers, where that number is translated to a geographic or mobile number for final delivery to the called party.

NTS calls: Calls to non-geographic number ranges used, for example, for access to call centres, information services and Internet access.

Originating operator: the operator on whose network the call originates.

PPP: Product Management, Policy and Planning.

PSTN: Public Switched Telephone Network.

Remote concentrator unit: the part of the local exchange on which customers' exchange lines terminate. It is sometimes colocated with the main local exchange and sometimes located remotely from it.

Return on Capital Employed (ROCE): the ratio of accounting profit to capital employed. The measure of capital employed can be either Historic Cost Accounting (HCA) or Current Cost Accounting (CCA).

RPI: Retail Price Index.

Select Services: a set of supplementary services (including call waiting, call barring, ringback etc.) provided by BT as set out in the BT retail price list.

Service provider: a provider of electronic communications services to third parties whether over its own network or otherwise.

SME: Small and Medium Enterprise.

SMP: The Significant Market Power test is set out in European case law, the new EU Communications Directives and the Commission's SMP Guidelines. It is used by the national regulatory authorities (NRA) such as Ofcom to identify those operators who must meet additional obligations under the Access Directive.

ST FRIACO: Single Tandem FRIACO. The provision of Flat Rate Internet Access Call Origination via a wholesale unmetered Internet access product from BT at the tandem exchange.

Standard service: an interconnection service which BT is required to provide.

Substitutability: whether an increase in the price of one product would lead consumers to switch to other competing products or services (demand-side substitutability) or lead producers to switch rapidly into the supply of the good in question (supply-side substitutability).

Tandem exchange: A main exchange in BT's network which has the primary function of switching calls between other exchanges, rather than to and from customers' exchange lines.

Terminating operator: the operator on whose network the call terminates.

Unmetered service: a service that is provided on a flat-rate basis, where charges do not vary according to usage, in contrast to metered services.

Usage factors: expressions of network usage for the main conveyance components and show how often a component is used on average in the provision of services. The 24-hour charge is calculated by multiplying the usage factors by the amount applied to the relevant components. The time of day charges are then calculated by multiplying the network tariff gradient by the 24-hour charge.

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