OFFICE OF COMMUNICATIONS

Review of BT's network charge controls

Explanatory Statement and Notification of decisions on BT's SMP status and charge controls in narrowband wholesale markets

Explanatory Statement

Issued: 18 August 2005

Contents

Section 1

Summary

1.1 This document covers Ofcom's decisions in two areas:

- the limits on what BT can charge its competitors to use certain parts of its network during 2005-9, so that they can compete with BT in selling narrowband services, such as phone calls, to residential and business customers; and
- the withdrawal of all regulation in one economic market, and its relaxation in another, following Ofcom's reviews of competition in those markets.

1.2 Where BT has a dominant position that makes it hard for other companies to compete, Ofcom can make sure that BT lets its competitors use parts of its network, at a controlled price, using "network charge controls" ("NCC"s). This protects consumers from the effects of BT's dominance by promoting competition, bringing more choice, better quality and lower prices.

1.3 In this document, Ofcom sets out required cuts in BT wholesale charges on a range of services during the four years to 2009. Over that period, this should save retail customers about £350 to 400 million (relative to letting BT's prices for these services rise by the rate of inflation), as those cuts get passed on as lower retail prices. The parallel steps that Ofcom is taking in its strategic review of telecommunications should increase retail competition, by causing more of the wholesale savings to be passed on to consumers.

1.4 This document, which completes a process of consultation[1], also presents Ofcom's decision to completely deregulate one economic market - inter-tandem conveyance and inter-tandem transit - by removing charge controls and all other regulations. This follows Ofcom's finding that BT no longer has Significant Market Power status in that market. Furthermore, Ofcom is loosening regulation in another market, by moving BT's charge control on local-tandem conveyance to a 'safeguard cap' that will limit charge increases for that service to below inflation. These conclusions are in accordance with the principles set out the in Second Phase of Ofcom's Telecoms Strategic Review ("TSR"), and recognise growing competition in those markets.

1.5 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 NCC periods that have used the widely acknowledged RPI minus X mechanism to set price limits. 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.

1.6 However the new NCCs may be the last ones to regulate BT's the current set of narrowband services using the same broad approach that has applied since 1997. As BT changes to its new 21CN network, new interconnect products will be introduced, and Ofcom will have to consider the impact in terms of how markets are defined and how BT's wholesale services should be regulated.

[1] see www.ofcom.org.uk/consult/condocs/charge/ for the consultation document

The new charge controls

1.7 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.

1.8 Ofcom has decided that the following NCCs should apply to BT for the 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 – 5%</td></tr>
<tr><td>Call origination</td><td>RPI – 10%</td><td>RPI – 3.75%</td></tr>
<tr><td>Single transit</td><td rowspan="2">RPI – 13%
for combined basket</td><td>RPI – 11.5%</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 – 5.25%</td></tr>
<tr><td>Product management, policy and planning (PPP)</td><td>RPI + 0.75%</td></tr>
<tr><td>DLE FRIACO</td><td>RPI – 7.5%</td><td>RPI – 8%</td></tr>
<tr><td>Single Tandem FRIACO</td><td>RPI – 8.75%</td><td>RPI – 8.5%</td></tr>
<tr><td>Inter-tandem conveyance and Inter-tandem transit</td><td>Safeguard cap of
RPI – 0%</td><td>No control as no SMP</td></tr>
</table>

1.9 In the consultation document, Ofcom consulted on a range of values because some relevant issues were still being resolved. This document takes into account Ofcom's decisions on all of those issues, including the appropriate cost of capital as part of the NCC cost base (which is covered in a separate Ofcom publication today).

1.10 Some of the final values of X are considerably below current levels. This is due to, among other things, lower BT starting 'super-normal' profits (those profits in excess of the appropriate return on capital) 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).

1.11 Ofcom's decision that the charges will 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.

1.12 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 described 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.

1.13 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 internet Protocol (IP) investment as part of its proposed 21CN deployment. Ofcom has assumed within this hypothetical model that BT will continue to improve its PSTN efficiency levels in line with historical experience and international benchmarks, and has set an achievable efficiency target for BT that is at the high end of the range on which Ofcom consulted.

1.14 As such, Ofcom has attempted neither to forecast actual 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. Ofcom will consider how to take account of BT's 21CN efficiency if and when Ofcom determines a price for 21CN interconnect services, and in any future NCC in the period from 2009 onwards. Ofcom's proposed approach to 21CN interconnection pricing was set out in our most recent consultation on Next Generation Networks[2]. 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.

1.15 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 so doing, Ofcom is using its powers under the Communications Act 2003 ("2003 Act") to set all the relevant SMP services conditions, and to impose the new NCCs, by publishing its Notification (see Annex 3) of conclusions in the UK as well as at a European level (to the European Commission and other national regulatory authorities).

De-regulation

1.16 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.

1.17 This document explains where Ofcom's 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

[2] see www.ofcom.org.uk/consult/condocs/nxgnfc/

account of the European Commission's *Guidelines on market analysis and the assessment of SMP* ("SMP Guidelines").

1.18 Based on evidence available and having considered the responses to its consultation, Ofcom concludes 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).

1.19 As a result of its conclusion that BT does not have SMP in inter-tandem conveyance and inter-tandem transit, Ofcom must revoke all obligations on BT in relation to that market. This is a legal requirement that follows from Ofcom's conclusion 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%).

1.20 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 new 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 concludes that regulation should be reduced, by moving to a safeguard cap on BT's charge increases, to no more than inflation. Also for that market, Ofcom concludes 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.

1.21 As Ofcom concludes that BT still has SMP in local-tandem conveyance and transit, Ofcom has considered all of the other SMP remedies currently imposed on BT that relate to its SMP in that market, such as network access, and is re-setting all those remedies (except for the change to the notification period for charges, terms and conditions, as mentioned above).

1.22 In assessing BT's competitive position in these two markets, and thereby reducing regulation, Ofcom is following its regulatory principles by operating with a bias against intervention. Ofcom is exercising its discretion to remove BT's SMP status in the inter-tandem market, based on a steady decline in BT's share of that market, along with other factors that also suggest that continued regulation of BT would be disproportionate.

Implementation

1.23 Throughout this document, Ofcom explains how it has taken account of the nine consultation responses received (see Annex 1). These responses included one from the European Commission, which raised no objections to Ofcom's proposals. Having considered representations made within the period to 1 June 2005, Ofcom can give effect to its proposals, with or without modifications, under the 2003 Act. Ofcom has decided to give effect to most of its proposals without modifications. However, for reasons set out in this document, Ofcom has also decided to give effect to certain of its proposals with modifications to take into account consultation responses. In Ofcom's view, those modifications

nevertheless fall within the most basic features of Ofcom's proposals as set out in the consultation document.

1.24 To implement its decisions, Ofcom is today publishing a further Notification (see Annex 3) to accompany this Explanatory Statement. Ofcom will, however, continue to monitor market developments and, in the future, review at appropriate intervals the identified services markets, market power determinations and the regulatory remedies imposed.

Section 2

Introduction

Structure of this document

2.1 This document is divided into three main parts:

- Section 2 describes the purpose of this document, the role of the NCCs, related legal requirements, and key issues influencing Ofcom's decisions;
- Sections 3 to 5 cover Ofcom's review of BT's market power status for two economic markets that are relevant to the services covered by the NCCs; and
- Section 6 summarises Ofcom's decisions on new NCCs, the key factors affecting those decisions, and the legal processes for implementing them.

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

- Annex 2 which sets out the legal and economic framework for setting NCCs and other SMP remedies;
- Annex 3 which includes a Notification under the 2003 Act of Ofcom's main decisions set out in this document; and
- Annex 6 which contains the detailed calculations on which Ofcom's NCC conclusions are based.

2.3 There are two parts to most of those Sections and Annexes in this document that cover the issues on which consultation responses were sought. The first of each such part essentially reproduces the analysis appearing in the consultation document[3]. The second part summarises the comments made in the consultation responses, Ofcom's views on those comments, and our overall conclusions on each issue. This approach is intended to reduce the need to cross-reference against the consultation document, and to clarify how Ofcom has considered the consultation responses.

2.4 In this Section, paragraphs 2.5 to 2.41 essentially present the analysis in the consultation document. From paragraph 2.42 onwards, Ofcom assesses the consultation responses and presents its conclusions on the issues raised in the relevant part of the consultation document.

Purpose of this document

2.5 The key purpose of this document is to state Ofcom's conclusions on 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:

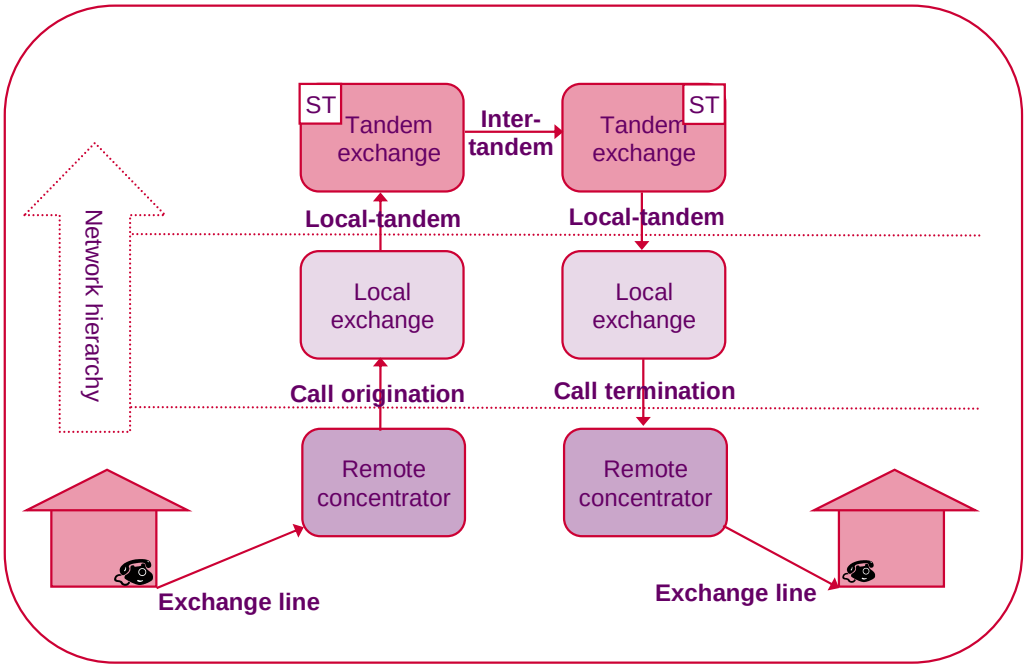
- call origination;

[3] References in this document to the consultation document are, unless otherwise indicated, references to *Review of BT's network charge controls* published by Ofcom on 23 March 2005, available at www.ofcom.org.uk/consult/condocs/charge/

- 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.

2.6 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



2.7 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*** (ST in Figure 2.1) 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.

2.8 In all of the five markets in which the above services fall, BT was determined in November 2003 as having a dominant position or, in other words, SMP. Those determinations were made after a number of 'market reviews ("the Narrowband Market Reviews")[4].

2.9 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.

2.10 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 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[5].

2.11 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.

2.12 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 conclusions about the justification for controls to continue after September 2005, and their appropriate level, so that new controls can be in place as necessary before the current ones end.

The role, history and impact of the NCCs

2.13 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

[4] 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
[5] http://www.ofcom.org.uk/consult/condocs/rev_bt_pm/statement/statement.pdf

appropriate charges, limits BT's ability to use its market power to discourage entry and force exit.

2.14 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, while 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.

2.15 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.

2.16 The precise impact of the NCCs is hard to quantify, as it is difficult 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.

2.17 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[6] that BT's charges are in general among the lowest, if not the lowest, for call origination and call termination. BT has also commissioned other studies by independent third parties which corroborate this benchmarking against other EU countries[7]. 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).

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

Current charge control performance

2.19 The current NCCs were set by Oftel in February 2001 for the four years from 1 October 2001 to 30 September 2005[8]. The NCCs were then, in effect, re-

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

[7] Including a study by Analysys submitted as an annex to BT's consultation response. See www.ofcom.org.uk/consult/condocs/charge/responses/bt_annex.

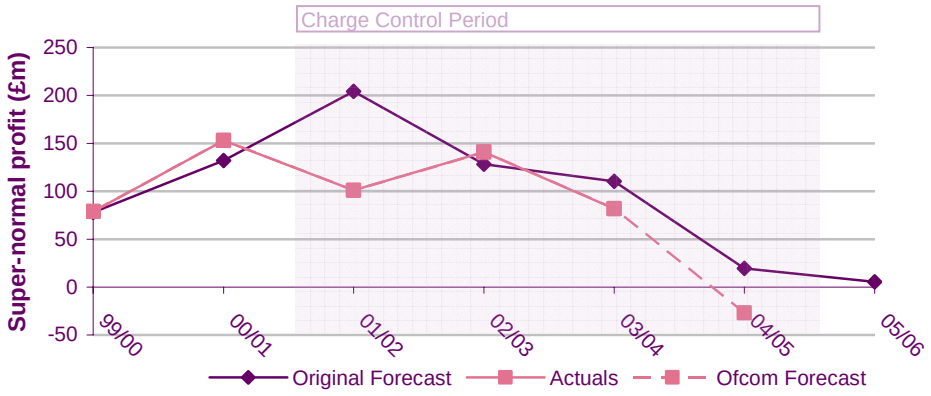
[8] See http://www.ofcom.org.uk/static/archive/oftel/publications/pricing/pcr0101.pdf. They were subsequently amended by the statement entitled *Modifications to BT's SMP services conditions AA4, BA4 and PA1*, published on 10 February 2005. This is available at http://www.ofcom.org.uk/consult/condocs/bt_smp/amend_ccc/btsmp_amend_ccc.pdf

imposed by Oftel in November 2003 in the form of SMP services conditions (replacing conditions of BT's licence under the Telecommunications Act 1984).

2.20 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, while 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.

2.21 Figure 2.2 demonstrates that the opening super-normal profits for the charge controlled services in the current period were significant and were a major 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's super-normal profits, as forecast using the technology-neutral model are expected to reduce to zero by the end of the current NCCs. It should be noted that BT's actual results for this year will differ to those forecast as a result, primarily, of the running down of PSTN investment levels, and potential consequential increases in operation costs, in anticipation of replacement with 21CN.[9]

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



The 2001 Oftel forecast was based on LRIC+EPMU. BT's CCA FAC actual profit have been adjusted to a LRIC+EPMU basis

2.22 While 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

[9] 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.

forecast. This suggests that BT has been able to reduce unit costs in line with forecasts despite lower volumes.

Legal and regulatory framework for setting Network Charge Controls

2.23 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 2 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.

2.24 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.

2.25 As explained further at Annex 2, 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 2, a review of the Recommendation is not expected to be launched by the European Commission until the end of 2005.

2.26 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).

2.27 In deciding whether to make proposals to modify SMP services conditions (such as the NCCs) set by reference to a market power determinations in respect of BT, Ofcom considered when preparing the consultation document that it was an appropriate interval 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.

2.28 The main reason for this was 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 was then an appropriate interval to carry out a market review in respect of these two identified services markets is that certain stakeholders had already requested that Ofcom reduce regulation in these markets.

2.29 In the light of those reasons, and in keeping with Ofcom's strategic approach to lift regulation when appropriate, Ofcom did 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. Ofcom is required to notify the European Commission and national regulatory authorities (NRAs) of every other Member State of these matters. As the outcome of those analyses is to identify services markets that differ from those defined in the Recommendation and to make market power determinations, the European Commission could veto Ofcom's proposals. The Commission responded, however, to Ofcom's consultation proposals by stating that it had no comments on them.

2.30 On the other hand, Ofcom did not consider it appropriate, in preparing the consultation document, to carry out similar market analyses in respect of each of the other three (economic) services markets referred to in paragraph 2.7 (i.e. call origination, call termination and single transit). As explained further in Annex 2, 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 setting 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 5). Consultation respondents did not oppose Ofcom's view on the degree of change in these markets.

2.31 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 6 and Annex 4 of this document.

2.32 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

2.33 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.

2.34 This Explanatory Statement describes how Ofcom follows those principles by detailing 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.

2.35 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. In June 2005, Ofcom published details of a new regulatory approach for the UK's fixed line telecommunications market including undertakings from BT to secure real equality of access to the fundamental economic bottleneck of the access network and policy initiatives related to next generation networks, weighted average cost of capital and cost of copper. The NCCs described in this document cover wholesale narrowband interconnection services provided over BT's core network and as such are complementary to these proposals as part of the the overall settlement for the telecoms industry. Ofcom does recognise that these NCCs inevitably constitute a trade-off: the higher the regulated return, the less risk that regulation will disincentivise efficient investment, whether by BT or others; the lower the regulated return, the more the benefits from resulting cost savings can be passed on to consumers.

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

Key issues affecting Ofcom's decisions

2.37 The NCCs described in this document will apply during a period of transition, comprising a number of significant market developments that have raised 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 new charge control period and beyond.

2.38 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 includes more general consideration of issues arising from BT's 21CN implementation on Next Generation Networks[10].

2.39 In setting the new NCCs, Ofcom has had 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 had 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.

2.40 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 email. Competitive conditions are also changing, in some markets more than others. It is important that Ofcom both anticipates such developments while maintaining as far as possible the consistent and transparent approach to regulation described in the TSR.

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

- Valuing copper access - while 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 also publishes today its final conclusions on this issue, which will affect the charges for access products such as local loop unbundling ("LLU)[11]; and

- Cost of capital - Ofcom today also publishes its final conclusions on the appropriate return on BT's capital investment[12], including how the cost of capital varies for different parts of BT's business. In the NCC consultation document, Ofcom used a range of possible outcomes on cost of capital in making its NCC proposals. Ofcom has now decided to set the cost of capital for BT's core network services at 11.4%, so this figure has been reflected in the final NCCs presented in this document.

Consultation comments and Ofcom's conclusions

2.42 In Section 2 of the consultation document the following specific question was asked about the general role of the NCCs:

[10] see www.ofcom.org.uk/consult/condocs/nxgnfc/
[11] see http://www.ofcom.org.uk/consult/condocs/copper/value2/statement/
[12] see http://www.ofcom.org.uk/consult/condocs/cost_capital2/statement/

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?

2.43 Of the nine consultation respondents, all of the six that replied to this question thought that the NCC regime has been generally successful. BT specifically stated that the regime has cut the regulatory burden and supported efficiency incentives. However, most of those six respondents also had caveats. BT believed that the NCCs have been applied beyond 'true' bottlenecks, that deregulation has been delayed due to over-emphasis on market share, and that investment and innovation have been inhibited by regulation across the value chain, creating an over-reliance on arbitrage models. It also observed a tension between low prices and incentives to build networks. BT's competitors also had concerns, about excessive pricing flexibility for BT for products such as PPP within broad charge control baskets, and about delay in addressing such weaknesses.

2.44 Ofcom welcomes the fact that the NCC system retains broad support, and considers this a good basis on which to set the next controls. BT's broad-level concerns about how the NCCs have operated are issues that have been considered in the TSR. On the specific issues of the progress of deregulation, and the role of market shares, Ofcom must make decisions on each market in a way that is consistent with the framework of EU market analysis procedures. However, it is noteworthy that in making its NCC decisions for 2005-9, Ofcom has exercised its discretion to reduce regulation in two markets, based on a number of factors of which market share is only one. See Section 4 and 5 for further details of Ofcom's market analyses.

2.45 On the issue of pricing flexibility for BT, there does remain a number of NCC services for which BT has such flexibility, based on overall charge controls for the whole basket rather than the individual services within those baskets. However, this approach is appropriate where the different elements or services in the charge control share similar competitive conditions. This flexibility for BT also gives it an incentive to reduce its costs and improve efficiency. BT's charges for each service are still limited by requirements to ensure that pricing is not unreasonable or anti-competitive. However, Ofcom is mindful of the need to keep baskets appropriate. Indeed, it was Ofcom itself that proposed, and is now implementing, separate controls for 2005-9 for single transit and LTC, thereby ending their combined control of 2001-5 (during which their prices have not moved in a similar way). Section 6 contains further details of the changes to charge control baskets.

Section 3

Summary of market power decisions

3.1 As explained in Section 2, in this document Ofcom presents an in-depth analysis of two markets, which it has undertaken 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 This Section summarises the background to that analysis, and the final decisions that Ofcom has taken on whether BT still has market power (SMP) in these two markets.

3.3 Sections 4 and 5 contain in-depth market definition and market power analysis for the local-tandem and inter-tandem market respectively. They also:

- consider related points raised in the consultation responses;
- explain how Ofcom's approach on market definitions and SMP analysis follows legal requirements; and
- compare the analysis to that set out in November 2003, when these markets were last assessed.

3.4 Sections 4 and 5 are necessarily complex, and are likely to be of most interest to those already familiar with such analysis. Further background on the processes Ofcom has followed is provided in Annex 2, which gives a broad overview of the market review process, covering the relevant legal and economic issues.

3.5 Section 6 sets out the implications of Ofcom's conclusions as summarised in this Section and covered in detail in Sections 4 and 5.

3.6 Charge controls also currently apply to some other services, based on BT's continuing SMP status in other markets, for which Ofcom has not conducted an in-depth analysis of competition. Annex 5 outlines the continuing basis for charge controls for these other services, which are:

- 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

3.7 It is important to understand that, in this document, Ofcom is defining markets and making 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

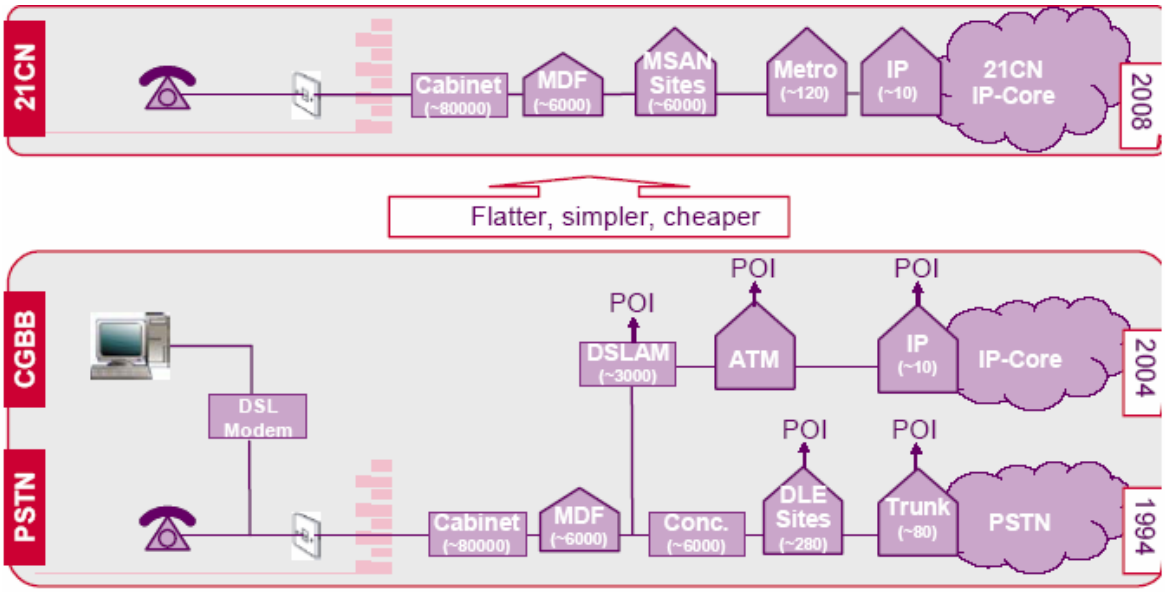
out its plans for its 21CN in June 2004, stating that it will replace all of its existing networks with a single multi-service network. BT's stated aims for the programme were to reduce cash costs (by £1 billion per annum by 2008/09), improve speed to market for new services, and improve the customer experience.

3.8 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.

3.9 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, and about 100 metro nodes.

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



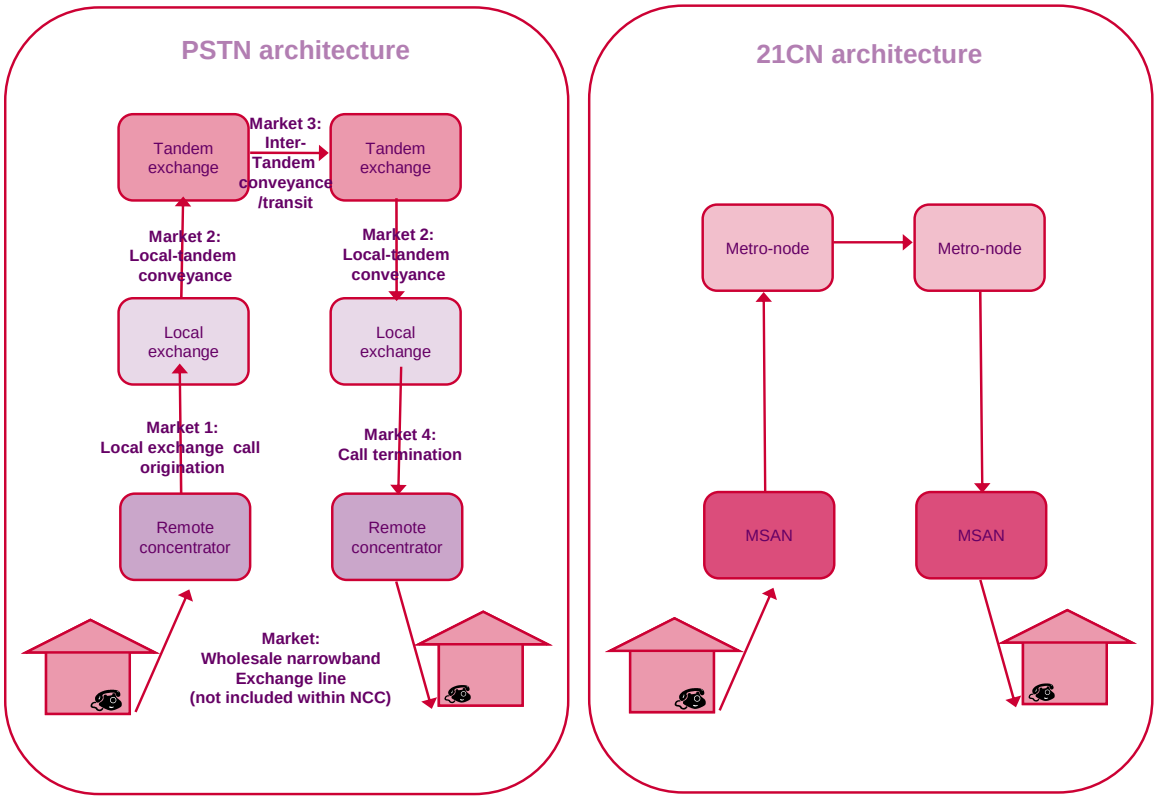
Key:

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

3.10 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 determine 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 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



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

3.12 With the introduction of 21CN, there is a possibility of there being a number of types of wholesale services offered by BT, using current or new forms of interconnection, and using the 21CN to varying degrees. In defining markets in which to assess BT's degree of market power, Ofcom has considered the impact of the move to 21CN of these different types of wholesale service.

Summary of Ofcom's decisions on market definitions and SMP

3.13 Having defined the relevant markets and conducted the two in-depth market analyses in accordance with legal and regulatory requirements, and following

consideration of the responses to consultation, Ofcom conclusions are provided in paragraphs 3.14 to 3.19.

Local-tandem conveyance and local-tandem transit

3.14 In the market for LTC and LTT, the market definition is unchanged since the market was last reviewed in November 2003:

- there is a single market for LTC and LTT on fixed public narrowband networks;
- the geographic market is the UK excluding the Hull area.

3.15 Ofcom believes that it has fully taken into account likely competitive and technical developments that might affect the market definition over the period of the NCCs, although it will continue to monitor developments in this area. Based on currently available information:

- the market definition covers services provided at the existing narrowband PSTN interfaces, irrespective of whether BT delivers the service through the PSTN only or partly through the 21CN; but
- future 21CN interconnection products (such as 'metro node origination'), about which sufficient details are not currently known to conduct a proper market definition, are not in the market as defined.

3.16 In the market for LTC and LTT, BT continues to have SMP, and Ofcom expects this to continue to be the case for the duration of the new NCCs, although there are prospects for competition. Some of the factors contributing to this decision are:

- BT has over 60% of LTC traffic (the bulk of the market); and
- entry barriers remain high due to costs of building to BT's local exchanges; but
- BT's prices have converged towards (fully attributed) cost, indicating a response to competitive pressure.

Inter-tandem conveyance and inter-tandem transit

3.17 In the market for ITC and ITT, the market definition is also unchanged since the market was last reviewed in November 2003.

- there is a single market for ITC and ITT on fixed public narrowband networks;
- the geographic market is the UK excluding the Hull area.

3.18 For the market for ITT and ITC, as with that for LTC and LTT, Ofcom has considered potential developments in the market definition over the next NCCs period and will continue to monitor developments in this area. Also, as for LTC and LTT:

- the market definition covers services provided at the existing narrowband PSTN interfaces, irrespective of whether BT delivers the service through the PSTN only or partly through the 21CN; but

- future 21CN interconnection products, about which sufficient details are not currently known to conduct a proper market definition, are not in the market as defined.

3.19 However, Ofcom has decided that BT no longer has SMP in the market for ITC and ITT, and on a forward-looking basis Ofcom does not expect this to change. Some of the factors contributing to this decision are:

- a significant downward trend in BT's market share, now at just over 40%;
- high connectivity of competing providers at BT's tandem exchanges; and
- evidence of BT not always pricing right up to its regulated price caps.

Other services covered by the NCCs

3.20 The other services markets subject to NCCs – call origination, call termination and single transit - are considered by Ofcom in Annex 5, including discussion of the few comments on those markets that were made in consultation responses. Ofcom does not consider that there has been a material change in those markets since they were last assessed in November 2003. While BT's market power status is unchanged, Ofcom has calculated revised NCCs, as one remedy to address the market power found in those markets in 2003.

European Commission views

3.21 On 23 March 2005, Ofcom notified the European Commission of its proposals on market definition, market power and remedies, as set out in the consultation document. These proposals on market definitions and market power are now being confirmed by Ofcom. It is notable that the Commission, having analysed the proposals, raised no objections, including on the proposal to remove the SMP designation in the inter-tandem market.

Section 4

Market power in local-tandem conveyance and transit

4.1 In this Section, Ofcom:

- defines the market for ITC and ITT; and
- assesses whether BT has market power in the defined market.

4.2 Paragraphs 4.4 to 4.62 essentially reproduce the analysis in the consultation document. From paragraph 4.63 onwards, Ofcom assesses the consultation responses covering these issues, and then presents its conclusions.

4.3 Annex 2 provides background on the processes that Ofcom follows in reviewing markets, covering market definition and market power assessment, as well as the imposition of remedies to address market power.

Service definitions

4.4 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 4.1 and 4.2 describe two different ways in which LTC can be provided on the PSTN.

Figure 4.1 LTC I

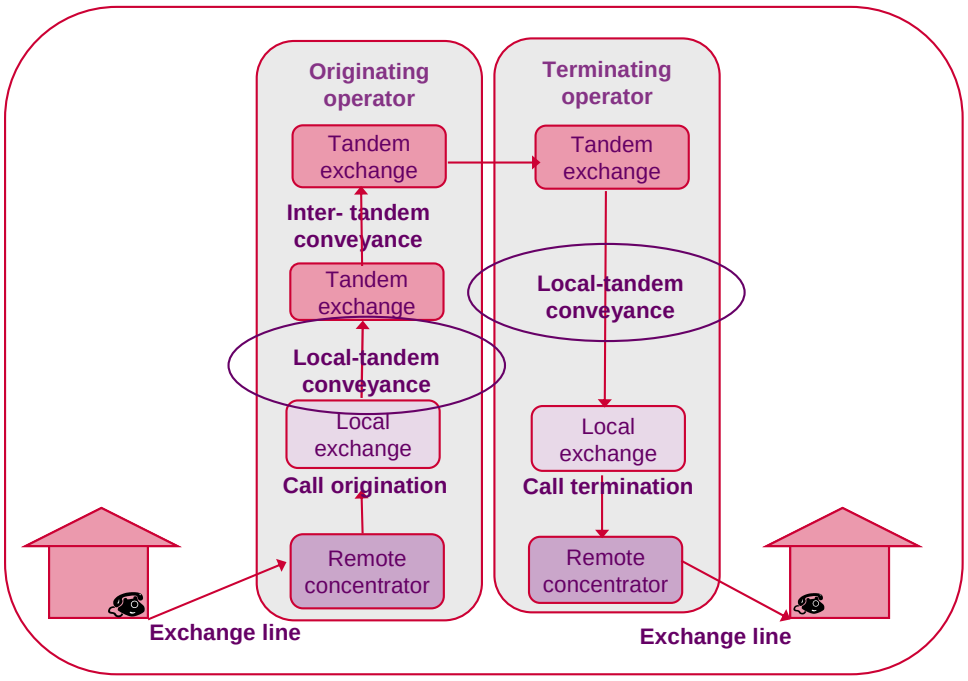
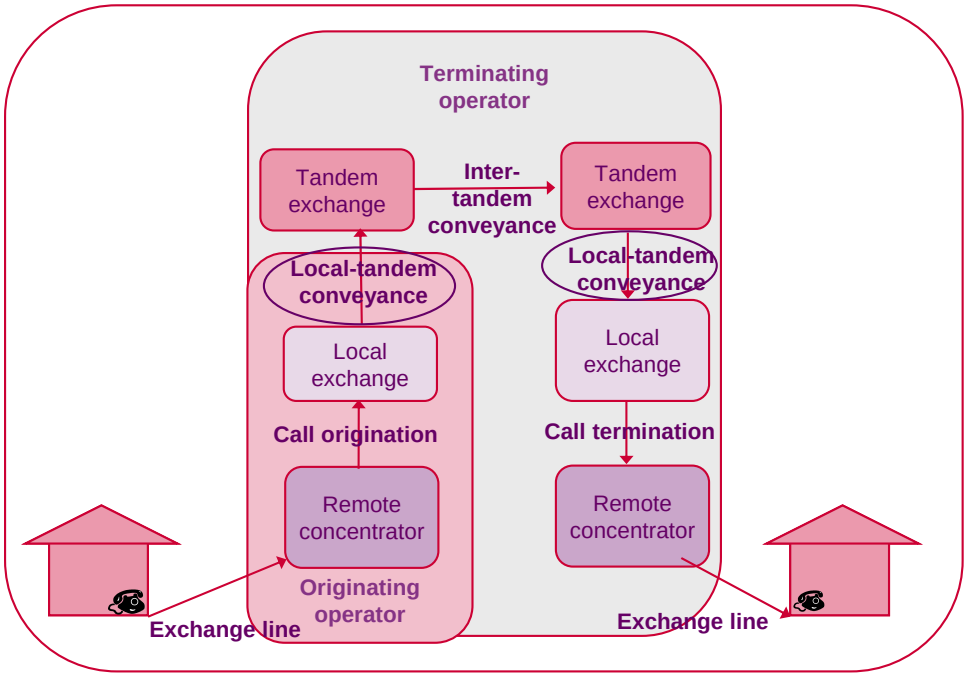
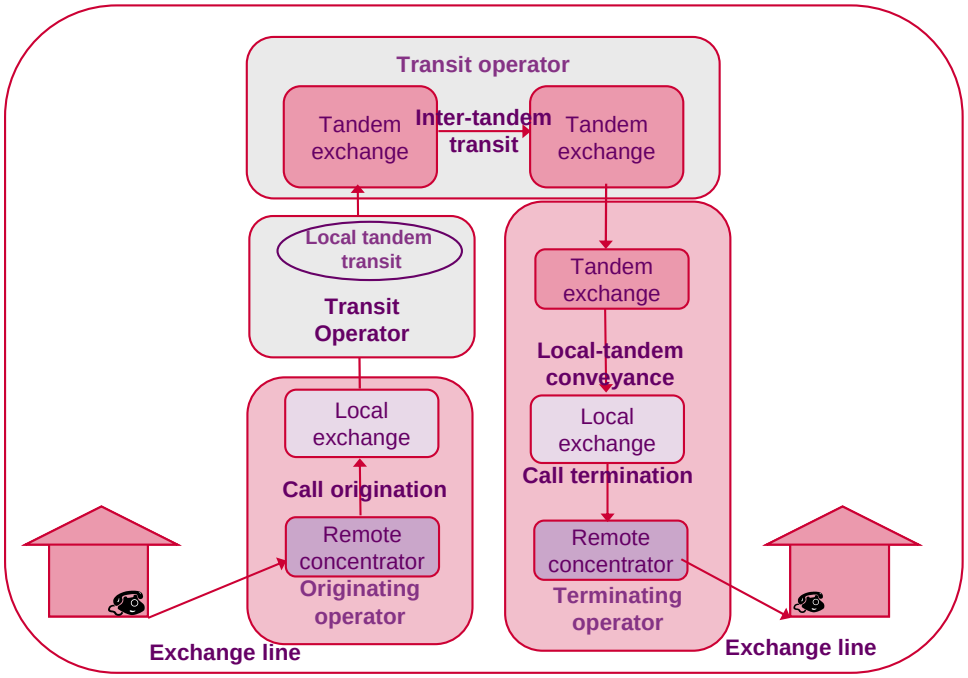


Figure 4.2 LTC II



4.5 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 (see Figure 4.3).

Figure 4.3 LTT



Market definition

4.6 In the light of the above service definition, the purpose of paragraphs 4.7 to 4.36 is to define the relevant wholesale market(s) in which the assessment of market power (i.e. SMP) is to be undertaken. Annex 2 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.

4.7 As discussed in Annex 2, market boundaries are defined by identifying the constraints on the price setting behaviour of firms arising from 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.

4.8 Ofcom's approach to market definition is discussed in Annex 2. 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 5.

The market for local-tandem conveyance (LTC) and local-tandem transit (LTT)

4.9 It is standard practice to start with the narrowest feasible market definition and consider whether it should be broadened to include substitute products. Therefore Ofcom has first considered whether LTC and LTT should be regarded as separate markets or as part of the same market. It has then considered whether some other possible substitute products should be included in the market.

4.10 Ofcom believes that LTC and LTT are part of the same market. This is because it believes them to be sufficiently close substitutes that a price increase in one would be constrained by switching to the other.

4.11 Both LTC and LTT are means of conveying traffic between a local exchange and a tandem exchange. LTT differs from LTC in that the conveyance is provided by a third party, the transit operator, rather than by the originating or terminating operator as with LTC. They are therefore alternative means of providing the same service and therefore likely to be good substitutes provided they can be provided at similar cost.

4.12 Although LTT is likely to involve the costs of additional switching and additional interconnect links necessary for traffic to be conveyed via the transit operator's network, these costs are unlikely to be significant at sufficiently large volumes of traffic. Therefore switching to LTT could constrain the price of LTC.

4.13 Conversely, an operator purchasing LTT from a third party could switch to purchasing LTC from the originating or terminating operator in the event of a rise in the price of LTT services. It could also build its own network out to the local exchange in order to self-provide LTC, if this were justified by the volume of traffic. Therefore switching to LTC could constrain the price of LTT.

4.14 The above discussion concerns demand-side substitution; that is, switching by customers. In addition, supply-side substitution may be possible because an operator providing LTC over its own network could also provide LTT to other operators connected at its local and tandem exchanges. An operator providing LTT services could also provide LTC for calls that originate and terminate on its network.

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

Impact of 21CN

4.16 As discussed in Section 3, BT intends gradually to replace the PSTN with its 21CN over the period of the next network charge controls, during which time there will be parallel running of both PSTN and 21CN. BT may then be able to provide a service equivalent to LTC or LTT but routed partly over the 21CN. BT could, for example, route the call from the DLE to a metro node (on the 21CN) and then to the tandem switch. In doing so, it would be providing a service similar to local to tandem conveyance. If both services were available and the customer was able to exercise choice, it is clear that it would regard the two services as substitutes. As long as the customer receives the same service at the same price, the customer would be indifferent to the technology by which it is delivered. Note that the customer does not need to make any modifications to its network in order to receive services which are routed over the 21CN but delivered to the same locations and using the same interfaces as the PSTN service.

4.17 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.

4.18 Ofcom has also considered whether a service provided wholly over the 21CN but performing a broadly similar function to LTC or LTT would be in the same market. The likely configuration of BT's 21CN means that there will be no direct equivalent to LTC because the 21CN will not feature DLEs. The closest substitute appears likely to be a metro node origination service (conveyance from the MSAN to the metro node). The question then is whether there is likely to be substitutability between metro node origination and LTC such that they can be considered as part of the same market.

4.19 Ofcom believes that, for the purposes of this review, metro node origination should not be regarded as a sufficiently good substitute for LTC and LTT to be regarded as part of the same market. This is because:

(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 may 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[13]. To effectively utilise an IP interface an interconnecting operator will 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.

4.20 In summary, for many operators, the cost of switching interface may be significant in relation to a small rise in the price of LTC on the PSTN.

4.21 As both PSTN and 21CN are operated by BT, supply-side substitution is not a relevant factor. BT would clearly not wish to undermine its own price increase by such means.

4.22 In principle, operators could avoid the need for LTC (or equivalent) by connecting to the 21CN at the MSAN. Since, given the location of the MSAN, MSAN interconnection would take place much deeper into the network than tandem exchanges, each MSAN interconnection may 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 in general 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.

4.23 Even if substitution at the wholesale level, between conveyance over the PSTN and 21CN, is not possible, it might still be that both 21CN and PSTN products should be placed in the same market. This would be the case if substitution between customers at the retail level meant that there was a common constraint between the charges for PSTN based services and those for 21CN-based services. 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 defined in this review will be considered, or new markets will be defined at that point.

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

Conclusion

4.24 Ofcom's provisional conclusion in the consultation document was that the relevant market is the market for LTC and LTT on fixed public narrowband networks.

4.25 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 4.16 to 4.17).

Geographic market

4.26 Ofcom's approach to defining geographic markets is set out in Annex 2.

4.27 Strict application of the hypothetical monopolist test could lead to the definition of a proliferation of small local markets because LTC between one pair of exchanges is unlikely to be regarded as a substitute for conveyance between another pair in a different location. Supply-side substitution is also unlikely because of the time and cost needed to expand a network into a different geographic area. This would not be a practicable approach to market definition.

4.28 Ofcom considers that a more useful approach would be to define an area as a local market provided competitive conditions within the area are sufficiently homogeneous and sufficiently distinct from those outside the area. The level of connectivity at certain DLEs may be higher than others (see also paragraph 4.48), thereby suggesting that such areas might be more competitive. However, in the case of LTC, the boundary between areas where there are different competitive pressures may 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. Therefore, Ofcom believes that it is reasonable to consider there to be a national market, albeit with possibly differing local conditions.

Conclusion

4.29 Ofcom's provisional conclusion in the consultation document was that the scope of the geographic market for LTC and LTT is the UK (excluding the Hull area).

Provisional conclusions on the relevant market

4.30 For the reasons set out above, Ofcom proposed in the consultation document that the relevant market 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 4.16 to 4.17).

Forward look

4.31 In proposing the above market definition, Ofcom considered that, on the basis of currently available information, it had fully taken into account likely competitive and technical developments that might affect the market definition over the period of the new NCCs. On this basis, any development of services wholly on 21CN did not appear to be part of the above market during the period of the new NCCs. However Ofcom indicated that it will continue to monitor developments in this area.

Relationship between the market definition and the Commission's Recommendation

4.32 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 2).

4.33 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".

4.34 Ofcom proposed 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.

4.35 Ofcom, in proposing its market definition, gave 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 considered that it was 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 at which operators can connect to BT's PSTN 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 without an access network but which provide LTC or LTT themselves. The distinction is important because, in the UK, a number of operators have built their networks to BT's local exchanges, making competition possible in the provision of LTC and LTT. As discussed in Annex 5, the only significant competition in call origination is from

alternative direct access networks and competition is therefore much more limited.

4.36 The relative efficiency of competition law and complementary ex ante regulation is discussed in detail in Annex 2.

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

4.37 As explained above, Ofcom considered provisionally in the consultation document that the identified services market should be LTC and LTT on fixed public narrowband networks in the UK excluding the Hull area. Paragraphs 4.38 to 4.78 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 relevant market power determination made in respect of BT in November 2003.

4.38 Annex 2 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

4.39 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 proportion of call types using LTC on BT's network is the same as that using LTC on other networks.

4.40 From these data, Ofcom estimates BT's market share of LTC minutes currently to be in the region of 63%. Table 4.1 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 4.1 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

4.41 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.

4.42 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.

4.43 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[14]. Therefore, the prospect of new investment in interconnection at BT's DLEs in order to use FRIACO further reducing BT's market share in LTC/LTT is limited.

4.44 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.

4.45 Another possible manner in which BT's share in LTC might be reduced is by competition from other direct access providers. If such operators increased their market shares of retail customers this would also increase their share of LTC for calls to and from those customers. However, the cable companies, which are the main alternative direct access providers, have not been able to increase their market share at BT's expense (see Annex 5 for BT's market share in call origination) and there is no reason to believe that this situation will change materially for the duration of the new NCCs.

4.46 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

4.47 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

[14] 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)

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.

4.48 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, while 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.

4.49 The capital costs of building out to BT's local exchanges are significant. It is commercially viable to connect to local exchanges where the volume of traffic justifies it, but for many operators the volume of traffic to any one exchange is small. Fewer providers have built out their own networks to BT's local exchanges than connect at the tandem layer therefore, although in some cases local exchanges are co-located with BT's tandem exchanges. Alternatively, entry is possible using IECs to connect to the DLE. However, over long distances and smaller volumes of traffic, the cost of IECs is considerable in relation to the margins providers can expect to make.

4.50 Therefore, although there has been some successful entry in this market, Ofcom considered at the time of the consultation document that entry barriers are still significant.

Economies of scale

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

4.52 In order to compete successfully against BT, providers would need to 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

4.53 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.

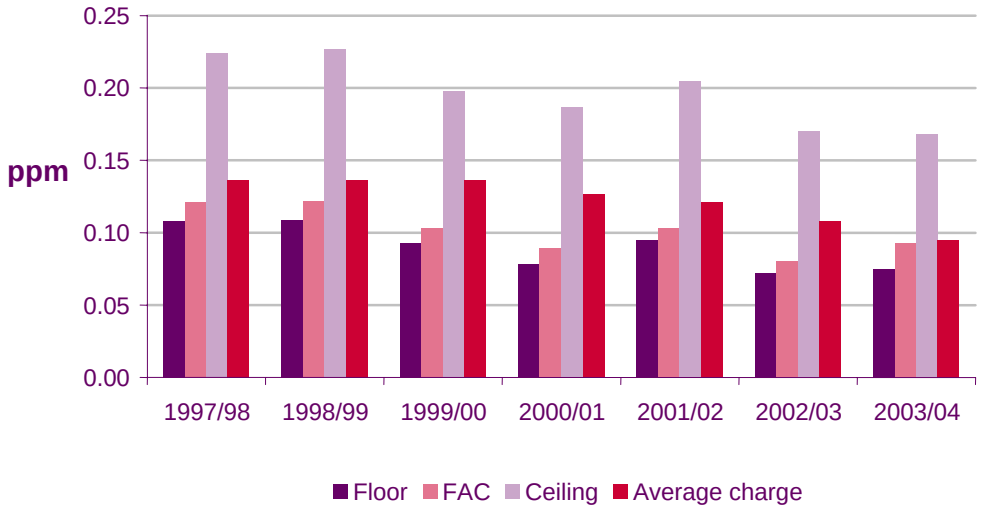
4.54 Ofcom's view is that BT's market size and ubiquity are key factors in BT's continuing level of market power in the LTC and LTT market.

Pricing and profitability

4.55 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.

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

Figure 4.4 BT's costs and charges for LTC



Source: BT's Regulatory Financial Statements[15]

4.57 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"), they have tended to converge towards FAC in 2003/04.

4.58 For the 2001-5 NCCs, BT's LTC service is in a basket along with single transit ("ST"), under an overall basket charge cap of RPI-13%. In complying with the cap, BT has reduced LTC prices, although it has raised the prices of ST. This suggests 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, and since BT faces little competition in single transit, it cannot be concluded that LTC is effectively competitive.

Absence of or low countervailing buyer power

4.59 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

[15] 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)

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

4.60 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

4.61 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 (because CPS providers who connect at BT's DLEs provide LTT over their own networks for traffic originating on BT and terminating on other networks). However, although volumes of CPS have increased, the impact on BT Retail's market share[16] has been relatively small. This suggests that the impact on BT's share of LTC/LTT is likely to be similarly limited. With the likelihood of 21CN interconnection products being available during the period of the new NCCs, Ofcom believes that further increases in competitive pressure on LTC/LTT prices may also be limited, because providers may be unlikely to invest in new fixed narrowband PSTN connections. However, increased take-up of LLU services could potentially mean more competition to BT in call origination and LTC.

Provisional consultation document conclusions on SMP

4.62 For all the reasons set out in this Section, Ofcom proposed in the consultation document that BT continues to have SMP in the market for local-tandem conveyance and local-tandem transit in the UK excluding the Hull area.

Consultation comments and Ofcom's conclusions

4.63 Paragraphs 4.64 to 4.76 below set out consultation respondents' views, and Ofcom's response, to two specific questions asked in Section 3 of the consultation document.

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?

4.64 The two main areas of comment in consultation responses concerned the geographic scope of Ofcom's market definition, and the exclusion of 21CN interconnect products from the market definition proposed by Ofcom.

4.65 In its consultation response, BT stated that the boundaries between LTC and ST are artificial and regulatory constructs, but accepted that it is pragmatic to use

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

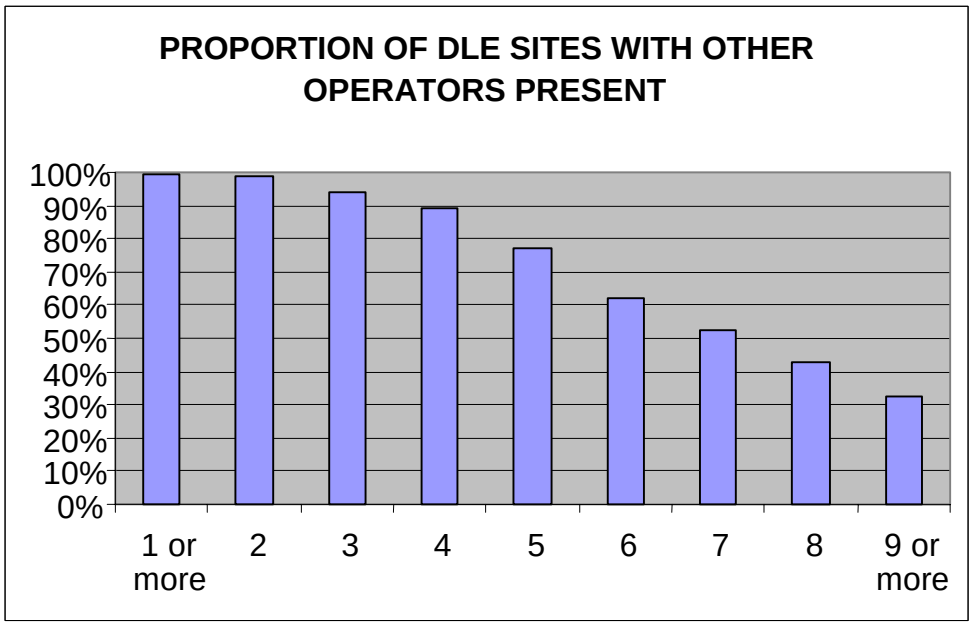
such market definitions. BT did not agree that the market for LTC is national, based on the argument that there is no strong demand or supply side substitutability between regions. BT also stated that there are therefore differing degrees of competition in different areas. BT stated that competitive conditions develop on an area-by-area basis and that, by defining the market as national, Ofcom does not allow for the SMP designation to be removed in some areas and retained in other areas. BT argued that this creates a risk of over-regulation in some areas if SMP is retained, and under-regulation in some areas if the SMP designation is removed.

4.66 Ofcom accepted in its consultation document that the level of connectivity at certain DLEs may be higher than others, thereby suggesting that such areas might be more competitive. In principle it might be possible to define local markets provided competitive conditions within them are sufficiently homogeneous and sufficiently distinct from the surrounding area. On the other hand, Ofcom pointed out that there may be areas with more uniform competitive conditions, but that it may not be possible to define a suitable aggregator for such areas. Since assessing the boundaries of the markets is an exercise that could not be carried out with any reasonable degree of accuracy, Ofcom proposed that the market be defined as national (i.e. the UK excluding the Hull area).

4.67 Ofcom's view was further supported by information provided by BT during the consultation period, on the degree of connectivity at local switches. Of the 259 sites with local exchanges, operators have built out physical connections to half of them. All of the remaining DLE sites are served by interconnection via an Interconnection Extension Circuit (IEC) leased from BT.

4.68 That information suggests that 94% of BT's DLE sites have three or more operators other than BT present (including those reached through IECs), and more than 75% have five or more operators present as illustrated by figure 4.5 below.

Figure 4.5 Connections at Digital Local Exchange (DLE) sites



Source: BT data

4.69 This level of connectivity has allowed operators to increasingly self-provide LTC for their own purposes. CPS providers have increasingly connected to BT's network at the DLE, substituting use of their own networks for LTC over BT. The increase in the share of LTC traffic accounted for by operators who have either built out or leased connections to DLE has resulted in BT's market share falling from 73.8% at the beginning of the current charge control period to 63.1% in the third quarter of 2004/05. This most recent market share figure (an Ofcom estimate, using BT data) shows a continuation of the same trend (see Table 4.1). It is possible that BT's market share has fallen by a greater percentage at DLEs where there are more than five operators present than in areas where there are three operators connected. However, it is not sufficiently clear that the level of competition is significantly higher in the former than the latter, such that the pattern of competition would justify defining geographically separate markets. Indeed, given BT's overall share of traffic of 63%, it seems likely that BT's share of traffic on those routes with more than five interconnected operators is over 50%, given the number of such routes.

4.70 Ofcom is of the view that, since throughout BT's network the level of competition to provide LTC is likely to be similar, defining a national market with sufficiently homogenous competitive conditions is a reasonable decision to make. While it may be the case that competition develops over time on an area by area basis, the fact that clear boundaries between areas cannot be defined means that it may not be practical or useful to define sub-national markets. In addition, BT has provided no additional evidence to show that there are areas where its market share can be more easily competed away than the others.

4.71 In the light of the above, Ofcom concludes that the geographic market is a national market for LTC in the UK excluding Hull.

4.72 Turning to the issue of 21CN interconnect products in the market definition, Energis commented that metro node origination is merely another form of technology which delivers the same service as LTC/LTT. Since BT would not be investing in 21CN unless the price of delivering calls over the new network were significantly lower, Ofcom should assume that metro node origination and LTC/LTT services will be substitutable. Ofcom should therefore either reopen the controls when costs are known, or ensure that each service is priced on the same basis, and furthermore Ofcom should confirm that this will happen. In the case of genuinely new services, a full market review should be launched.

4.73 Ofcom does not agree with Energis' argument that simply because BT is moving to a new network, the service on that network must be substitutable. In order to be part of a single market, purchasers must be able easily and at low cost to switch between the two services in response to a small price increase. If metro node origination does replace DLE origination, then it is possible that a service similar to LTC on the PSTN would be part of metro node origination. However, as discussed at paragraph 4.30, it would not be appropriate to conclude that metro node origination is a sufficiently close substitute for LTC to be part of the same market for the purposes of this review. As explained in the consultation document, however, without more knowledge of metro node origination, for example the costs, prices and interfaces, it would be premature to define a market for metro node origination. Given this Ofcom considers that it would be incorrect to make any statements to indicate that both services will be priced on the same basis, or that it will reopen the controls when the costs of metro node origination are known.

4.74 Ofcom's position on this is supported by UKCTA, whose response recognised that 21CN cost and product information may be needed for further work on market definitions. UKCTA did however urge Ofcom to conduct further market assessment as soon as the data is available. SSE took a similar view, suggesting that market analyses should take place once the 21CN products are introduced. C&W also agreed with Ofcom's current market definition, although it appears to be more of the view that services provided via 21CN interfaces will not form part of the same market in the near future.

4.75 When a new service such as metro node origination is introduced, Ofcom may conduct an analysis of the relevant market to which it might belong. In the light of a decision on whether or not 21CN services are part of the same market as PSTN services, Ofcom will decide whether regulation should be applied (and, if so, what regulation), to each of the services.

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?

4.76 UKCTA, C&W, Energis and the SSE commented specifically on this issue, all agreeing with Ofcom's proposed SMP finding. BT's argument that there are national sub-markets and that therefore there would be SMP only in some of those markets is effectively addressed by Ofcom's conclusion that it is appropriate to consider there to be a single national market for LTC/LTT services. As a result of that conclusion, the issue of differential SMP is not relevant. Ofcom continues to conclude that BT has SMP in this national market.

Ofcom's conclusion on SMP in the market for LTC and LTT

4.77 Having considered consultation responses, Ofcom maintains its consultation document proposals on the market definition:

- there is a single market for ITC and ITT on fixed public narrowband networks;
- the geographic market is the UK excluding the Hull area;
- the market definition covers services provided at the existing narrowband PSTN interfaces, irrespective of whether BT delivers the service through the PSTN only or partly through the 21CN; and
- 21CN interconnection products (such as 'metro node origination') are not in the market as defined.

4.78 Ofcom is of the view that BT still retains SMP in the market for LTC and LTT, as evidenced by a BT market share that is still well over 50%, and continuing entry barriers associated with the cost of building to local exchanges. There is also some evidence of increasing competitive pressure, as evidenced by BT's LTC prices converging towards cost (FAC). However, Ofcom's forward look at competition in this market suggests that BT is likely to retain SMP for the duration of the next NCCs.

Section 5

Market power in inter-tandem conveyance and transit

5.1 In this Section, Ofcom:

- defines the market for ITC and ITT; and
- assesses whether BT has market power in the defined market.

5.2 Paragraphs 5.4 to 5.62 essentially reproduce the analysis in the consultation document. From paragraph 5.63 onwards, Ofcom assesses the consultation responses covering these issues, and then presents its conclusions.

5.3 Annex 2 provides background on the processes that Ofcom follows in reviewing markets, covering market definition and market power assessment, as well as the imposition of remedies to address market power.

Service definitions

Inter-tandem conveyance

5.4 Inter-tandem conveyance ("ITC") is the service an originating or terminating operator provides to convey calls between tandem exchanges. It also includes the conveyance of calls between a tandem exchange and a specific type of tandem exchange called an International Switching Centre ("ISC") for international calls.

Figure 5.1 ITC provided by an originating operator

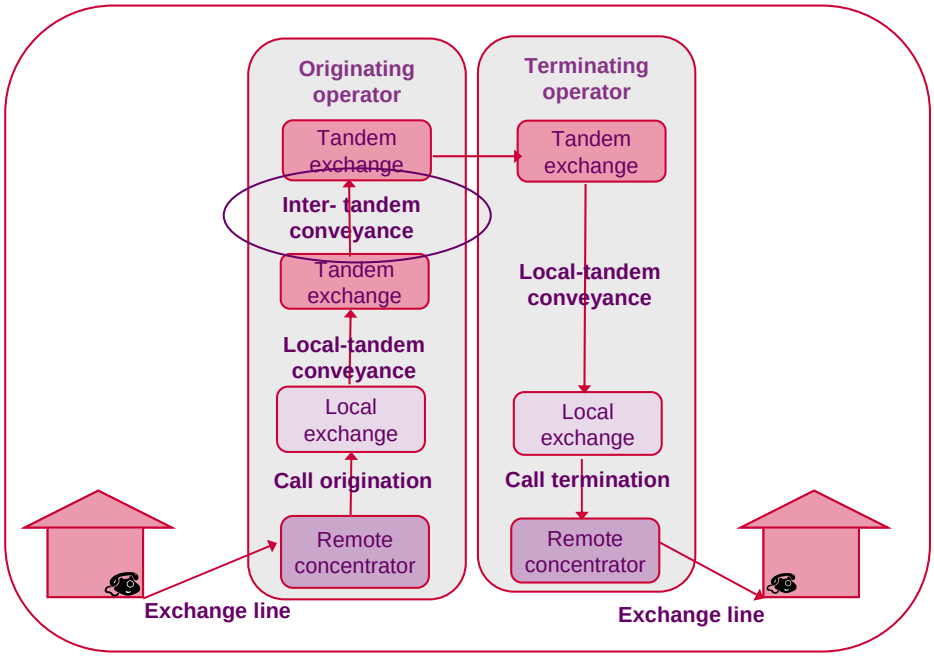
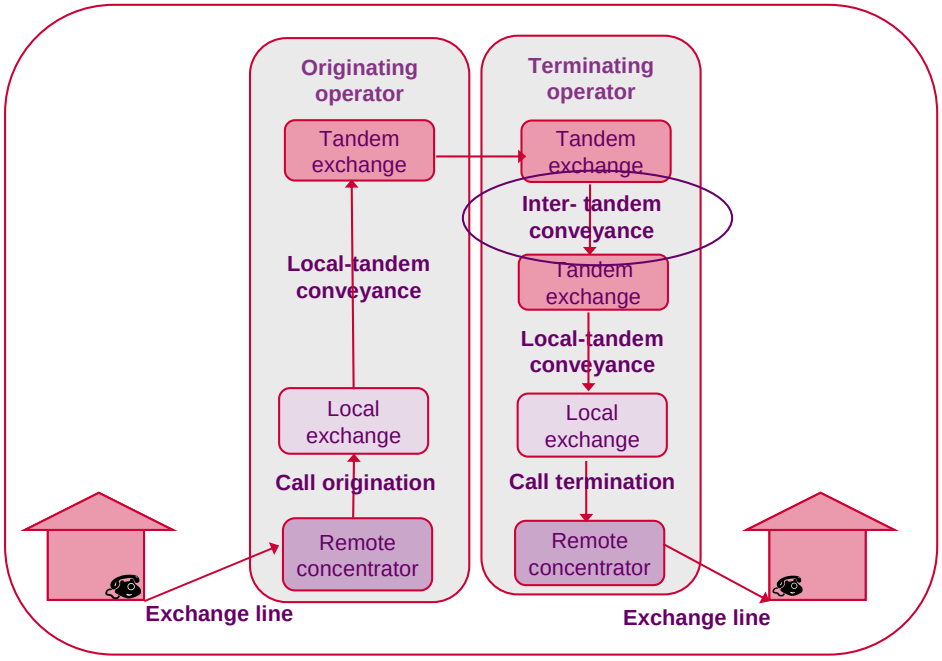


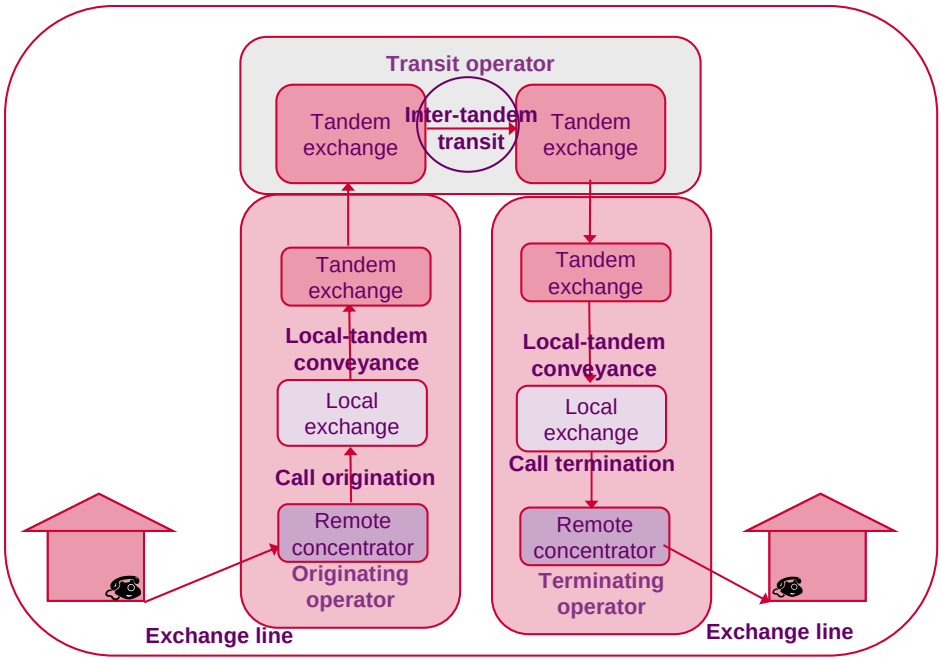
Figure 5.2 ITC provided by terminating operator



Inter-tandem transit

5.5 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 5.3 Inter-tandem transit



Market definition

5.6 In the light of the above service definition, the purpose of paragraphs 5.7 to 5.35 below is to define the relevant wholesale market(s) in which the assessment of market power (i.e. SMP) is to be undertaken. Again, as mentioned above, it is to be noted that Annex 2 sets out further detail of this first stage of a market review.

The market for inter-tandem conveyance (ITC) and inter-tandem transit (ITT)

5.7 As with LTC and LTT, Ofcom has first considered whether ITC and ITT should be regarded as separate markets or as part of the same market. It has then considered whether other possible substitute products should be included in the market.

5.8 Ofcom believes that ITC and ITT are part of the same market. This is because it believes them to be sufficiently close substitutes that a price increase in one would be constrained by switching to the other.

5.9 Ofcom has considered whether operators using ITT could switch to ITC in response to a small price increase and vice versa. Ofcom believes that, if a monopolist supplier of ITT increased its price, a terminating (or originating) operator initially purchasing ITT would be able to switch to purchasing ITC. If there is an existing connection between the terminating and originating operators the terminating (or originating) operator could easily purchase ITC from the other operator or provide ITC itself. If there is no such connection, which may be why an ITT supplier was initially chosen, substitution depends on the economic viability of building interconnect links between the two providers. This 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. Therefore, switching to ITC could constrain the price of ITT.

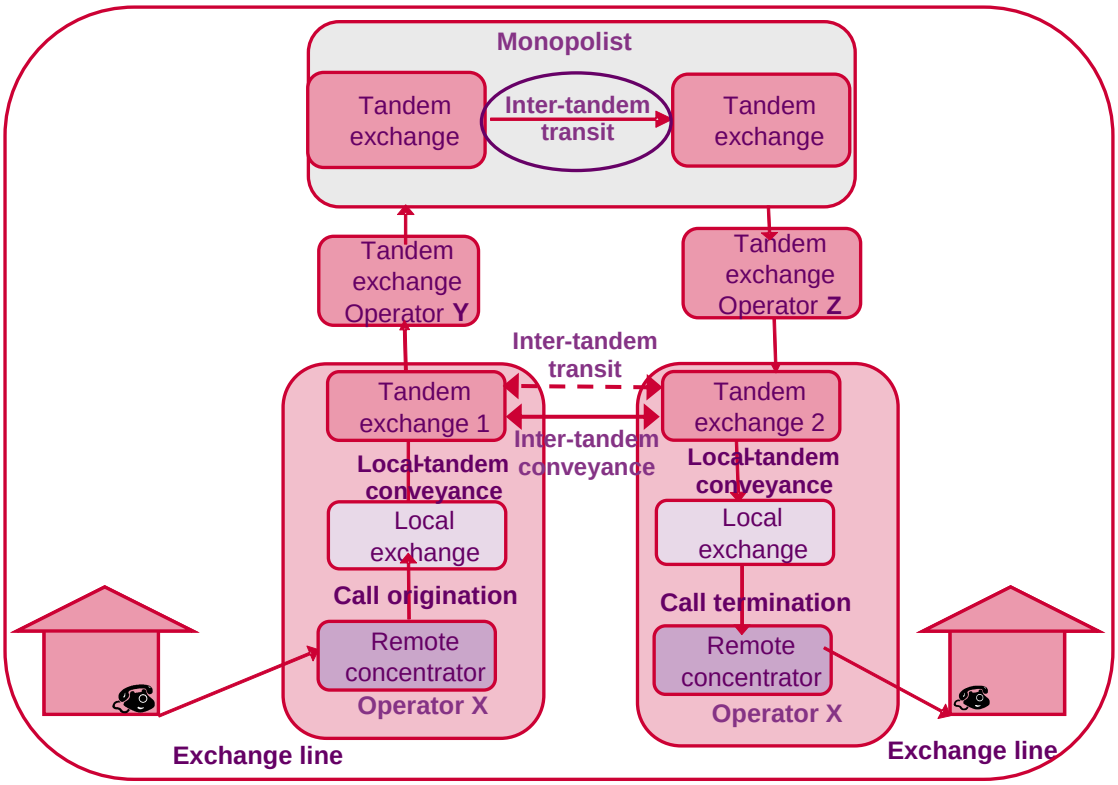
5.10 If a monopolist supplier of ITC (e.g. the terminating operator) increased its price, an originating operator could switch to purchasing ITT if a transit operator was directly connected to both itself and the terminating operator. As ITT involves an additional switching stage, ITT involves higher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

5.11 The above discussion concerns demand-side substitution; that is, switching by customers. In addition, supply-side substitution may be possible because an operator providing ITC over its own network could also provide ITT to other operators connected at its tandem exchanges. An operator providing ITT services could also provide ITC for calls that originate and terminate on its network.

5.12 In the following example (see Figure 5.4), a monopolist is assumed to be providing ITT for the transmission of traffic between providers Y and Z. However, the price which it could charge for ITT is constrained by the ability of originating operator X to provide a competing service by supply-side substitution. Operator X is initially providing ITC for traffic originating or terminating on its network to providers Y and Z at different tandem exchanges. However, it would also be in a

position to provide ITT between those tandem exchanges for traffic between Y and Z.

Figure 5.4 Supply-side substitution from ITT to ITC



5.13 Similarly, 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.

5.14 Therefore, Ofcom is of the view that ITT and ITC services can be regarded as part of the same market.

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

5.15 As discussed in Section 3, BT intends gradually to replace the PSTN with its 21CN over the period of the next network charge controls, during which time there will be parallel running of both PSTN and 21CN. BT may then be able to provide a service equivalent to ITC or ITT but routed partly over the 21CN. BT could, for example, route the call from a tandem switch on the PSTN to a metro node (on the 21CN) and then to another PSTN tandem switch. In doing so, it would be providing a service similar to inter-tandem conveyance. If both services were available and the customer was able to exercise choice, it is clear that it would regard the two services as substitutes. As long as the customer receives the same service at the same price, the customer would be indifferent to the technology by which it is delivered. Note that the customer does not need to make any modifications to its network in order to receive services which are

routed over the 21CN but delivered to the same locations and using the same interfaces as the PSTN service.

5.16 Hence, ITC provided on the PSTN only, and conveyance between tandem exchanges provided partly through 21CN, are the same services and therefore are, in Ofcom's view, in the market for ITC/ITT.

5.17 Ofcom has also considered whether a service provided wholly over the 21CN but performing a broadly similar function to ITC or ITT would be in the same market. The closest substitute appears likely to be an inter-metro node conveyance (or transit) service. The question then is whether there is likely to be substitutability between inter-metro node conveyance and ITC such that they can be considered as part of the same market.

5.18 Whether this is the case is likely to depend on whether metro nodes are co-located with existing tandem exchanges and on the interfaces used to interconnect at the metro nodes. Ofcom believes that, for the purposes of this review, inter-metro node conveyance (or transit) should not be regarded as a sufficiently good substitute for ITC and ITT to be regarded as part of the same market. As with metro-node origination and LTC/LTT, this is because:

(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 may 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[17]. To effectively utilise an IP interface an interconnecting operator will 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.

5.19 In summary, for many operators, the cost of switching interface may be significant in relation to a small rise in the price of ITC on the PSTN.

5.20 As both PSTN and 21CN are operated by BT, supply-side substitution is not a relevant factor. BT would clearly not wish to undermine its own price increase by such means.

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

5.21 Even if substitution at the wholesale level, between conveyance over the PSTN and 21CN, is not possible, it might still be that both 21CN and PSTN products should be placed in the same market. This would be the case if substitution between customers at the retail level meant that there was a common constraint between the charges for PSTN based services and those for 21CN-based services. 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 defined in this review will be considered, or new markets will be defined at that point.

5.22 Therefore, on the basis of the current information available to Ofcom about the likely nature of metro node interconnection, Ofcom has concluded for the purposes of this review that ITC and ITT are in a separate market to inter-metro node conveyance.

Conclusion

5.23 Ofcom's provisional conclusion in the consultation document was 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 paragraphs 5.15 to 5.16).

Mobile substitution

5.24 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.

5.25 Ofcom believes that the most appropriate treatment of mobile to mobile traffic which has switched to direct interconnections, for the purposes of assessing competitive conditions for those still purchasing ITC or ITT, is that it is not included in the market. On the demand side, it seems likely that any effect on prices arising from the possibility of such switching away by some large mobile providers will already have been visible in prices and BT has not provided evidence of any additional effect. 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), and 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.

5.26 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 ITC/ITT or single transit.

Geographic markets

5.27 The Narrowband Market Reviews defined a national market for ITC/ITT 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 ITC/ITT 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.

5.28 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 concluded provisionally in the consultation document that the competitive conditions are fairly homogenous among different geographic areas within the UK.

5.29 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 ITC/ITT is a national market and the relevant market is ITC/ITT in the UK excluding the Hull area.

Provisional conclusions on the relevant market

5.30 For the reasons set out above, Ofcom considered in the consultation document that the relevant market 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.

5.31 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 5.15 to 5.16).

Forward look

5.32 In proposing the above market definition, Ofcom considered that, on the basis of currently available information, it had fully taken into account likely competitive and technical developments that might affect the market definition over the period of the new NCCs. On this basis, any development of services wholly on 21CN did not appear to be part of the above market during the period of the new NCCs; however Ofcom indicated that it will continue to monitor developments in this area.

Relationship between this market definition and the Commission's Recommendation

5.33 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"

5.34 Ofcom has proposed 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.

5.35 In proposing market definitions, Ofcom gave particular consideration to the first two criteria. While the Commission has identified a single market that includes all transit services, Ofcom considered it necessary to define separately the ITC/ITT market and the single transit market, because it was 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 2.

Assessment of SMP in the market for ITC/ITT

5.36 As explained above, Ofcom proposed in the consultation document that the identified services market should be inter-tandem conveyance and transit on fixed public narrowband networks in the UK excluding the Hull area. Paragraphs 5.37 to 5.104 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.

5.37 Again, it is to be noted that Annex 2 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

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

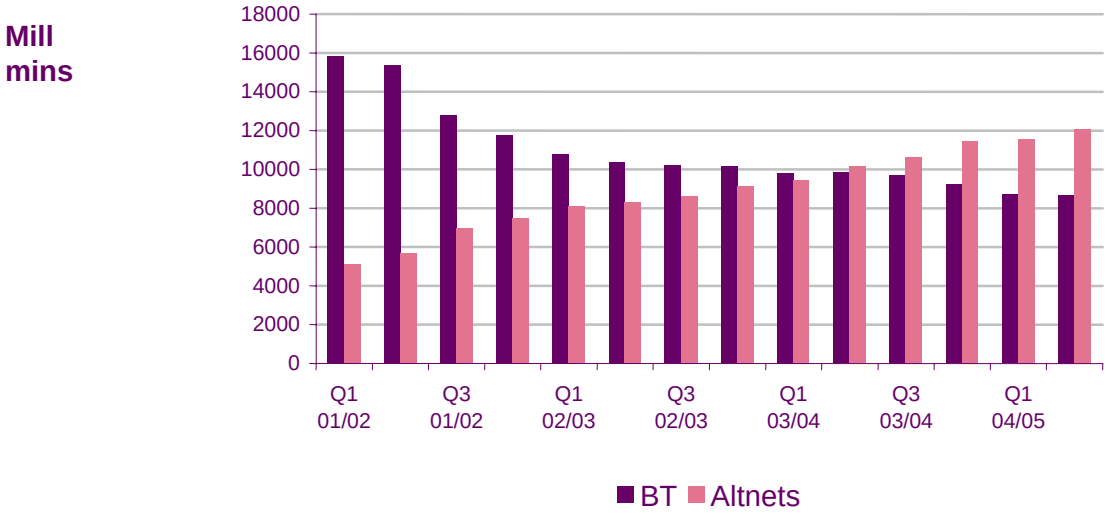
Table 5.1 BT's market share of ITC and ITT minutes

	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

5.39 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 5.5 below, BT's share of ITC/ITT has been falling since the beginning of the current charge control period. In addition, the size of the transit market has reduced considerably, as providers have built out connections to BT's tandem exchanges and therefore need to rely less on transit from BT of third party providers' traffic.

Figure 5.5: Wholesale volumes of ITC and ITT



Source: Ofcom estimate based on BT data

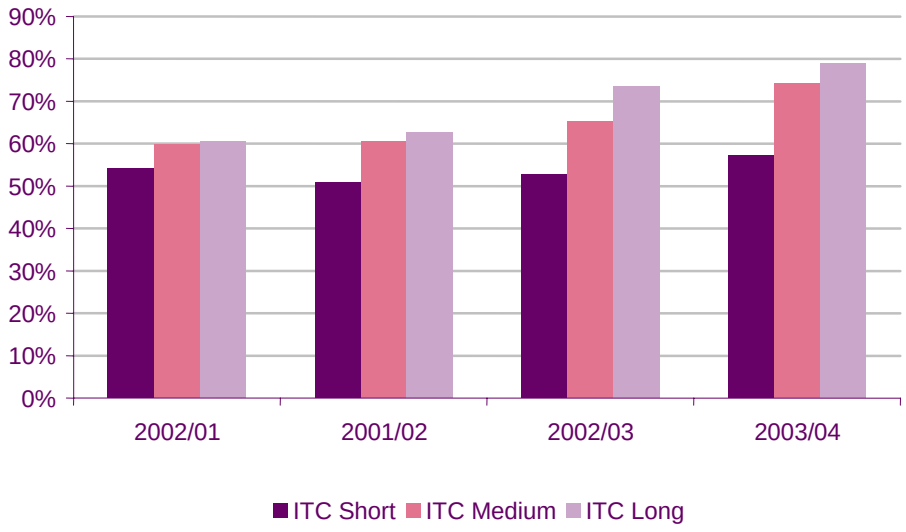
5.40 According to BT the increase in ITT volumes in the first two quarters of 2004/05 is due to two developments:

(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, which have caused an increase in take-up, this has led to higher 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 led 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.

5.41 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 market has fallen 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, which shows that the largest user of ITC provided by BT's wholesale division is BT's retail division. This figure shows that, not only has BT's share of the ITC/ITT market fallen, but much of the remaining ITC sold by BT is to itself (or BT Wholesale to BT Retail), particularly for long distances.

Figure 5.6 BT's Retail's share of ITC sold by BT Wholesale



Source: BT

5.42 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 increasingly effective in this market.

Ease of market entry

5.43 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. In addition, the greater aggregation of traffic generally possible on inter-tandem routes tends to make it more economic for smaller operators to interconnect at the tandem level rather than the DLE.

5.44 There are a number of providers with a high level of connectivity to BT's tandem exchanges. As discussed in 5.28 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.

5.45 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.

5.46 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 5).

Economies of scale

5.47 There are significant economies of scale that characterise fixed communications networks, where total costs are 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.

5.48 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

5.49 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 constrained BT's prices to competitive levels.

5.50 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, the cap on BT's charges for both ITC and ITT was binding in 2003/04, but was not binding for ITT in 2002/03 or for ITC in 2004/05 (in both cases, the increase compared with the previous year was less than the increase in the RPI). 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 5.2 BT Price changes in ITC and ITT

ITC - Price changes 2001/02 - 2002/03 (RPI = 1.04%)			
	Daytime	Evening	Weekend
Short	1.04%	1.00%	1.04%
Medium	1.03%	1.02%	1.09%
Long	1.03%	1.03%	1.04%

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

5.51 While BT's profits have been higher than the regulated return on capital in this market, Ofcom is of the view that, given the relative ease of entry into ITC/ITT, this can encourage entrants to compete away these profits.

Overall size of the undertaking

5.52 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.

5.53 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

5.54 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.

5.55 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

5.56 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

5.57 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

5.58 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.

5.59 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 5.39). Further into the period of the new NCCs, the volume of ITC/ITT 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 NCCs period, the size of the ITC/ITT market will be relatively small. Additionally, the safeguard cap has not been binding in some years, and prices have been well under the cap.

5.60 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 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.

Consultation document provisional conclusions on SMP

5.61 As shown from the above, in the consultation document Ofcom analysed SMP in the ITC/ITT market under the criteria set out in the Commission's Recommendation. Ofcom believed that there were 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 then stood at around 41%. Ofcom was 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 was of the view that BT no longer has SMP in the market for ITC/ITT.

5.62 As a result, Ofcom proposed to make a market power determination to the effect that BT no longer has SMP in this market.

Consultation comments and Ofcom's conclusions

5.63 Paragraphs 5.64 to 5.102 below set out consultation respondents' views, and Ocom's response, to two specific questions asked in Section 3 of the consultation document.

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?

5.64 The main issues raised in consultation again concerned the position of 21CN interconnect services and the geographic definition of the market.

5.65 Energis reiterated its view that 21CN interconnect services should be considered as substitutes to PSTN presented services. C&W however agreed with Ofcom's proposed market definition and, as for LTC, stated that services provided via 21CN interfaces will not form part of the same market in the near future. UKCTA also agreed with Ofcom's proposed market definition, while wanting Ofcom to continue to assess market definitions as further information becomes available.

5.66 In response to Energis' point, Ofcom has explained when discussing the LTT/C market, that without knowledge of the costs and prices of services on the 21CN, Ofcom's view is that 21CN services should not be regarded as part of the relevant market for the purposes of this review.

5.67 O_2 disagrees with Ofcom's reasoning that the market for ITC/ITT is national. O_2's view is that BT faces significantly less competition in rural areas, where traffic levels are lower and the business case for establishing an interconnection is weaker. O_2 believes that a properly conducted SSNIP test is likely to demonstrate that there are in fact, a series of smaller geographical markets.

5.68 On O_2's point, Ofcom noted in its consultation document that in order to substitute ITC with ITT, an originating operator must be directly connected to both the originating and the terminating operator. Therefore, a transit operator must be present at both the originating end and the terminating end of the route. Since all operators purchasing ITC or ITT from BT are likely to be interconnected to BT's tandem exchanges, the connectivity at those tandem exchanges is relevant for the purposes of market definition.

5.69 Ofcom stated in the consultation document that it had undertaken an analysis of the competitive conditions at different tandem exchanges, based on the connectivity of different operators at those exchanges. Ofcom found that for a majority of inter-tandem routes there were five providers other than BT, and that almost no routes had less than three providers. During the consultation BT provided further information to Ofcom of the extent of connectivity, which is discussed below. This analysis, showing the connectivity between different pairs of cities, is provided in a separate annex. The connectivity is based on the aggregation of DMSU and NGS switches within each city[18].

[18] see the analysis at http://www.ofcom.org.uk/consult/condocs/charge/statement/ncc.pdf. Even if operators are not based in cities, they would have a connecting switch to a city node.

5.70 BT has in excess of 100 tandem switches, located at 66 different sites, as many of the sites have multiple tandem switches present. This gives almost two thousand different routes between pairs of sites. Other operators have built their networks to all these sites, as illustrated by table 5.3 below (provided by BT).

Table 5.3 Competing operator connections at BT sites

No. of alternative operators	Number of sites	Percentage of sites	Cumulative percentage of sites
0	0	0	
1	1	2%	100%
2	4	6%	98%
3	3	5%	92%
4	10	15%	87%
5	6	9%	72%
6	8	12%	63%
7	2	3%	51%
8 or more	32	48%	48%

Source: BT data

5.71 As can be seen from Table 5.3, 90% of tandem switch sites have three or more operators that have a network presence at that site. Not merely are many operators connected at each tandem switch, but at least one operator other than BT is present at each end of an inter-tandem route in most cases. Three fixed operators are connected by means of in-span interconnect at each end of more than 60% of these routes. If connection via customer-sited interconnect and interconnect extension circuits is included, then six operators would be connected at each end of more than 60% of routes and nine at more than 50%. At least one operator is connected at each end of 97% of routes. This supports BT's consultation response observation that switch-build suggests fairly homogenous competitive conditions.

5.72 Given the number of routes it has not been practicable to analyse market shares by route. However, 95% of traffic is carried on routes where there are three operators other than BT connected at each end. This suggests that the great majority of traffic is carried on routes where there is a significant degree of competition. While, therefore, it is possible that that there is some variation in competitive conditions within the national market, the available evidence does not support the definition of separate geographic markets. Ofcom has however taken account of possible variations in competitive conditions in considering BT's proposals for the future of its ITC and ITT services, as discussed further below.

5.73 In addition, Ofcom believes that operators do not need to be connected to each other at every BT tandem exchange in order to be able to provide a competing service at every tandem exchange. Alternative network operators can route a call indirectly rather than directly, although this might increase the cost due to a longer routing. However, in the event of a hypothetical monopolist raising prices for ITT between exchanges A and B, a potential supply side substitute for an operator not connected to the A and B route at point A may be able to route the call from B to another point, C, and from there to A. Whether this might be feasible can only be judged by the length of the indirect routing; however Ofcom believes that some operators may find this a reasonable option.

5.74 On the demand side, any operator faced with high ITT charges but not connected to an alternative transit operator can still purchase single transit from BT in order to connect to the alternative operator. Single transit has been a regulated service; and indeed Ofcom is concluding that it should continue to be regulated. The cost of single transit and the extra switching cost might yet be lower than the 10% increase in the price of ITT associated with an SSNIP test.

5.75 Ofcom is of the view that, as far as the product market definition is concerned, the terms of competition between ITC and ITT are similar and hence the two services are part of the same product market. As far as the scope of the geographic market is concerned, ITC provided by BT between any two tandem exchanges is constrained all over its network by the self-provision of other providers. To a significantly large extent, the same holds true for ITT as well.

5.76 On balance, Ofcom believes that there are reasonable grounds for concluding that the relevant geographic market for ITC/ITT is national.

5.77 However, Ofcom will continue to monitor developments and prices to observe if geographic price differentials emerge and therefore warrant revisiting the analysis.

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?

5.78 BT agrees with Ofcom's view that BT does not have SMP, and has provided information to Ofcom on tandem exchange connections and services being offered by other providers in transit and conveyance. This has already been discussed above, in the context of geographic market definition. Widespread connectivity and an overall BT share of 40% do not suggest that BT has SMP. Moreover, of the 40%, about 60% is BT-BT traffic, suggesting that most other operators' traffic must already be using alternative networks to a significant extent.

5.79 Cable and Wireless ("C&W") has responded that although several operators are interconnected to BT's tandem exchanges, they do not have sufficient spare capacity to accommodate all traffic from BT's conveyance and transit services. It stated that the move to 21CN and BT's scale and ubiquity means that alternative operators would not find it commercially feasible to expand capacity where the transit volumes are low. This means that some terminating operators will have to transit BT at some point and using an alternative operator would be uneconomic. It is suggested that BT's ubiquity in upstream interconnection can be leveraged into the ITT market (unlike ITC), thus rendering some routes uncompetitive. C&W believes that BT's SMP should be retained and that, as a minimum, price publication and non-discrimination obligations should remain.

5.80 Further, Energis and Thus make the point that purchasing ITC/ITT from (multiple) non-BT sources is not economic because of extra interconnection costs to set up the service and billing and administrative costs, all of which are not justified at lower volumes. They are concerned that, with no regulation, BT's wholesale division could discriminate against similar operators or simply refuse to supply. They also make the point that low entry barriers are irrelevant, as BT's 21CN changes mean that alternative operators would not risk building more connections.

5.81 O_2's view is that with a market share still in excess of 40%, BT should be presumed to have SMP. O_2 adds that BT's prices have for the most part been pegged by the price cap and BT's pricing behaviour displays an ability to set prices independently of other competitors and customers. Additionally, O_2 states that other operators do not price according to their costs.

5.82 UKCTA also disagrees with the analysis on SMP in ITC/ITT, stating that market shares are not enough to conclude that the market is competitive, and that it cannot be assumed that the decline in market share will continue because of the uncertainty regarding 21CN. SSE similarly believed that the advent of 21CN should mean that SMP should be retained as a precautionary step. UKCTA was concerned that there is an opportunity for BT Wholesale to discriminate in favour of BT Retail, because it is vertically integrated. UKCTA believes that this would have a negative influence on BT's equivalence of inputs in downstream markets. It considers that the issue of deregulation should be assessed through an RIA. It also believes that SMP should be retained but only transparency and price discrimination remedies should apply.

5.83 Vodafone says that its reading of BT's pricing shows that BT has in most years felt able to increase its prices, particularly for the longer inter-tandem routes and Vodafone cannot see how this pattern can be construed to be unambiguous evidence of price competition. Vodafone considers that in regions where there is little self-provision by alternative operators, the ability of smaller operators to switch from BT is limited. Vodafone is of the view that BT has SMP in ITT and ITC in some parts of the UK and, unless restricted through some form of price control, BT could raise prices without losing significant volumes. Vodafone indeed believes that an RPI-RPI control is more appropriate, along with a longer notification period for price changes. Ofcom considers that it has effectively covered the point on geographic differences in SMP within its final conclusions on the ITT/C market definition.

5.84 The responses above indicate that the industry is of the view that although BT's ITC can be constrained by the self-provision of other providers, not all providers can self-provide from every tandem exchange. Some operators with a relatively small scale of traffic may find it necessary to connect to others using transit from BT because this may be cheaper than building out to other operators. For such operators, ITT provided by BT may not be constrained by the self provided ITC for the above-mentioned reason. The only other constraint can be in the form of ITT provided by other providers.

5.85 According to many in the industry[19], there are two reasons why a competing service to BT may not be possible at all tandem exchanges:

(a) Alternative operators do not have direct connections with other operators and building capacity is uneconomic because of the limited scale of such ITT traffic; and
(b) Operators who have the interconnection may not be able to provide ITT because they have built capacity for their own needs and lack spare capacity.

[19] Energis, Tiscali, C&W and Thus have made these points in response to Ofcom's queries subsequent to the consultation.

5.86 Regarding the issue raised in 5.85(a) above, Ofcom notes that BT's market share of ITT was only 37% in the third quarter of 2004/05 and has shown a declining trend (except for the last three quarters, which, as discussed in the consultation document, is the result of 'H3G' purchasing ITT before it builds out more connections and an NTS operator offering international services that is purchasing ITT before self-providing).

Table 5.4
BT's market share in ITT

	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3
	2002/03	2002/03	2002/03	2002/03	2003/04	2003/04	2003/04	2003/04	2004/05	2004/05	2004/05
ITT	41.2%	39.0%	37.0%	36.0%	36.0%	37.5%	35.3%	32.9%	34.6%	35.7%	37.0%

Source: Ofcom calculation from BT data

5.87 Ofcom is of the view that over the years, alternative providers have increased their aggregate sales of ITT and hence, in general, the argument that ITT by other providers not being able to constrain BT's ITT prices is not convincing. However some respondents have argued that there may be some local individual tandem exchanges where alternative providers may not be able to provide ITT to others because of the need to build new connections, which, at low traffic volumes, may not be economic. If this were the case, they argue that it would not be appropriate to lift SMP at these tandem switch exchanges.

5.88 The concern that the lack of effective constraints on BT's ITT at particular tandem exchanges can be explained in terms of supply and price:

(a) BT could refuse to supply the product to providers who can only depend on BT for transit; and
(b) BT might raise the price of ITT for such providers, with little risk of the customer switching to other providers.

5.89 Both of these issues are concerns regarding possible anti-competitive behaviour by BT. Such behaviour would indeed be a concern if BT had SMP. However, as argued in the consultation document, Ofcom believes that the falling market shares in ITC/ITT and the connectivity of other operators implies that BT has no SMP. While BT's market share is still over 40%, it has shrunk considerably and remains on a downward trend. Ofcom has to take into account market dynamics rather than just taking a snapshot of the market, so – in conjunction with other factors – a current market share over 40% should not necessarily imply a finding of SMP. Moreover, as noted above, most of BT's inter-tandem traffic is originated by BT Retail.

5.90 Ofcom therefore believes that such behaviour is unlikely, but that if it did occur, in most instances it should be possible for operators to use a competitive alternative in the event of a price rise or refusal to supply by BT. However, it has explored further with other operators the reason for their concerns. In particular it has sought more details of alleged capacity constraints and their effect on competitive supply of ITT.

5.91 One of the arguments advanced is that the transit charge is too low to make competitive entry to supply transit worthwhile. This argument seems to relate to the installation of new capacity specifically to meet demands for transit. However, it is clear from the reduction in transit volumes that there has been significant investment in capacity for the purposes of self-supply. This is clearly economic at

larger traffic volumes and the possibility that customers will switch to self-supply may have a constraining effect on prices. One operator argued that, while investment might well be viable when there was a clear customer in prospect, more speculative investment in order to carry transit traffic was likely to be uneconomic. However, use of existing capacity is much more likely to be economic, even to supply smaller operators.

5.92 In this context, Ofcom again notes that BT's market share of ITT was only 37% in the third quarter of 2004/5. This in itself suggests that alternative providers have the capacity to offer transit[20]. Ofcom has asked UKCTA members to supply information giving specific examples of routes or exchanges where they lack spare capacity, but has not received sufficient evidence to change Ofcom's SMP analysis. Indeed, with the total reduction in fixed volumes projected over the duration of the NCC, it is quite possible that some existing capacity would be freed up from the conveyance of providers' own traffic to use in providing ITT services to third parties. Given that Ofcom has received no clear supporting evidence for the claim that operators may lack sufficient spare capacity, Ofcom does not view this as a strong argument for an SMP finding. One respondent said that it would consider re-assigning capacity in pursuit of better margins and this is consistent with the existence of a competitive market. However Ofcom will monitor developments in the market and in particular any effect on smaller operators. One operator drew attention to the implications of the charging arrangements for NTS calls and again, it may be appropriate to monitor developments in this area.

5.93 On the point that purchasing ITT/C services from multiple non-BT sources is not viable at lower volumes, no evidence is advanced that any such cost impact would be substantial enough to make other providers uncompetitive. Specifically, and given BT's relatively limited share of transit traffic, there is no obvious reason to think that such costs would be sufficient to outweigh a 10% rise in BT's prices, as considered in a SSNIP test.

5.94 A number of other comments were also made by respondents on market shares and market size. Ofcom does not accept the suggestion (from UKCTA and Energis) that market shares should be given low weight as they are based on BT data, as a reasonable methodology was used. The trend in the figures is, anyhow, quite clear. One respondent suggested that market shares should exclude BT Retail. However, the relevant BT market shares for these wholesale markets relate to sales by BT Wholesale, not to who is purchasing their services. The data suggest that BT's share of non-BT originated traffic is lower that its share of all inter-tandem traffic. It was also suggested that limits on 21CN interconnection points may increase the proportion of traffic using ITC/ITT services; Ofcom considers this point to be speculative.

5.95 Providers have raised the issue of whether BT might have SMP at particular tandem exchanges; again, as discussed above, competitive conditions across the different tandem exchanges are not significantly different. Ofcom does not believe that the possible lower level of competitiveness at particular tandem exchanges provides proportionate justification for an SMP finding throughout BT's network. As discussed earlier, Ofcom believes that it is appropriate to define a national market. However, as also noted above, it will continue to monitor the market.

[20] For instance, some of the transit may be from IA providers who provide ITT for a call originating on BT and terminating on BT.

5.96 Regarding the concern of high prices for ITT, some non-BT respondents commented on the need to have price publication and transparency, but not a charge control or a safeguard cap. This suggests that high prices are less of a concern to some than the possibility of anti-competitive behaviour by BT. It was however remarked by one respondent that ITC/ITT prices were important as they would provide a benchmark for pricing of IP services. However, Ofcom's decision on SMP must be made on the basis of the SMP criteria, not the implications for future prices of services that may not even prove to be in the same market.

5.97 Ofcom stresses that, even in the absence of an SMP designation in this market, providers will still be able to bring evidence of such behaviour to Ofcom's notice for it to consider an investigation under its competition law powers. Indeed, were BT to raise prices in some exchanges, Ofcom can use this as evidence that BT can act independently of its competitors at those tandem exchanges. But Ofcom is of the view that currently, due to BT's decision to price uniformly throughout the country, there is no evidence that BT can act independently at some exchanges and not at others.

5.98 On the point made by UKCTA that BT Wholesale could discriminate in favour of BT Retail, thus having a negative influence on BT's input equivalence, it is important to recognise that Ofcom's conclusions on BT's SMP status in ITC/ITT must rest solely on Ofcom's analysis of that market. The issue of ensuring input equivalence, which Ofcom is looking at in relation to certain parts of BT's business, is not therefore directly relevant to Ofcom's decision on SMP in this market. It would only be appropriate to require BT to provide equivalent ITC/ITT if it had entrenched SMP in that market.

5.99 Energis argued that entry barriers are irrelevant since operators would not risk investing in PSTN given the move to 21CN. Vodafone has also argued that the uncertainty of 21CN hampers the competitive response of alternative providers, and SSE think that SMP should be retained given the pending change to 21CN. Ofcom accepts that 21CN creates some general uncertainty, and associated issues are being considered as part of a related Ofcom project[21] although this does not mean that investment by competing operators will necessarily cease. Ofcom believes that the existing level of competition means that a finding of SMP is not justified.

5.100 O_2 also made the point that other operators cannot necessarily provide a substitute service because they do not price according to costs. Although Ofcom has no knowledge of the pricing policy of other operators, it is of the view that the analysis of market shares shows that a significant number of other operators are providing transit already, thereby proving that they are providing a substitute service.

5.101 Vodafone, O_2 and C&W made comments on past BT price changes in this market to support a proposal that BT still has SMP. For example, Vodafone stated that BT has increased its prices in ITT up to the safeguard cap and that this cannot be construed as a reason that BT has no SMP. Ofcom notes that even though BT might have priced up to the caps in some years, its market share has been falling, which suggests that there has been some competitive response.

[21] www.ofcom.org.uk/consult/condocs/nxgnfc/

5.102 UKCTA raised the point that the decision to deregulate should be assessed through a Regulatory Impact Assessment. However, this misinterprets the role of such an assessment, now called Impact Assessments, or “IAs”, under recently published Ofcom guidelines. An IA is a tool for assessing the appropriate level of regulation, by considering, where possible, the likely costs and benefits of regulatory options. However, in the case of an SMP decision the IA process is only relevant once a decision about SMP designations has been made. If there is no SMP, there is a legal requirement not to have any SMP-related obligations to further promote competition. Only if SMP is confirmed would an IA be relevant in order to assess what specific regulation was appropriate.

Ofcom’s conclusion on market definition and SMP for ITC and ITT

5.103 Having considered consultation responses, Ofcom maintains its consultation document proposals on the market definition:

- there is a single market for ITC and ITT on fixed public narrowband networks;
- the geographic market is the UK excluding the Hull area;
- the market definition covers services provided at the existing narrowband PSTN interfaces, irrespective of whether BT delivers the service through the PSTN only or partly through the 21CN; and
- 21CN interconnection products are not in the market as defined.

5.104 On balance, Ofcom is of the view that the market for ITC/ITT is competitive, as evidenced by the connectivity and increase in the share of ITC and ITT by alternative providers. While it acknowledges that there may be some variations in competitive conditions within the market, it believes that, in particular bearing in mind the need to operate with a bias against intervention, an SMP finding would not be a proportionate response. It will however monitor the market and could if appropriate use its powers under competition law. BT has also indicated its current thinking on the future of inter-tandem services, should SMP be removed (see paragraphs 6.42 to 6.44).

Section 6

Charge controls and other market power remedies

Introduction

6.1 In this Section, paragraphs 6.2 to 6.111 essentially reproduce the analysis in the consultation document. From paragraph 6.112 onwards, Ofcom assesses the consultation responses and presents its conclusions on the issues raised in the relevant part of the consultation document.

6.2 This Section covers the following issues:

- summary of Ofcom's 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;
- changes to the structure of the controls;
- levels for the charge controls - values of X;
- other decisions on BT's charges; and
- a note on fixed call termination obligations for providers other than BT.

6.3 As set out in Section 3, Ofcom concludes 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).

6.4 The other fixed narrowband markets to which charge controls currently apply are considered in Annex 5. 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).

6.5 The legal background to imposing SMP remedies, including charge controls, is set out in full in Annex 2, 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 SMP remedies it has chosen to impose on BT satisfy these tests. Annex 4 sets out those remedies, the reasoning behind them, and how they meet the legal tests.

6.6 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.

6.7 Charge controls relating to these markets also cover the following BT services (described further in Annex 5):

- 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.

6.8 Most of these obligations were set in the form of SMP services conditions by Oftel in November 2003 after a number of 'market reviews'[22]. PPP was reviewed in 2004[23], and cost accounting systems and accounting separation were reviewed in July 2004[24].

Summary of Ofcom's approach to existing SMP conditions

6.9 For inter-tandem transit and conveyance, Ofcom has decided to confirm its consultation proposal 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 6.38 to 6.45.

6.10 For LTC, Ofcom has decided to maintain the relevant obligations listed in paragraph 6.6. However, Ofcom has also decided to confirm its consultation proposal to make two changes to those obligations. Ofcom is reducing the period of price notification and changing 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 4.

6.11 The SMP services conditions currently applying to call termination, call origination, single transit, interconnection circuits and PPP (see Annex 5) will continue unchanged, except that Ofcom is making changes in the specific levels of the charge controls for those services. Those new conditions derive from Ofcom's charge control modelling (see Annex 6). Further background on those

[22] 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

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

[24] http://www.ofcom.org.uk/consult/condocs/fin_reporting/fin_report_statement/finance_report.pdf

SMP remedies that are continuing unchanged is available in the Narrowband Market Review documents referenced at paragraph 6.8.

6.12 As Ofcom is making decisions on SMP services conditions in this document, it is publishing a formal statutory notification of those decisions under sections 48(1), 79(4) and 86 of the 2003 Act. The Notification is published at Annex 3.

Key features of the charge control regime

6.13 The key aims of the NCCs are to prevent BT setting excessive charges in wholesale markets where it has SMP, while 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.

6.14 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.

6.15 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.

6.16 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 6. 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).

6.17 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

6.18 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?

6.19 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

6.20 Ofcom's market definitions and SMP findings, covered in Sections 3 to 5 of this document, 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 findings is that the services covered by the charge controls should be only those ones delivered using PSTN interconnection interfaces.

6.21 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 is applying to these charge controls. The key features of this model have been discussed with BT and some other providers.

6.22 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.

6.23 Ofcom had 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.

6.24 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 option, 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.

6.25 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.

6.26 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.

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

6.28 For the avoidance of doubt, the use of the technology neutral model does not imply that new 21CN interconnection products introduced during the period of the NCCs would necessarily be covered by these charge controls. Based on Ofcom's current definition of the markets covered by the controls, the next NCCs will only definitely apply to existing NCC products delivered over the existing narrowband PSTN (i.e. C7) interfaces (including those provided partly over the 21CN). The regulation of new products will be considered when the details of such products become clearer. Even if some 21CN interconnect products prove to be in the same market as some current NCC products, it may not be necessary to extend the charge controls as the prices of the new products may be constrained by the controls on the existing ones.

6.29 The issue of relative PSTN and 21CN interconnect pricing is considered further in Ofcom's second consultation document on Next Generation Networks

(paragraphs 3.8 to 3.11)[25]. In that we set out a proposed approach to next generation voice interconnect. In summary this approach is that where Significant Market Power (SMP) is found, reasonable charges for next generation narrowband voice interconnect should take account of the need to avoid creating artificial arbitrage opportunities by taking a holistic approach to cost recovery, and the need to allow an appropriate return on BT's investment in NGNs.

Charge control period and mid-term reviews

6.30 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.

6.31 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 6.36 to 6.37, 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.

6.32 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.

6.33 The widely acknowledged efficiency incentives of a longer and fixed term cap have already been noted at paragraph 6.25. Such certainty would also provide a better platform for BT and other providers to invest in next generation networks in the coming years. While 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.

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

6.35 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

[25] www.ofcom.org.uk/consult/condocs/nxgnfc/

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 updates its Recommendation of markets in which ex ante regulation may be warranted, in a way that affects (or might be said to affect) what was taken into account in the last analysis of relevant market. In this context, Ofcom notes that the Commission has announced plans to review its Recommendation of. 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.

21CN efficiencies during the next charge control period

6.36 The use of a technology neutral model for determining the relevant costs for the 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.

6.37 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 factoring in expected increases in efficiency - see paragraphs 6.68 to 6.70. In addition, it is not yet clear from the information BT has shared with Ofcom, what levels of efficiency might be achieved from 21CN by the end of the of 2009. Indeed, that information from BT 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.

Changes to the structure of the controls

Inter-tandem conveyance and transit

6.38 For these services (in the UK excluding the Hull area), Ofcom concludes that BT no longer has SMP (see Sections 3 and 5). 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 is, as a direct consequence of its decision that BT no longer has SMP in that market, now removing the current RPI+0% control on BT's charges for inter-tandem conveyance and inter-tandem transit.

6.39 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 because of the finding of no SMP. This includes the requirement to provide the service at all, given that the network access SMP services condition is being revoked. Ofcom acknowledges that not all providers will be in an equally strong position to compete in the absence of regulation of ITC/ITT. 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).

6.40 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. While 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.

6.41 Ofcom's view is that over the period of the new NCCs, BT will continue not to have SMP in the ITC/ITT market. In keeping with its views as outlined in Phase 2 of the TSR, Ofcom concludes that this market has no enduring bottlenecks, and any ex-ante regulation would be disproportionate. However, Ofcom will monitor the ITC/ITT services provided by BT, and any residual concerns of market power may be addressed using Ofcom's ex-post powers under the Competition Act 1998. In addition, Ofcom will in due course again define and assess markets following the publication of a new Recommendation on relevant markets by the European Commission.

6.42 Stakeholders may also wish to note that BT has set out to Ofcom concerning some of its current thinking on the future of inter-tandem services, should SMP be removed. Note that this communication from BT (the key points of which are covered below) does not constitute an offer to contract, or a promise of undertakings, and it is not intended to be either of the two.

6.43 In general, BT stated that it intends to continue offering competitive products in this market, and does not envisage acting in ways that are likely to undermine the relationships that it has established over time with interconnect customers. More specifically, BT stated that:

- it intends to continue offering transit services, and does not currently expect this to change for at least 12 months after a removal of SMP;
- unless there are sound commercial reasons for acting otherwise, BT does not intend to withdraw service selectively from existing consumers of BT transit products, or to refuse to supply new customers without good reason;
- while competition rather than regulation will guide BT's pricing decisions, initial thinking around BT's eventual commercial offerings are that a "standard" product with publicly available pricing information may exist along with discount packages that are subject to commercial negotiation.

6.44 BT also stated that would communicate further with existing and potential customers after SMP removal, about its plans and customers' requirements. This would cover more detail on issues like price, other commercial terms, and notification. BT envisages doing this mainly through existing commercial channels.

6.45 As Ofcom's proposed market power determination of no SMP is now confirmed for this market, BT's obligations for ITC/ITT, with regard to charge controls as well as other SMP services conditions, are revoked with immediate effect. Ofcom notes one respondent's comment that current contracts assume SMP, but the legal position for Ofcom is clear. Contracts need to make sufficient allowance for potential changes in the regulatory position. At the same time, an existing Direction on credit vetting[26] is formally withdrawn in relation only to BT's SMP designation in the market for ITC/ITT. That withdrawal is published at Annex 3, and in Annex 4 Ofcom justifies this decision further, against the relevant legal tests.

Local-tandem conveyance and transit

6.46 In Section 3, Ofcom concludes that, while BT still has SMP in the market for LTC and LTT (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 had a choice of imposing a modelled RPI-X charge control or an RPI-0% 'safeguard' control on LTC.

6.47 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.

6.48 Section 4 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. Ofcom's technology-neutral (hypothetical) NCC model suggests that the current NCCs will largely erode BT's excess profits for LTC by the end of the control period. BT's actual excess profits for this period may well be different for reasons set out in Section 2.

6.49 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, 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

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

C&W have recently reiterated the view that the LTC market may be potentially more competitive than in the past.

6.50 In the consultation document, Ofcom proposed 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 was considered to increase incentives for competition in this market.

6.51 In the course of its analysis of LTC, Ofcom has been modelling an RPI-X control. It is worth noting that were Ofcom instead applying a modelled RPI-X control rather than an RPI-0% control, the value of X proposed in consultation would anyhow have been very close to zero.

6.52 The charge control covers LTC but not LTT. This simply reproduces the approach taken in the 2001-5 NCCs. As discussed in Section 4, LTC and LTT are in the same market, and regulation of one service should constrain the price of the other. LTC provided by BT forms the bulk of the market, and Ofcom considers that LTC should be charge-controlled, but there is no purpose in also setting a control for LTT.

6.53 It should be noted that this 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 than a scenario in which such local interconnection were not available.

Changes to charge control baskets

6.54 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 (LTC); and
- interconnection circuits (ISB services) and PPP.

6.55 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.

6.56 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. While Ofcom is applying a safeguard control to LTC, were Ofcom instead applying 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.

6.57 For PPP, Ofcom has already re-assessed (in July 2004)[27] 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 PPP charges, imply that the combined basket for ISB and PPP is no longer appropriate. Ofcom therefore is applying separate ISB and PPP caps for 2005-9.

6.58 Ofcom considers, however, that the ISB basket should continue to comprise the same group of interconnection circuit services (see Annex 5), 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 (i.e. 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.

Different values of X for call origination and call termination

6.59 In the 2001-5 charge controls, Ofcom applied identical values of X to call origination and call termination. For the next charge controls, Ofcom has decided to set different values of X for these products. 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.

6.60 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.

6.61 However, the differences in the modelled values of X for the next charge controls are more material than for the 2001-5 charge controls. On balance, therefore, Ofcom decided for its consultation document to maintain its proposal to apply different values of X for call origination and call termination. Ofcom's final conclusions on this issue are described at paragraphs 6.128 to 6.132 below.

The levels of the charge controls – final values of X

6.62 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 while ensuring sustainable competition. Ofcom has considered all of these factors in putting forward its decisions on the final values of X.

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

Key factors affecting the values of X

6.63 A full analysis of how Ofcom derived its final values of X is provided in Annex 6, but to draw stakeholders' attention to some of the key factors affecting those final values of X, paragraphs 6.64 to 6.80 below give a brief summary of the key inputs and assumptions used to derive the values.

Traffic volumes

6.64 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.

6.65 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.

6.66 In modelling volumes, Ofcom has made some assumptions about the rate at which data traffic will migrate from narrowband to broadband. In the consultation document, Ofcom explained that it was considering how far to take into account that migration. This depends 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. To inform its view on how to adjust its volume forecast for BT (as explained in Annex 6), Ofcom sought 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.

BT's starting profits

6.67 BT's profits at the start of the next NCCs 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

6.68 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[28]). As a result, in the consultation document Ofcom projected BT's annual efficiency gain to be somewhere in the range of 2.5% to 4.5%.

6.69 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.

6.70 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 (i.e. they do not arise due to real efficiency gains). When the consultation document was issued, two of the proposed adjustments were still being considered. These two elements together contributed about £43m of the reduction in network costs. Ofcom believed that at least a proportion of this figure represented the way economies of scope are reflected in the accounts, and therefore a genuine efficiency gain. Ofcom's analysis of these other potential adjustments is covered in Annex 6.

Cost of capital

6.71 In the consultation document, Ofcom's projected ranges of X included an allowance for a range of values for the cost of capital, as Ofcom was at that time still 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.

6.72 Simultaneous to the publication of this NCC statement, Ofcom is publishing its final cost of capital conclusions[29]. For services on BT's core network, such as those covered by the NCCs, Ofcom concludes that an appropriate estimate of BT's pre-tax nominal cost of capital is 11.4%. Ofcom has used that figure as one of the variables to generate the final values of X for the NCCs from 2005-9.

Cost basis for the NCCs

6.73 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 the consultation document, Ofcom calculated values of X based on both methods, contributing to the ranges of X on which Ofcom consulted.

[28] http://www.ofcom.org.uk/consult/condocs/charge/nera.pdf
[29] http://www.ofcom.org.uk/consult/condocs/cost_capital2/statement/

6.74 CCA FAC and LRIC+EPMU are two different ways of apportioning common costs, neither of which is 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 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.

6.75 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 2005-9 NCCs assumed methodological changes to BT's LRIC model which Ofcom believed were 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 was not able to perform this time-consuming task before the consultation document was published.

6.76 For the consultation document, Ofcom used CCA FAC data in its charge control modelling. BT estimated that the adjusted LRIC+EPMU data would 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 inflated the CCA FAC data by 1.6% and reflected this adjustment in the range of Xs on which Ofcom it consulted. Using that 1.6% proxy for LRIC+EPMU costs reduced the values by about 0.5%. Ofcom's final conclusions on this issue are covered in paragraphs 6.137 to 6.138 below.

Updated starting charges

6.77 When proposing ranges of X in the consultation document, Ofcom used starting charges for the NCC services that did not adjust for the actual price changes that were subsequently made by BT on 1 April 2005. Instead it projected charges by applying the relevant X factor for each service to the previous year's charge. Without adjusting for these new charges, the purpose of the charge controls would not be achieved, because the charges made by BT in the final year of the charge control would not lead BT to earn zero supernormal profits according to the NCC model. Ofcom has therefore amended the modelled values of X to account for the new BT charges.

6.78 The effect of this is that where the 1 April BT charges exceed what was assumed for the consultation document then, other things being equal, a higher value of X is needed than before, although it may still be within the range of Xs proposed in the consultation document. Conversely, where BT's 1 April charges are lower than the NCC model had assumed then, other things being equal, a lower value of X is needed than Ofcom had proposed. By making these adjustments, average charges in the final year of the NCC period will (again, other things being equal) be the same as Ofcom had assumed in its consultation document. This will ensure that the NCC model still generates values of X which enable BT, for each NCC product, to recover its costs but not make supernormal profits. All that is changed by this adjustment is the path of price changes between

1 April 2005 and the end of the next NCCs. This therefore represents a change of input data rather than a change of methodology.

6.79 For all products other than PPP and single transit, the change in BT charges was very similar to that assumed for the purposes of the consultation, so the associated Xs for most products are very little changed: the Xs all rise very slightly (but remain within the consultation ranges). For single transit, BT's charge rose on 1 April (within the combined cap with LTC). In itself this would require a rise in the relevant value of X, although in response to consultation comments on bad debt Ofcom is also making another adjustment to that value of X, the net effect being that the X for single transit does not go outside the range of Xs on which Ofcom consulted.

6.80 The other product where BT has already made a major price change is PPP, where BT's price cut on 1 April requires that a looser control be applied over the charge control period. The effect of this is that, for BT to recover its costs, the appropriate value of X falls outside the consultation range. Rather than having to cut its charges by at least RPI-2.5% each year, the appropriate X is now RPI+0.75%. The basic features of Ofcom's methodology however remain unaltered as, under this X, BT should not be earning supernormal profits on PPP by the end of the charge control period.

Change to charge notification period for local-tandem conveyance

6.81 In the consultation document, Ofcom proposed that its market analysis for LTC also suggests a need to consider the appropriateness of the current requirement on BT to notify charges, terms and conditions for LTC.

6.82 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.

6.83 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.

6.84 Where competition has started to develop, Ofcom considers that 28 days is a sufficient notification period. Ofcom proposed that there is a sufficiently competitive position in the market for LTC and LTT on fixed public narrowband networks (in the UK excluding the Hull area). Consequently, Ofcom proposed to amend the relevant SMP services condition to reduce the notification period for BT’s LTC 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 would remain unchanged.

Other changes to BT's SMP obligations

6.85 Ofcom used the opportunity of the consultation process 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.

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

FRIACO adjustment ratio

6.87 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[30]. 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.

6.88 Ofcom proposed 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 and Ofcom's consideration of the consultation responses, and the impact on the modelled values of X for FRIACO are described in detail in Annex 7.

6.89 In Annex 7, Ofcom also discusses alternative views on 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.

Surcharge for NTS billing cost recovery

6.90 In October 2004, Ofcom made a Direction[31] 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.

6.91 BT has provided information regarding the costs of implementing INCA-CLI, covering both set-up costs and ongoing annual costs. In the consultation document, Ofcom calculated that with a recovery period of five years, and

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

spreading the costs over all NTS minutes as specified in the above Direction, BT could make a surcharge of 0.0014ppm in each of the five years from 2005/6. This surcharge would be an addition to any charges that BT is allowed to make under Condition AA11.

6.92 In consultation, only BT commented on this proposal, noting a need to adjust Ofcom's calculation of this surcharge. Ofcom acknowledge this, and calculation of the above figure in paragraph 6.91 incorporates the appropriate adjustment. The adjustment only made a difference at the 5th decimal place.

6.93 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

6.94 Ofcom has decided, as proposed in the consultation document, 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 amendment is to avoid a situation where important changes are unnecessarily delayed, to the possible detriment of competition and the interests of consumers.

6.95 Ofcom has decided, also as proposed in the consultation document, to delete a specific provision in SMP Conditions AA2 and BA2 deeming BT to have shown undue discrimination in certain circumstances. 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. On 30 June 2005, Ofcom published for consultation its draft Undue Discrimination guidelines[32] on its proposed approach to investigate potential contraventions of SMP obligations not to unduly discriminate. In the light of the proposed new approach in the said guidelines, Ofcom has decided that it is 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

6.96 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, while those of short duration calls may be below cost.

6.97 Some of BT's competitors have favoured two-part charging but others have 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

[32] see www.ofcom.org.uk/consult/condocs/undsmp/

the past, BT has rejected requests for two-part charging, in the absence of an industry consensus.

6.98 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 incorporated two-part charging into the NCC regime.

Capacity-based charging

6.99 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 prior to the consultation 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.

6.100 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

6.101 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.

6.102 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.

6.103 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

6.104 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.

6.105 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 next 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 whether MSAN interconnection will be provided on 21CN has not yet been resolved. Ofcom therefore did not propose to adjust its NCC controls on the basis of this BT proposal.

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

6.106 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[33].

6.107 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.

6.108 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.

6.109 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 reasonable". BT might be required to pay more for call termination on another communication provider's network than it received from that provider for

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

call termination on its own network. Ofcom does not believe that this would be competitively neutral.

6.110 In line with the continuation of the status quo in the regulation of BT's call termination service, Ofcom acknowledges that BT has proposed the renewal (for a 4 year period) of the existing reciprocal framework. Ofcom encourages communications providers to reach commercially negotiated reciprocal charging agreements with BT in a timely fashion that reflect the obligations on other communication providers as described above.

6.111 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.

Consultation comments and Ofcom's conclusions

6.112 Paragraphs 6.113 to 6.163 below set out consultation respondents' views, and Ocom's response, to a number of specific questions asked in Section 4 of the consultation document.

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

6.113 Respondents clearly welcomed Ofcom's general modelling approach, for example BT supported it as a way to cope with the disruption and complexity of moving from a PSTN to a 21CN world, and UKCTA considered that it would address the risk of inefficient migration to 21CN. Some providers' general support was, however, conditional upon what happens with 21CN regulation. C&W, for example, did not want regulation of wholly-21CN services ruled out during the next NCCs, and it was unclear on the link between the NCCs and future 21CN regulations.

6.114 Ofcom welcomes the consensus on this key issue in relation to the specific question asked. In terms of future regulation, we acknowledge the concerns that several parties expressed about the impact and pricing of 21CN services relative to similar current PSTN services. The appropriate way for stakeholders to raise such issues is within Ofcom's existing project on NGN interconnection. We published our most recent views in that area in June 2005[34].

6.115 Ofcom concludes that, within the context of future 21CN regulation being unknown, the NCC model it proposed has sufficient merit and sufficient support to retain it as a basis for its final calculations of values of X.

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

6.116 Respondents unanimously agreed with this key plank of the NCC proposals. There were also some comments on the desirability of re-opening the NCCs during the 4 year period, with BT suggesting this could harm investor confidence, and UKCTA and Energis suggesting that a material cost reduction might require the NCCs to be re-opened.

[34] www.ofcom.org.uk/consult/condocs/nxgnfc/

6.117 As outlined in paragraphs 6.30 to 6.34, Ofcom's clear preference is for a four year cap that is not re-opened. The nature of the hypothetical technology neutral model is also intended to minimise the need to re-open the NCCs due to significant forecasting error in the modelling process. That said, Ofcom has to keep in mind its legal duties to review markets and, as necessary, adjust SMP remedies according to its assessment of competition. But in terms of what NCC duration to embed at the outset, Ofcom maintains the same reasoning and support for a four year NCC period.

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

6.118 BT supported Ofcom's approach, pointing to a significant period of PSTN and 21CN parallel running, an accompanying initial rise in the regulatory cost base, and unstable unit costs for NCC and some other services. BT also considered it inappropriate to regulate away the rewards of innovation and investment. Most other respondents took a different view. For example, UKCTA did not consider that initial savings would be outweighed by parallel running costs, and pointed to inefficiencies incurred by all providers in the transition to the 21CN. A few respondents therefore suggested using a high efficiency target for BT in setting values of X. However, C&W considered that greater 21CN efficiencies should instead feed into lower prices for 21CN interconnect products.

6.119 Ofcom maintains its view that it is not appropriate to make the 2005-9 NCCs tougher on BT due to its introduction of the 21CN. Within its NCC model, Ofcom is already assuming a challenging efficiency target for BT - see paragraphs 6.68 to 6.70. Ofcom has also received no further evidence to support the idea that parallel running costs will be limited relative to 21CN efficiencies during the NCC period. Ofcom therefore has decided to maintain its consultation document proposal on this issue.

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?

6.120 Consultation respondents agreed with Ofcom's proposal to set a safeguard cap on LTC. BT said that factors such as high connectivity of competing operators at DLEs, supported this proposal, and BT suggested that LTC could be competitive by 2009. All other respondents commenting on this agreed with moving to a safeguard cap, given the trend in BT's LTC prices relative to cost, although UKCTA referred to uncertainty over 21CN developments as a constraint on further DLE connectivity.

6.121 Given the agreement of consultation respondents with its proposal, Ofcom concludes that it is appropriate to set a safeguard cap of RPI-0% on LTC. Ofcom notes that BT's response did suggest a looser safeguard, but Ofcom's modelling work for NCC charges does not suggest that BT would need to increase prices in real terms (i.e. the modelling would still suggest a positive, albeit small, value of X) in order to recover costs.

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

6.122 Most respondents commented on this issue, and all of them including BT supported Ofcom's proposal. Most non-BT responses also however suggested

that Interconnect Specific Basket (ISB) services should be further sub-divided into separate controls on connections and rentals, suggesting that a combined ISB control gives BT too much scope to gain at the expense of those buying those services. Given the consensus on splitting PPP and ISB services in to separate controls, Ofcom has decided to implement that consultation proposal.

6.123 Ofcom has also considered the question of splitting the ISB, which is currently composed of nine components for the purpose of the charge control. The basket comprises three interconnect links (i.e. CSI, IEC and IBC), each having a connection and a rental charge, and rearrangements of these interconnect links.

6.124 The rationale for including more than one element or service within a single basket is that the competitive conditions underpinning the different elements or services are similar. If different elements or services face similar competitive conditions, then subjecting the average price of these services to a single control not only treats them similarly, but also allows BT flexibility in pricing. This flexibility provides the incentive for BT to price efficiently in response to demand and cost changes. However, there are certain limits within which BT can set prices for each service within a basket. A good first-order test of whether a charge is unreasonable or otherwise anti-competitive is whether the charge in question falls between a floor of long run incremental cost (LRIC) and a ceiling of stand-alone cost.

6.125 Within a type of interconnect link, both connections and rentals face the same competitive pressures and it is therefore reasonable to regard them as part of the same basket. The charge for connections is only made once at the time of connection, whereas the charge for rental of the interconnect circuit is annual. The cost for operators in purchasing an interconnect link is therefore composed of a fixed charge and a variable charge, and BT can choose to recover more or less from each of the fixed and variable component as long as each individual charge is set within the floor and ceiling envelope. Caps on individual charges would require a level of regulatory oversight that may not be proportionate to the perceived benefits of such individual sub-caps.

6.126 There might be a case for this if volumes of new connections or rearrangements fluctuated markedly from year to year. This could in principle allow gaming of the control where the basket weights are based on prior year revenues. However, there is no evidence that this is the case, nor is there any clear evidence that BT has not been pricing in accordance with its obligations. Ofcom's analysis of 2002/3-2004/5 charges shows that rental charges for IECs and CSIs have been falling, as have connection charges.

6.127 In conclusion, Ofcom's view is that there is no strong justification for imposing sub-caps on the different components in the ISB, to override the starting point of placing all of the ISB services within the same control basket.

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?

6.128 Ofcom proposed to apply different values of X for call origination and call termination, unlike the 2001-5 NCCs, on the basis of a more material difference in the starting level of BT's super-normal profits for these two services than was the case for the 2001-5 charge controls.

6.129 A number of respondents expressed the view that the same value of X should be applied to both services. BT agreed that in principle it might be appropriate for different values of X to apply, but it argued that the difference in profitability was not material and that, for simplicity, the same value of X should be set. However BT also argued that call origination might become prospectively competitive by the end of the control period, whereas call termination was likely to remain an enduring bottleneck.

6.130 Some other respondents also argued for a single value of X on the grounds that the main cost components (the local processor and concentrator, and conveyance between them) are the same for both origination and termination. C&W however noted that a difference in traffic time of day profile for the two services might justify different values of X.

6.131 Ofcom has considered these arguments, and it maintains that it is appropriate for different values of X to be set for origination and termination. This is because it considers that the differences between the two services are material. Origination includes intermediate services (operator assistance and emergency service) which are not included in termination. This results in differences in charges, profits and potentially in the rate of change of service costs over time. These differences are greater than at the time the 2001–5 control was set. This means that a single value of X could require the charge for one service to be materially below (forecast) cost while excess profits remained on the other. In this case, it is likely that termination would remain priced above cost while origination would be priced below (fully-allocated) cost. While there is no indication that the charge for origination would be below the (LRIC) cost floor, it is generally undesirable on competition grounds for, in effect, costs to be recovered disproportionately from services in which the regulated firm is most strongly dominant (this is why origination and termination are in separate baskets). Moreover, to the extent that call origination becomes more competitive in the near future, it would clearly be appropriate for the value of X for call termination to be set on the basis of termination costs and revenues alone.

6.132 Ofcom has therefore concluded that different values of X should apply to call origination and termination.

Question 12: What are your views on Ofcom's projected volume growth forecasts as set out in Annex 8 (see Annex 6 for Ofcom's updated view), and the proposed adjustment of modelled volumes to account for traffic migration to broadband?

6.133 BT proposed that Ofcom should project average volume declines of 6-7% rather than the 4.5% proposed in the consultation document. In contrast, UKCTA, Energis and Vodafone argued that Ofcom was too pessimistic on volume declines, for various reasons including the impact of fixed-price retail packages in the fixed sector. Two other respondents viewed Ofcom's forecasts as reasonable.

6.134 On adjusting volume estimates to account for broadband economies of scope, BT accepted that these could exist to a limited degree, but to a maximum of about 12%, not in the 20-60% range proposed by Ofcom. BT also suggested that such economies were already reflected in Ofcom's efficiency projection, and questioned the evidential basis for Ofcom's range. UKCTA stated that it would support an Ofcom decision somewhere within the 20-60% Ofcom range, whereas Energis favoured a position at the top end of that range, and Vodafone supported the principle of making an adjustment. C&W viewed Ofcom's decision as a policy one, which should consider issues such as traffic migration to 21CN interconnect.

6.135 Ofcom's detailed views in response to these consultation comments are covered in Annex 6. In summary, Ofcom believes that its volume forecasts strike a reasonable balance, as is indicated by the range of consultation responses.

6.136 Ofcom has used a figure of 30%, towards the bottom of the range suggested in the consultation document, for the proportion of broadband substitution volumes to be included in the narrowband volume projection. The choice of a number at the bottom of the range acknowledges the possibility that BT could lose additional market share as customers switch to broadband, the likely extent of re-use of components and the need to provide appropriate incentives and protection for narrowband customers. This assumption should also be seen in the context of the other assumptions in the model. For example, it could be argued that a higher forecast for total broadband subscriber numbers should be accompanied by a lower projection for the proportion of subscribers who switch from narrowband and a higher rate of "add-back", because higher broadband subscriber numbers may indicate that broadband services are attracting customers who had not previously considered the internet worthwhile and also increases the subscriber base over which costs can be recovered. The central assumptions in Ofcom's model are now 14.2m broadband subscribers by the end of the charge control period of which 90% are assumed to have been narrowband subscribers. These assumptions together with the 30% add-back are consistent with FRIACO switch-off. They are relatively conservative and it should be noted that other combinations of these assumptions which would have the same implications for volumes might also be regarded as reasonable. It should also be noted that the values of X in the network charge control model are not highly sensitive to changes in the "add-back" assumption.

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?

6.137 The four respondents other than BT that commented on this all supported a move to using CCA FAC. C&W suggested that, before doing so, Ofcom should consider whether BT gained an advantage in terms of 21CN cost allocation, although C&W itself saw no reason why such an advantage should arise. BT cited greater transparency of CCA FAC and price signal advantages of LRIC+EPMU, and stated its expectation that were Ofcom to move to CCA FAC then it would expect this approach to also apply to future decisions.

6.138 Ofcom considers that none of the consultation responses affects the main reasoning for its proposal as presented in the consultation document. Since the consultation document was published, BT has been unable to provide LRIC+EPMU data in which Ofcom has sufficient confidence to use as the basis for charge control setting. Given that LRIC+EPMU is not conceptually superior to CCA FAC as a cost basis for setting the NCCs, but that CCA FAC has transparency benefits, which are supported by most respondents commenting on this issue, Ofcom concludes that CCA FAC is a more appropriate basis to use for setting the NCCs. On the 21CN issue raised by C&W, Ofcom agrees with C&W that there is no obvious reason why BT would have an advantage (or a disadvantage) from moving to CCA FAC. Ofcom also acknowledges the value of consistency on the cost basis. It therefore intends to consult on the adoption of the same standard for setting prices for LLU and WLR.

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?

6.139 BT agreed that it would be consistent with the approach on the current notification period for the 'safeguard cap' inter-tandem services to cut the LTC notice period to 28 days to acknowledge the extent of competition. BT also considered that 90 days' notification is excessive for non-safeguard cap products. Three other respondents also supported a reduction, although two of those suggested that moving to a suggested industry norm of 30 days would be more appropriate. Two respondents opposed any reduction, because they argued that it would provide insufficient time to react to any price changes.

6.140 Ofcom believes that it should move to a 28 day notification period. This is in line with other safeguard-capped services and reflects the increased competition in the local-tandem market. In view of this, BT should be afforded greater flexibility to change prices at reduced, though still significant, notice. Ofcom notes in this regard that a 28 day notification obligation has allowed BT's SMP status to be eroded for inter-tandem services. Ofcom believes that the difference between 28 and 30 days is not material and that the safeguard cap plus the 28 day notice period provide a significant degree of predictability appropriate to the level of competition in the market. Therefore, Ofcom concludes that it should implement its proposal to move to a 28 day notification period for BT's LTC service. Ofcom does not consider BT's suggested reduction of the notice period for other products to be appropriate, as there has been no material change in BT's degree of dominance in the relevant markets which would alter the initial justification for imposing that notice period.

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?

6.141 BT suggested that FRIACO's terminal decline implied that there is no need for a frequent review of the Adjustment Ratio (AR), and that instead Ofcom should either not review it again or do so at predetermined intervals that involved no change in methodology. C&W opposed annual reviews of the AR. Also, BT and C&W both cited potential problems with future reviews, in terms of reductions in FRIACO traffic and circuits and 21CN migration respectively. UKCTA and Energis proposed no further review of the AR, as long as Ofcom sets a new AR using their favoured methodology.

6.142 Ofcom discusses this issue in detail in Annex 7. In brief, Ofcom considers that it is proportionate to review the value of the adjustment ratio at a future date, probably not before Autumn 2006, depending on market conditions, the volume of FRIACO traffic and any evidence of significant changes in EPCs. Any decision to fix the value would be taken after a review of the data at that point.

6.143 As regards the value of the DLE FRIACO AR, having reviewed the responses and up-to-date data, Ofcom has decided to set the value of the AR at 1.70, as proposed in the consultation document. Annex 7 describes the consultation comments and Ofcom's reasoning for this conclusion.

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?

FRIACO Charge Control

6.144 BT has argued that demand for unmetered narrowband internet access is likely to decline effectively to zero during the next charge control period as customers switch to broadband access and that, as a result, wholesale fixed rate internet access call origination (FRIACO) "will have been withdrawn due to lack of demand before 2009/2010". BT has suggested that this means that FRIACO should be subject only to a safeguard cap rather than a modelled cap as proposed by Ofcom. BT's response applies to DLE FRIACO as well as ST FRIACO (which currently has no users). C&W also comments that FRIACO charges should only decline if BT can cut the relevant costs.

6.145 There seem to be two possible strands to BT's argument. One is that it is difficult to forecast costs in the circumstances of sharply declining demand, a view also expressed by another respondent who argued that unit costs would not be expected to decline when volumes are declining. The second seems to be based on a view that it is simply disproportionate to apply a binding cap to a declining product.

6.146 Ofcom accepts that demand for unmetered narrowband internet access is declining and that this may well result in "FRIACO switch off" during the next control period. Indeed, this view is reflected in its forecast usage of BT's network. However, this does not mean that FRIACO unit costs will not decline. This is because the unit cost of FRIACO will depend on the volume of demand for local exchange circuits from all sources, including metered voice and data, not just FRIACO. This, along with other factors, is reflected in the values of X that Ofcom has decided to apply to FRIACO.

6.147 Ofcom also does not agree that it is disproportionate to apply a binding cap. As long as there remains reasonable demand for FRIACO and BT has SMP in the relevant market, then it is reasonable to apply a control which ensures that charges are not excessive. Even if commercial negotiations promote migration from FRIACO, in such circumstances it would be inappropriate to allow remaining FRIACO customers to face excessive charges. Therefore, Ofcom has decided to apply a binding control to DLE FRIACO (and ST FRIACO).

Single transit

6.148 BT suggested in its consultation response that Ofcom should place only a safeguard charge cap on single transit because it was proposing to reduce regulation on all other products at the tandem layer. BT's points are considered in detail in Annex 5 but, on this specific point, Ofcom maintains that the competitive conditions for single transit are different to other tandem layer products and that a binding charge cap remains justified.

Bad debt in transit

6.149 BT stated in its consultation response that it is exposed to an undue risk of bad debt, due to its obligation to transit traffic of much greater gross value than the net revenue it earns from that traffic. This risk arises because BT has an obligation to pay terminating providers without yet having received a payment from originating network operators.

6.150 Ofcom accepts BT's general point that its SMP-based obligation to provide single transit creates a disproportionate risk for BT, arising from its unique provision of a service on which it earns very limited net revenue relative to the gross payments associated with the transited traffic. The NCCs proposed in the consultation document did not acknowledge this bad debt risk specific to single transit, as there was no relevant bad debt expense in the base year used for the model. The effect of this is that there would be no provision for BT to recover any single transit bad debts that might arise over the four years to 2009. The question, then, is how far to refine the value of X for single transit to reflect the expected cost of the bad debt associated with the service. Ofcom's decision on this issue is informed by the previous incidence of bad debt, and by the potential to further develop measures to reduce that incidence.

6.151 Ofcom has received information from BT on the provisions it has had to make against actual bad debt on wholesale revenues in total during the five years from 2000-1 to 2004-5. This suggests a five year average of 0.6% bad debt (representing the average of 0.0%, 1.0%, 1.5%, 0.4% and 0.2%, in date order). Data for the current year also indicate an increase on the previous two years. The way in which BT's bad debt has been attributed makes it unfeasible to clearly attribute bad debt to individual products such as single transit. However, there is no obvious reason why the level of bad debt would be lower for single transit than for wholesale revenues in general.

6.152 Ofcom recognises however that recognising BT's bad debt exposure for single transit in the NCCs would not reduce the level of bad debt. To do this, BT could strengthen incentives for prompt payment, and use processes such as enhanced credit vetting. Some such steps have been taken previously, and indeed the previous bad debt incurred by BT must be seen in the light of credit vetting changes introduced three years ago that may have limited the bad debt incidence since then.

6.153 As a result, Ofcom considers it appropriate to refine its NCC modelling to recognise the impact of bad debt for single transit. However, it is open to BT to propose process changes to further limit bad debt. Indeed, Ofcom has recently had communications with BT and other providers about developments in this area. Therefore, Ofcom has decided to take a balanced approach that makes only a partial adjustment. This recognises expected single transit bad debt based on previous history, and also anticipates further developments to reduce bad debt.

6.154 In terms of the appropriate cost adjustment Ofcom is, for modelling purposes, adjusting down BT's past average incidence of bad debt (0.6%), to reflect the fact that current bad debt reduction processes were not in place throughout the period from which that average is derived, as well as providing incentives to minimise future bad debt. From this position, with 0.5% as a more appropriate starting point, Ofcom has decided to reflect half of that figure in its NCC modelling. This means that 0.25% of the value of gross payments by BT for single transit (£1,072m in 2003/4) will be added to BT's costs for that product, to represent the expected cost to BT of single transit bad debt.

6.155 Ofcom acknowledges that its decision on this issue, which arose in BT's consultation comments, does not follow cross-industry discussions. However, without addressing this issue now, there would be a danger of entrenching inappropriate price reductions that would be a less accurate reflection of the true cost of the product. Ofcom also recognises that providers' views on this issue may vary. However, as with many elements of the NCC framework the central

assumptions that Ofcom needs to make will reflect some operators' profiles more than others. For example, Ofcom's volume forecasts for individual products may not reflect an individual provider's product mix.

6.156 Even after this change, the value of the X for single transit remains at 11.5%, which is within the range of Xs upon which Ofcom consulted, thereby meeting stakeholders' expectations from the consultation document. Also, this decision importantly retains incentives on BT and other providers to reach agreement on bad debt reduction measures, which Ofcom would welcome.

Proposed SMP condition amendments

6.157 BT suggested in its consultation response that Ofcom contribute to securing legal clarity about the application of SMP conditions and/or market definitions in the context of BT's change to its 21CN. Ofcom has considered the issue of whether the SMP conditions and/or market definitions need to change to clarify the position of 21CN interconnect products or allow for their inclusion within the scope of the NCCs.

6.158 Ofcom has concluded that it is not appropriate to change the SMP conditions. Specifically, it is not appropriate to define the conditions to only cover products delivered over C7 interfaces. This is because, in due course, it is possible that at least some 21CN interconnect products (which are not delivered over C7 interfaces) will be in the same market as the current PSTN products. As Ofcom may at that point decide that it is appropriate for those products to be covered by the NCCs currently being set, the SMP conditions should not be drafted so narrowly as to preclude that.

6.159 It is also currently inappropriate to change existing market definitions in order to account for 21CN interconnect products. Those products have been excluded from Ofcom's market definitions precisely because it is not currently possible to say whether they will be in the same markets as those currently defined. While some markets are named by reference to specific PSTN architecture, this complication cannot be resolved in a future-proof way at this time.

6.160 BT also suggested that there was a need to slightly amend the NCC conditions to add clarity in terms of the provisions on carry-over of charge excesses and deficits from one charge control year to the next. Ofcom has therefore reviewed the charge control conditions, and has made drafting changes to SMP Conditions AA4(a).4 and AA4(a).5 (on call origination) and their equivalents for other NCC services. This new wording, however, represents new Ofcom text rather than BT's own proposed changes. The new wording can be seen in Schedules 2 to 4 to the Notification in Annex 3.

Relevance of international benchmarking for charge controls

6.161 BT in its response states that international benchmarking of prices should be given much more weight in the setting of charge controls, and contends that Ofcom applies an inconsistent approach to its use of benchmarking studies. BT provides much information on its generally low wholesale prices relative to nearly all EU equivalents. BT has, since its consultation response, provided an update of this information which improves BT's relative ranking following price increases in Denmark.

6.162 Ofcom has in its NCC modelling used benchmarking to compare BT's network efficiency with relevant comparator companies from the US, for which reliable information is available. This allows controls to be set to bring charges into line with those of an efficient operator. The success of this approach is demonstrated by the fact that BT's interconnection charges are generally among the lowest in the EU. Ofcom also believes that it is reasonable to expect BT's prices to be at this level, just as in a competitive market, convergence should be towards best practice rather than the average. Price benchmarking can show areas in which BT is behind best practice as well as areas where it is close to or at this level. In the latter case, it is appropriate to expect this performance to be maintained, particularly given inevitable uncertainties about the extent to which overseas operators' prices may reflect costs and the efficiency of these operators. To do otherwise would be damaging to consumers and dilute the efficiency incentives on BT that are provided by the NCCs regime.

6.163 Price benchmarking results represent a number of factors, including the precise nature and history of regulation on each provider, population density and geographies of each country and the cost structures and levels experienced by each service provider. It is one piece of information that Ofcom can use to inform its decisions, especially in the absence of more detailed cost information. In particular in situations where a provider is already favourably benchmarked, the regulator of that provider is likely to find price benchmarking less useful in making its decisions.

Summary of Ofcom's final conclusions on remedies

6.164 Ofcom's most prominent decisions on remedies are as follows:

- to use its proposed technology-neutral model to calculate the NCCs;
- to apply the NCCs for a four year period from 1 October 2005;
- to not make a specific 21CN-related adjustment to the 4.5% annual target for BT efficiency improvements used in the NCC model;
- to remove all BT's obligations for inter-tandem conveyance and transit, including the current RPI+0% safeguard cap on charges, in line with the removal of BT's SMP designation in the relevant market; and
- to apply a safeguard cap of RPI-0% to local-tandem conveyance, and reduce its notification period for changes to prices etc to 28 days.

6.165 The following decisions are the more detailed ones that Ofcom has taken:

- to apply separate controls to single transit and local-tandem conveyance;
- to change to separate controls for PPP and ISB services (but not to further subdivide the ISB controls into connections and rentals);
- to maintain binding caps on FRIACO and single transit services (and adjusting BT's single transit costs to acknowledge bad debt);
- to apply different values of X to call origination and call termination;
- to forecast an average fall in traffic volumes on BT's network of 4.5%pa;
- to adopt a cost basis of CCA FAC in modelling the NCCs;
- to reduce the value of the DLE FRIACO adjustment ratio to 1.70;
- to make slight drafting changes to SMP conditions on carry-over between charge control years of excesses and deficits in price changes; and

- to leave SMP conditions for call termination, call origination, single transit, ISB and PPP unchanged, except for the levels of charge controls.

Final values of X

6.166 Table 6.1 below embodies the results of these decisions, listing the values of X that will apply in the next NCCs. Most of these decisions do not represent substantive changes to the remedies proposed in the consultation document. The two areas in which minor changes have been made are to adjust the single transit charge control for bad debt, and to move the charge control for PPP out of the consultation range in order to reflect a BT price cut that was not already captured in Ofcom's proposals. Ofcom does not consider that these two changes are material modifications to the basic features of the proposals in the consultation document.

Table 6.1 Current and future values of X

<table>
<tr><th>Service</th><th>Current controls 2001-5</th><th>Future controls 2005-9</th></tr>
<tr><td>Call termination</td><td>RPI – 10%</td><td>RPI – 5%</td></tr>
<tr><td>Call origination</td><td>RPI – 10%</td><td>RPI – 3.75%</td></tr>
<tr><td>Single transit</td><td rowspan="2">RPI – 13%
for combined basket</td><td>RPI – 11.5%</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 – 5.25%</td></tr>
<tr><td>Product management, policy and planning (PPP)</td><td>RPI + 0.75%</td></tr>
<tr><td>DLE FRIACO</td><td>RPI – 7.5%</td><td>RPI – 8%</td></tr>
<tr><td>Single Tandem FRIACO</td><td>RPI – 8.75%</td><td>RPI – 8.5%</td></tr>
<tr><td>Inter-tandem conveyance and Inter-tandem transit</td><td>Safeguard cap of
RPI – 0%</td><td>No control as no SMP</td></tr>
</table>

Section 7

Conclusions and future developments

7.1 Ofcom is making 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

- the imposition of 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.

7.2 Having formally consulted on these proposals, and considered representations made by stakeholders, Ofcom may, under the provisions of the 2003 Act, give effect to its consultation proposals, with or without modifications. The few, non-material, modifications made by Ofcom to its proposals are explained in Section 6.

7.3 Ofcom publishes at Annex 3 of this Explanatory Statement a statutory notification (as well as a withdrawal of direction) that gives legal effect to its final decisions:

- 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.

7.4 In Annex 4, Ofcom provides further justification for these legal changes, including assessments of how it considers that its decisions satisfy the relevant legal tests.

7.5 Ofcom recognises that the decisions described in this Explanatory Statement are made in the context of pending changes to BT's network. Ofcom has approached this issue by setting NCCs that do not depend upon the rate of migration from PSTN to 21CN services. Other implications of the move to 21CN are being considered in other Ofcom work, as referenced elsewhere in this document[35].

7.6 Ofcom also recognises that this Explanatory Statement confirms the removal of regulation in the inter-tandem market, and that some providers are concerned about the implications of this. It should be noted that Ofcom will monitor developments in this market, and is able to investigate any residual concerns of market power under its Competition Act powers. In addition, Ofcom will in due

[35] see Ofcom's most recent publication at www.ofcom.org.uk/consult/condocs/nxgnfc/

course again define and assess markets in accordance with its responsibilities under the Communications Act and the European legislative framework.

Annex 1

List of consultation responses

A1.1 The following stakeholders responded to the consultation document:

- the European Commission
- BT
- UKCTA (the UK Competitive Telecommunications Association)
- Energis
- Thus
- Cable and Wireless
- O_2
- Vodafone
- Scottish and Southern Energy (SSE)

A1.2 All non-confidential responses can be viewed on Ofcom's website, at www.ofcom.org.uk/consult/condocs/charge/responses/. BT also made some confidential comments that are not available to view.

A1.3 The comments made in responses are mostly summarised and assessed in Sections 2, 4, 5 and 6 of this document, following discussion of Ofcom's consultation document proposals. Annexes 5 to 7 also consider some of the more detailed and specialised points raised by respondents.

Annex 2

Legal and Regulatory Framework

Introduction

A2.1 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 decisions;
- Impact Assessments; and
- the key features and legal basis of the charge control regime.

A2.2 Sections 3 to 6 of this Explanatory Statement deal, in effect, with the substantive application of those main provisions to Ofcom's considerations set out in this document.

A2.3 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). 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 5).

The Framework under the EC Communications Directives

A2.4 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.

A2.5 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”).

A2.6 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.

A2.7 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.

A2.8 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.

A2.9 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.

A2.10 The Universal Service Directive defines a basic set of services that must be provided to end-users.

A2.11 The Privacy Directive establishes users’ rights with regard to the privacy of their communications.

The Communications Act 2003

A2.12 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.

A2.13 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.

A2.14 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.

A2.15 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.

A2.16 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

A2.17 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.

A2.18 The markets reviewed in this Explanatory Statement were first reviewed in 2003 by Oftel (see further below as to the current market definitions).

A2.19 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.

A2.20 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

A2.21 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.

A2.22 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

A2.23 The European Commission has identified in its first recommendation[36] 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.

A2.24 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.

A2.25 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.

A2.26 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.

A2.27 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

[36] 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.

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.

A2.28 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.

Guidelines for market analysis and the assessment of SMP

A2.29 The second document is guidelines[37] 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.

A2.30 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).

A2.31 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

A2.32 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.

A2.33 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.

A2.34 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

[37] 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.

increase, production to supply the relevant products or services (i.e. supply-side substitution) following a price increase.

A2.35 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.

A2.36 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 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.

A2.37 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.

A2.38 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

A2.39 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.

A2.40 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.

A2.41 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.

A2.42 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

A2.43 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.

A2.44 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.

A2.45 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.

A2.46 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.

A2.47 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

A2.48 In formulating its approach to market definition, Ofcom has taken due account of the Recommendation.

A2.49 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.

A2.50 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.

A2.51 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.

A2.52 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

A2.53 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[38], whereas fixed call termination was covered in a separate document, the Fixed Call Termination Statement[39].

[38] 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.

[39] Document entitled 'Review of fixed geographic call termination markets — Identification and analysis of markets, determination of market power and setting of SMP conditions — Final

A2.54 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 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).

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.

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).

A2.55 For the purposes of this Explanatory Statement, Ofcom considered 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

A2.56 The second market review stage concerns the assessment of competition in each identified services market to decide whether any undertaking has SMP.

A2.57 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.

A2.58 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".

A2.59 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.

A2.60 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.

A2.61 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.

A2.62 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

A2.63 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".

A2.64 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".

A2.65 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.

A2.66 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 Sections 4 and 5 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

A2.67 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.

A2.68 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…".

A2.69 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."

A2.70 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

A2.71 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.)

A2.72 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/about/accoun/policy_making/#content for further details.

A2.73 In this light, it is considered below whether *ex ante* regulation is justified in the markets identified in Sections 4 and 5 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

A2.74 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.

A2.75 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.

A2.76 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.

A2.77 Ofcom considers that *ex ante* regulation is necessary in most of 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.

A2.78 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

A2.79 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.

A2.80 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 (e.g. 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

A2.81 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

A2.82 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.

A2.83 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

A2.84 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 while marginal costs (the costs of an extra unit of output) are relatively low.

A2.85 While 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.

A2.86 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.

A2.87 Therefore, in the communications markets covered by this Explanatory Statement, especially where there is a requirement for larger sunk investments, *ex ante* regulation is appropriate to address the effect of this barrier to entry.

A2.88 Ofcom does recognise, however, 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

A2.89 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.

A2.90 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.

A2.91 The SMP obligations relevant to the markets covered by this Explanatory Statement are discussed in Section 6.

A2.92 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

A2.93 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').

A2.94 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.

A2.95 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

A2.96 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.

A2.97 In Section 6 and Annex 4 of this Explanatory Statement, 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.

A2.98 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*.

A2.99 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."

A2.100 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.

A2.101 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.

A2.102 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.

A2.103 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.

A2.104 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.

A2.105 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."

A2.106 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.

A2.107 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

A2.108 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 Explanatory Statement, are described below.

A2.109 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.

A2.110 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.

A2.111 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)).

A2.112 For reasons set out in Section 2, Ofcom considers it an appropriate interval, at present, to carry out further analyses of the LTC and ITC/ITT markets both to review the relevant market power determinations and to propose such modifications to the applicable SMP services conditions as are appropriate.

A2.113 As regards the other identified services markets covered in this Explanatory Statement (i.e. fixed call origination, fixed call termination and single transit) in which Ofcom is setting the new NCCs discussed in this document, Ofcom is, in accordance with section 86(1)(b) of the 2003 Act, setting 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 5.

A2.114 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

A2.115 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").

A2.116 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.

A2.117 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 6 of this Explanatory Statement, Ofcom's decisions 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 & notification of Ofcom's findings

A2.118 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 any proposed modifications to Directions given under SMP services conditions, such as Condition AA1(a), see Annex 6 of this document; and

- sections 48(2) and 80(1) of the 2003 Act in respect of any proposals on services market identifications, market power determinations and modifications to the relevant SMP services conditions, of the 2003 Act

in accordance with Article 6 of the Framework Directive where the proposed draft measures have a significant impact on the relevant markets.

A2.119 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.

A2.120 At Annex 5 (Part I) of its consultation document of 23 March 2005, Ofcom published a single notification containing all such proposals. Also, at Part II of that Annex, Ofcom published its statutory notification in respect of its proposed withdrawal of the Credit Vetting Direction in specified respects.

A2.121 To conclude the consultation process and in making its final decisions in respect of services market identifications, market power determinations and modifications to, as well as setting and revocation of, the relevant SMP services conditions, Ofcom is required to publish a notification under sections 48(1), 79(4) and 86 of the 2003 Act. Again, by virtue of section 79(5) of the 2003 Act, Ofcom may publish a single notification in respect of all of those matters. Ofcom is therefore publishing such a notification at Annex 3 (Part I) of this Explanatory Statement. The withdrawal of the Credit Vetting Direction in specified respects is published at Part II of that Annex.

Obligation to inform the European Commission, other NRAs and the Secretary of State – Parallel consultation under Article 7 & notification of Ofcom's findings

A2.122 As required by Article 7(3) of the Framework Directive and sections 50 and 81 of the 2003 Act, draft decisions contained in the consultation document were also sent to the European Commission, the NRAs of every other Member State and the Secretary of State.

A2.123 As Ofcom considered that those draft measures might affect trade between Member States, the European Commission and the other NRAs were thus provided with an opportunity to comment on Ofcom's proposals. The European Commission responded to this consultation to state that it had examined Ofcom's notifications, but that it had no comments.

A2.124 If the European Commission believes that the market definitions proposed in the consultation document, or Ofcom's proposals to designate BT as having SMP in the LTC market and to not designate BT as having in the ITC/ITT 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 notification under Article 7(4) of the Framework Directive, Ofcom would be 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 considered its position. However, as seen from the European Commission's response mentioned above, it had no comments on Ofcom's proposals and it has thus not made a notification for the purposes of the said Article 7(4).

A2.125 In accordance with Article 7(5) of the Framework Directive and sections 50 and 81 of the 2003 Act, Ofcom has sent copies of its final measures (that is to say, this Explanatory Statement including the statutory notification and withdrawal of direction in specified respects as published in Parts I and II, respectively, of Annex 3 of this document) to the European Commission and the Secretary of State.

Steps following the outcome of the consultation process

A2.126 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.

A2.127 As discussed further in Section 6 of this Explanatory Statement, Ofcom has decided to give effect to its proposals with certain modifications. However, for reasons set out in that Section, Ofcom does not consider that its final decisions in these respects have been modified (as compared to its initial proposals) to such an extent that it could be regarded as substantially and materially changed from its initial proposals. Rather, Ofcom has made only such modifications necessary to take into account certain consultation responses and to give effect to matters

implicitly clear from its initial proposals. Therefore, Ofcom considers that, on the most basic features of its proposals, BT and other stakeholders have been given a sufficient and adequate opportunity to express their views and so influence Ofcom. As a result, Ofcom does not consider there is a need to re-consult on these non-material modifications.

Impact Assessment

A2.128 The analysis presented in Section 6 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.

A2.129 IAs 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 3

Statutory Notification & Withdrawal of Direction

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

NOTIFICATION UNDER SECTIONS 48(1), 79(4) 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;

(ii) 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;

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;

(I) 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:

(i) 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;

(ii) 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;

(iii) 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;

(J) on 23 March 2005, OFCOM published a notification under sections 48(2), 80(1) and 86 of the 2003 Act setting out their proposals:

(i) for the identification of the two services markets specified in paragraphs (vii) and (viii) of recital (B) above having carried out a further market review of them;

(ii) for the making of market power determinations in respect of those two markets;

(iii) for the setting, and modification, of SMP services conditions in respect of the markets specified, on the one hand, in paragraph (vii) of recital (B) above and, on the other hand, in paragraphs (vi) and (ix) of that recital and in recital (E) after being satisfied there have been no material change in them;

(iv) for the revocation of SMP services conditions in respect of the market specified in paragraph (viii) of recital (B);

(K) copies of that Consultation Notification were sent to the Secretary of State for Trade and Industry in accordance with section 50(1)(a) of the 2003 Act, and to the European Commission and to the regulatory authorities of every other Member State in accordance with section 50(3) and 81 of the 2003 Act;

(L) in the Consultation Notification and the accompanying explanatory statement, OFCOM invited representations about any of the proposals set out therein by 1 June 2005;

(M) by virtue of section 80(6) of the 2003 Act, OFCOM may give effect to any proposals to identify a market for the purposes of making a market power determination or any proposals to make a market power determination set out in the Consultation Notification, with or without modification, where—

(i) they have considered every representation about the proposals made to them within the period specified in the Consultation Notification; and

(ii) they have had regard to every international obligation of the United Kingdom (if any) which has been notified to them for this purpose by the Secretary of State; but

(iii) OFCOM's power to give effect to such proposals is subject to sections 82 and 83 of the 2003 Act;

(N) by virtue of section 48(5) of the 2003 Act, OFCOM may give effect to any proposals to set, modify or revoke SMP services conditions set out in the Consultation Notification, with or without modification, where—

(i) they have considered every representation about the proposals made to them within the period specified in the Consultation Notification; and

(ii) they have had regard to every international obligation of the United Kingdom (if any) which has been notified to them for this purpose by the Secretary of State;

(O) OFCOM received responses to the Consultation Notification and have considered every such representation duly made to them in respect of the proposals set out in the Consultation Notification and the accompanying consultation document; and the Secretary of State has not notified OFCOM of any international obligation of the United Kingdom for this purpose;

(P) the European Commission has not made a notification for the purposes of Article 7(4) of the Framework Directive as referred to in section 82 of the 2003 Act and the proposals do not relate to a transnational market as referred to in section 83 of the 2003 Act; and

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

Service market identifications and market power determinations

1. For reasons set out in Section 2 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 modify 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 have decided that, in accordance with section 79 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 Sections 4 and 5 of the explanatory statement accompanying this Notification, OFCOM have decided, in accordance with section 79 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 decisions 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 4 to 6 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 decisions in paragraph 4 of 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 have decided, in accordance with sections 48(1) 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 services market identified in paragraph 2(b), by reference to the market power determination set out in paragraph 4(b), of this Notification.

8. OFCOM have further, in accordance with section 48(1) of the 2003 Act, decided—

   (a) in relation to the 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 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 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 decisions 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, setting 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 decision 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, modifying 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 have further, in accordance with sections 48(2) and 86(1)(a) of the 2003 Act, decided that, in relation to the services market identified in paragraph 2(a) of this Notification by reference to the 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 decisions:

    (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 4 to 6, and Annex 5, of the explanatory statement accompanying this Notification.

12. OFCOM consider that the 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 decisions 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.

Delivery of copies of notifications under the 2003 Act

14. 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) and section 81(1) of the 2003 Act, and to the European Commission in accordance with sections 50(2) and 81(2) of the 2003 Act.

Interpretation

15. 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 16 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.

16. In this Notification (and in the recitals hereto)—

    (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) **"Consultation Notification"** has the meaning given to it in recital (J) to this Notification;

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

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

(g) **"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;

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

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

(j) **"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;

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

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

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

(n) **"OFCOM"** means the Office of Communications; and

(o) **"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)).

17. 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.

18. The Schedules to this Notification shall form part of this Notification.

19. Unless otherwise stated in the Schedules to this Notification, the decisions set out in this Notification shall take effect on the publication 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

18 August 2005

SCHEDULE 1

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 market power determination in respect of the 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 has been determined 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

Setting of SMP services conditions AA4(a), AA4(b), AA4(c), AA4(d) and AA4(e) 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 hereby made by OFCOM as set out in paragraph 4(a) of this Notification in which it has been determined 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—

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

where—

C_t 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;

R_i 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;

$p_{0,i}$ 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

$p_{t,i}$ 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 (the "Excess"), 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 the Excess.

AA4(a).5 Where the Percentage Change in the Relevant Year in question is more than the Controlling Percentage (the "Deficiency"), 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 the 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 by 3.75 percentage points.

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.

AA 4(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 The 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—

C_t 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;

R_i 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;

$p_{0,i}$ 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

$p_{t,i}$ 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 (the "Excess"), 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 the Excess.

AA4(b).5 Where the Percentage Change in the Relevant Year in question is more than the Controlling Percentage (the "Deficiency"), 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 the 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 by 11.5 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.

AA 4(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—

C_t 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;

p_0 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

p_t 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 (the "Excess"), 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 the Excess.

AA4(c).5 Where the Percentage Change in the Relevant Year in question is more than the Controlling Percentage (the "Deficiency"), 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 the 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.

AA 4(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 per FRIACO port

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,

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—

C_t 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,

in question at a particular time *t* during the Relevant Year;

p_0 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

p_t 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 (the "Excess"), 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 the Excess.

AA4(d).5 Where the Percentage Change in the Relevant Year in question is more than the Controlling Percentage (the "Deficiency"), 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 the 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 8 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.

AA 4(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,

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—

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

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(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—

C_t 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;

p_0 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

p_t 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 (the "Excess"), 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 the Excess.

AA4(e).5 Where the Percentage Change in the Relevant Year in question is more than the Controlling Percentage (the "Deficiency"), 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 the 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 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.

AA 4(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(e).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(e).1(a) and (b) 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(e).1(a) and (b);

(d) **"Controlling Percentage"** is to be determined in accordance with paragraph AA4(e).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(e).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 3

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—

C_t 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;

R_i 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;

$p_{0,i}$ 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

$p_{t,i}$ 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 (the "Excess"), 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 the Excess.

BA4(a).5 Where the Percentage Change in the Relevant Year in question is more than the Controlling Percentage (the "Deficiency"), 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 the 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 5 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.

BA 4(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

Setting of SMP services condition PA1(a) 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 hereby made by OFCOM as set out in paragraph 4(a) of this Notification in which it has been determined 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—

C_t 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;

R_i 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;

$p_{0,i}$ 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

$p_{t,i}$ 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 (the “Excess”), 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 the Excess.

PA1(a).5 Where the Percentage Change in the Relevant Year in question is more than the Controlling Percentage (the “Deficiency”), 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 the 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:

(a) in respect of PPP per call minute, increased by 0.75 percentage points; and

(b) in respect of Interconnection Circuits, reduced by 5.25 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

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 confirms 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

(b) 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

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

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

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 Annex 4 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 Annex 4 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 that:

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**.**

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

18 August 2005

Annex 4

Detailed explanation of remedies including assessment against legal tests

Aims of regulation

A4.1 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 2 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.

A4.2 In Sections 3 to 6, and Annexes 2 and 5, 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 will 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 for these services, BT would have an incentive to set charges that were above its costs.

A4.3 However, Ofcom does not believe that charge controls, in isolation, will 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, among other things, price publication and cost accounting. This Annex therefore sets out in detail Ofcom's reasons for setting SMP services conditions. It also sets out why Ofcom believes that it has satisfied the tests that are set out in the 2003 Act.

A4.4 As explained in Section 6, Ofcom, is making a new market power determination in the market for LTC and LTT, and is re-setting 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 being set under the notification in Annex 3, 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

A4.5 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.

A4.6 As the market analysis set out in Section 4 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 LTC and LTT on a national basis. Ofcom therefore considers that BT should be subject to a requirement to provide network access on reasonable request in the market for LTC and LTT, as this requirement 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.

A4.7 Ofcom considers that BT should be required to provide network access in the market for 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

A4.8 Ofcom considers that SMP services Condition AA1(a) is appropriate as, in particular, it is based on the competition problem identified in Section 4. 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.

A4.9 Ofcom has considered all the Community requirements set out in section 4 of the 2003 Act. In particular, the 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 this condition will further the interests set out in section 3 of the 2003 Act.

A4.10 Section 47 requires conditions to be objectively justifiable, non-discriminatory, proportionate and transparent. This 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.

A4.11 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 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 in some instances competing providers will need to purchase network access services from BT in the market for LTC and LTT .

Requirement to provide new Network Access

A4.12 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 will 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, among 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, will 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.

A4.13 Ofcom considers that this approach adds clarity and robustness to the process for seeking new Network Access. In setting the condition, Ofcom has considered the factors set in section 87 in particular Ofcom considers that the condition will help to secure effective competition in the long term (87(4)(d)), as the timely provision of new products will ensure that communications providers were able to make effective use of BT's network and compete in downstream markets.

Communications Act tests

A4.14 As to the application of the tests to be applied under the 2003 Act (see further detail at Annex 4), Ofcom considers that SMP services Condition AA1(b) is appropriate as, in particular, it is based on the competition problem identified in Section 4. Furthermore, Ofcom considers that it meets the tests set out in the 2003 Act in so far as it applies to LTC and LTT.

A4.15 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 will help to secure efficiency and sustainable competition in the market for LTC and LTT, as they will 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 this condition will further the interests set out in section 3 of the 2003 Act.

A4.16 Ofcom has also considered the tests for setting conditions set out in section 47 of the 2003 Act. Ofcom considers that this 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

A4.17 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.

A4.18 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.

A4.19 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.

A4.20 A prohibition of discrimination might have disadvantages if it prevented discrimination that was economically efficient or justified. However, the 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) (the "Access Guidelines"). 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. It is to be emphasised, however, that Ofcom is currently consulting[40] on its proposals for investigating potential breaches of this condition and, if adopted following its consultation, these proposals will replace the relevant sections in the Access Guidelines relating to this condition.

A4.21 Also, Ofcom set out its reasons for making minor changes to this requirement not to unduly discriminate that would apply to additional markets, such as call origination.

[40] see www.ofcom.org.uk/consult/condocs/undsmp/

Communications Act tests

A4.22 Ofcom considers that SMP services Condition AA2 meets the tests set out in the 2003 Act in so far as it applies to local-tandem conveyance.

A4.23 Ofcom has considered all the Community requirements set out in section 4. In particular, this condition promotes competition and secures efficiency and sustainable competition by preventing BT from leveraging its market power into downstream markets.

A4.24 Ofcom considers that this 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

A4.25 Section 87(9) authorises the setting of SMP services conditions which impose rules in relation to the recovery of costs and cost orientation.

A4.26 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.

A4.27 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.

A4.28 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.

A4.29 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. The condition allows Ofcom to determine that a price need not be set on such a basis.

Communications Act tests

A4.30 As to the application of the tests to be applied under the 2003 Act (see further detail at Annex 2), Ofcom considers that SMP services Condition AA3 is appropriate as, in particular, it is based on the competition problem identified in Section 4. Furthermore, Ofcom considers that it meets the tests set out in the 2003 Act in so far as it applies to LTC and LTT.

A4.31 Ofcom has considered all the Community requirements set out in section 4. In particular, Ofcom considers that the condition will promote competition and will secure efficiency and sustainable competition as it will ensure that the charges for LTC are based on BT's incurred costs. For the same reasons, Ofcom considers that the condition will further the interests set out in section 3 of the 2003 Act.

A4.32 Ofcom considers that this condition is an objectively justifiable and proportionate response to the extent of competition in the provision of LTC and LTT, as it will enable competitors to purchase services at charges that are based on BT's incurred costs and they will therefore be able to develop competitive services to the benefit of consumers. At the same time, BT will 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.

A4.33 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 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 at a level consistent with a competitive market.

A4.34 As also required by section 88 of the 2003 Act, the extent of BT's investment has been taken into account as the condition provides for a mark-up to cover common costs and allows BT to earn an appropriate return on capital employed.

Charge controls

A4.35 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.

A4.36 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.

A4.37 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.

A4.38 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.

A4.39 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.

A4.40 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

A4.41 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.

A4.42 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.

A4.43 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.

A4.44 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".

A4.45 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 for the March 2005 NCC consultation document. 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 of that consultation document.

A4.46 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

A4.47 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.

A4.48 As explained in Section 6, 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 structure of the charge control baskets.

Value of 'X'

A4.49 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 while ensuring sustainability. Ofcom has considered all of these factors in making its decisions on the values of 'X'.

A4.50 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. Since the consultation document, Ofcom has refined its analysis further to produce specific values of 'X' for each basket. Annex 6 gives fuller details on the derivation of values of 'X'.

A4.51 More generally, Ofcom is setting the value of 'X' for each basket at a level that will 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' is set to incentivise and ensure that BT can remove inefficiencies and further improve its efficiency beyond this.

Charge control conditions

A4.52 The 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 relevant basket. The services and the values of 'X' for each basket are set out in the SMP services conditions. The reasoning behind the structure of each basket is set out in Section 6. The 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

A4.53 The 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 at the midpoint of the charge control year. The conditions provide BT with a certain amount of flexibility in how it chooses to meet the control. The 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

A4.54 As to the application of the tests to be applied under the 2003 Act (see further detail at Annex 4), Ofcom considers that the SMP services conditions are appropriate, as in particular, they are based on the competition problem identified in Section 4. Furthermore, Ofcom considers that the conditions meet the tests set out in the 2003 Act.

A4.55 Ofcom has considered all the Community requirements set out in section 4. In particular, the new conditions are likely to promote competition and secure efficiency and sustainable competition as they will ensure that charges for wholesale services are set at a level that will enable competitors to compete. For the same reasons, Ofcom considers that the condition will further the interests set out in section 3 of the 2003 Act.

A4.56 The 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 values of 'X' set out in the SMP services conditions are proportionate, as they are derived from

Ofcom's detailed charge control modelling of relevant variables affecting BT's future revenues and costs. Finally, the conditions are transparent in that they are clear in their intention to control BT's charges while encouraging BT to increase its efficiency.

A4.57 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 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.

A4.58 As also required by section 88, the extent of BT's investment has been taken into account as the conditions provide for a mark-up to cover common costs and allow BT to earn an appropriate return on capital employed. Ofcom has recently consulted on the appropriate regulated cost of capital for BT, and the values of X included in these NCC conditions include an allowance for the cost of capital for NCC services that has now been determined as a result of the cost of capital consultation.

Transparency

A4.59 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.

A4.60 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

A4.61 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.

A4.62 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.

A4.63 The (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.

A4.64 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 .

A4.65 In addition, the 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

A4.66 As to the application of the tests to be applied under the 2003 Act (see further detail at Annex 4), Ofcom considers that SMP services Condition AA5 is appropriate as, in particular, it is based on the competition problem identified in Section 4. 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.

A4.67 Ofcom has considered all the Community requirements set out in section 4. In particular, the (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 condition will further the interests set out in section 3 of the 2003 Act.

A4.68 The 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

A4.69 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.

A4.70 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.

A4.71 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.

A4.72 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.

A4.73 Ofcom considers that the notice should include the following information:

- a 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

A4.74 As to the application of the tests to be applied under the 2003 Act (see further detail at Annex 2), Ofcom considers that the SMP services Condition AA6(a) is appropriate as, in particular, it is based on the competition problem identified in Section 4. Furthermore, Ofcom considers that it meets the tests set out in the 2003 Act in so far as it applies to LTC and LTT.

A4.75 Ofcom has considered all the Community requirements set out in section 4. In particular, the 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 condition will further the interests set out in section 3 of the 2003 Act.

A4.76 The 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

A4.77 Under the requirement to publish a RO, BT is required to include technical information in its RO.

A4.78 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

A4.79 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.

A4.80 The scope of the 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.

A4.81 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

A4.82 The 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.

A4.83 However, in order for BT to meet its obligations under the 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 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.

A4.84 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.

A4.85 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 requirement to provide Network Access on reasonable request as well as this condition.

A4.86 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

A4.87 As to the application of the tests to be applied under the 2003 Act (see further detail at Annex 4), Ofcom considers that the SMP services condition AA6(b) is appropriate as, in particular, it is based on the competition problem identified in Section 4. Furthermore, Ofcom considers that it meets the tests set out in the 2003 Act.

A4.88 Ofcom has considered all the Community requirements in section 4. In particular, the (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 condition will further the interests set out in section 3 of the 2003 Act.

A4.89 The 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

A4.90 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.

A4.91 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.

A4.92 The quality of service condition should ensure that the necessary information will 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.

A4.93 Ofcom has therefore decided 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

A4.94 Ofcom considers that SMP services Condition AA7 meets the tests set out in the 2003 Act.

A4.95 Ofcom has considered all the Community requirements in section 4. In particular, the 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.

A4.96 The 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 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

A4.97 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, among 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 to set out its cost accounting arrangements in its regulatory financial statements.

A4.98 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[41].

A4.99 As a result of its analysis set out in Section 4 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

A4.100 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).

A4.101 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.

A4.102 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.

A4.103 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.

A4.104 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

[41] www.ofcom.org.uk/consult/condocs/fin_reporting/fin_report_statement/finance_report.pdf

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, among other things, set cost-oriented charges.

Requirement to provide FRIACO

A4.105 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 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.

A4.106 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 4, Ofcom concludes 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

A4.107 Ofcom considers that SMP services Condition AA12 meets the tests set out in the 2003 Act in so far as it applies to ST FRIACO.

A4.108 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.

A4.109 The 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 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 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

A4.110 Annex 7 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.

A4.111 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 has decided here reflects the

best estimate of the AR over a particular year. Ofcom explains at Annex 7 why it has decided that the adjustment ratio should be changed for the DLE FRIACO AR, from a value of 1.78 to 1.70, as that value constitutes the best estimate on the basis of the data available. This amendment is reflected in the notification in Annex 3.

Communications Act tests

A4.112 Ofcom considers that SMP services Condition AA12 is appropriate as, in particular, it is based on the competition problem identified in Section 4. 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.

A4.113 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 condition will further the interests set out in section 3 of the 2003 Act.

A4.114 The condition is objectively justifiable because without amending the FRIACO adjustment ratio as Ofcom is doing, 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 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 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 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

A4.115 As already mentioned above, Ofcom has taken this opportunity 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.

A4.116 Given that the reasons for modifying the latter two are essentially the same, these ‘notification requirements’ will be considered together in the following.

Notification requirements

A4.117 Under SMP services conditions AA6(a) and AA6(b), BT is required to notify charges and technical information in a manner, form and within timescales 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 making any modifications in respect of the latter as they fall outside the scope of Ofcom's considerations and decisions set out in this document.

A4.118 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.

A4.119 As to the four above-mentioned markets, but not in relation to inter-tandem conveyance and transit as Ofcom is revoking SMP services conditions in this market) as well as for interconnection circuits, Ofcom is modifying 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.

A4.120 The reason for these 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

A4.121 Ofcom considers that these 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.

A4.122 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 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.

A4.123 Section 47 requires conditions to be objectively justifiable, non-discriminatory, proportionate and transparent. Ofcom considers that its 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 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 modifications are proportionate, as they represent an appropriate balance between avoiding any unnecessary delay in changes to the provision of Network Access, while 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 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

A4.124 Ofcom has set out above in this Annex its reasons for 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 dealing in this document with matters concerning wholesale fixed narrowband exchange line services markets.

A4.125 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.

A4.126 As to the four above-mentioned markets (but not in relation to inter-tandem conveyance and transit as Ofcom is revoking SMP services conditions in this market) as well as for interconnection circuits, Ofcom is modifying SMP services conditions AA2 and BA2 by deleting the 'deeming provision' in those conditions.

A4.127 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.

A4.128 On 30 June 2005, Ofcom published for consultation its draft Undue Discrimination guidelines[42] on its proposed approach to investigate potential contraventions of SMP obligations not to unduly discriminate. In the light of the proposed new approach in the said guidelines, Ofcom has decided that it is 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.

[42] see www.ofcom.org.uk/consult/condocs/undsmp/

Communications Act tests

A4.129 Ofcom considers that these 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.

A4.130 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 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.

A4.131 Section 47 requires conditions to be objectively justifiable, non-discriminatory, proportionate and transparent. Ofcom considers that the modifications are objectively justifiable, in that they are aimed at avoiding any confusion as to the scope of the undue discrimination obligation, while leaving the undue discrimination obligation itself unaltered. The amendment is non-discriminatory as the substantive obligation remains unaffected, since the condition was imposed in November 2003. The modifications are proportionate, as they do not alter the substance of the undue discrimination obligation imposed on BT. Finally, the 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

A4.132 As a direct consequence of the revocation of BT's obligations in the market for inter-tandem conveyance and inter-tandem-transit, Ofcom is withdrawing BT's obligations with respect to an existing direction on credit vetting (see paragraph 6.45). The relevant notification of this decision is at Annex 3, Part II.

Communications Act tests

A4.133 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.

A4.134 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.

A4.135 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 revocation of BT's SMP in the relevant market. Ofcom's assessment of SMP in the relevant market, and its revocation of SMP services conditions are explained in Sections 5 and 6 respectively.

Annex 5

Continuing regulation for BT services with stable market conditions

A5.1 This Annex covers the basis for imposing new charge controls, and where relevant for maintaining other obligations, on the following BT products and services:

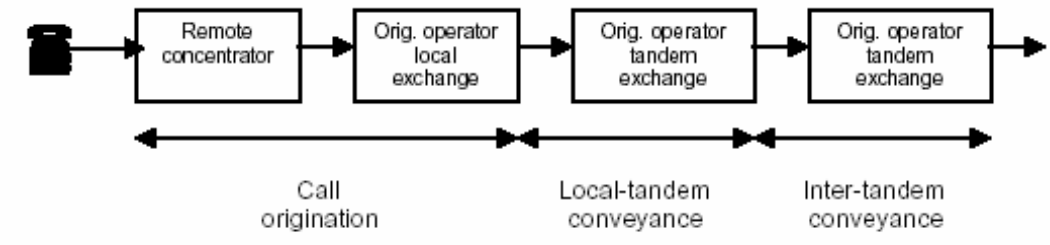
- Call origination;
- Call termination;
- Single transit;
- Interconnection circuits (ISB services);
- Product management, policy and planning (PPP);
- DLE FRIACO; and
- Single tandem FRIACO.

Wholesale narrowband call origination

A5.2 Ofcom does not consider that there has been a material change in the 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 carrying out a substantial market analysis (see Annex 2), 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.

A5.3 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 A5.1 Call origination



Retail markets

A5.4 As discussed in Annex 2, 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

A5.5 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.

A5.6 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[43]. 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[44] described how mobile voice traffic has grown dramatically over the years, while fixed voice traffic is now declining. Consumer research[45] 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.

A5.7 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.

[43] http://www.ofcom.org.uk/research/industry_market_research/m_i_index/cm/jan2005_update/update.pdf

[44] http://www.ofcom.org.uk/consult/condocs/telecoms_p2/tsrphase2/maincondoc.pdf

[45] http://www.ofcom.org.uk/consult/condocs/telecoms_p2/tsrphase2/AnnexM.pdf

A5.8 Hence, Ofcom remains of the view that mobile voice services are in a separate market to fixed voice services.

Separate markets for fixed narrowband access and broadband internet access

A5.9 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; and
- it has a faster downstream speed.

A5.10 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.

A5.11 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[46]). 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.

A5.12 Ofcom has considered whether 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.

A5.13 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.

A5.14 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, migration does not of itself imply that a SSNIP in the price of narrowband or broadband services would be

[46] http://www.ofcom.org.uk/research/industry_market_research/m_i_index/cm/qu_10_2004/cm_qu_10_2004.pdf

unprofitable. 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 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.

A5.15 In order for supply side substitution to constrain the price of narrowband internet access, there must be rapid and low-cost entry from broadband suppliers not currently supplying narrowband services. However, 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.

A5.16 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

A5.17 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.

A5.18 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.

A5.19 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

A5.20 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 as well as dial-up internet access.

A5.21 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.

A5.22 On the supply side, 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.

A5.23 Ofcom therefore believes that there are separate retail markets for geographic and non-geographic calls.

Disaggregation of non-geographic call types

A5.24 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 difference between types of geographic calls is only distance, and the remedies are not affected by the distance.

A5.25 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.

A5.26 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 call 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-side 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.

A5.27 Ofcom therefore believes that there are separate retail markets for non-geographic call types.

Separate markets for residential and business calls

A5.28 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 in 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.

A5.29 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

A5.30 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.

A5.31 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.

A5.32 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.

A5.33 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

A5.34 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 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 (required for basic retail telephony services covered by the USO) of setting uniform national prices.

A5.35 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

A5.36 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

A5.37 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

A5.38 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.

A5.39 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

A5.40 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. Although, 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, this suggests that for practical purposes there is a common pricing constraint.

Conclusion

A5.41 Ofcom's conclusion is that there is a single wholesale market for residential and business call origination.

Wholesale geographic market

A5.42 Ofcom's approach to defining geographic markets is set out in Annex 2.

A5.43 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

A5.44 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.

A5.45 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 A5.1 below). There has been no new entry in the market. Economies of scale combined with sunk costs continue to be a serious obstacle to entry (even if cable company consolidation occurs, those companies would together hold only 12% of the market).

Table A5.1 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

A5.46 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

A5.47 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

A5.48 If a hypothetical monopolist were to increase the price of single transit, providers may in principle be able to substitute to purchasing ITT. However this would involve a transmission element, involving higher costs, which may not be required if the operator purchased single transit.

A5.49 If a monopolist supplier increased the price of ITC/ITT, 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 ITC/ITT. 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 ITC/ITT to substitute to purchasing single transit.

Supply side substitution between single transit and ITC/ITT

A5.50 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.

A5.51 An operator currently offering ITC/ITT 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 ITC/ITT would be able to supply substitute in a way that constrained the prices of a hypothetical monopolist.

A5.52 In conclusion, Ofcom is of the view that single transit is in a separate market to ITC/ITT.

Mobile substitution

A5.53 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.

A5.54 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 depend on the transit services offered by fixed network providers. On the demand side the possibility of direct connection could in principle constrain prices. However, if this is only economic for larger providers and these have already switched to direct connections, then their inclusion in the market would not be appropriate for the purposes of assessing competitive conditions for continuing purchasers of transit. On the supply side, a mobile communications provider can only enter the market for fixed single transit at a significant cost, which includes the cost of additional direct connections to third parties, systems for dealing with wholesale customers, including billing and management. Ofcom is not aware of any mobile network operator offering fixed transit.

A5.55 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 ITC/ITT or single transit.

Geographic market

A5.56 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.

A5.57 In its consultation response, BT expressed the view that there may be sub-national markets for single transit. However, given that BT is the only provider of single transit, Ofcom does not believe that there is any reason for examining at which tandem exchanges operators purchase single transit and whether at any tandem exchange, single transit may be a substitute for other forms of transit. Ofcom maintains its conclusion that there is a single national market for single transit.

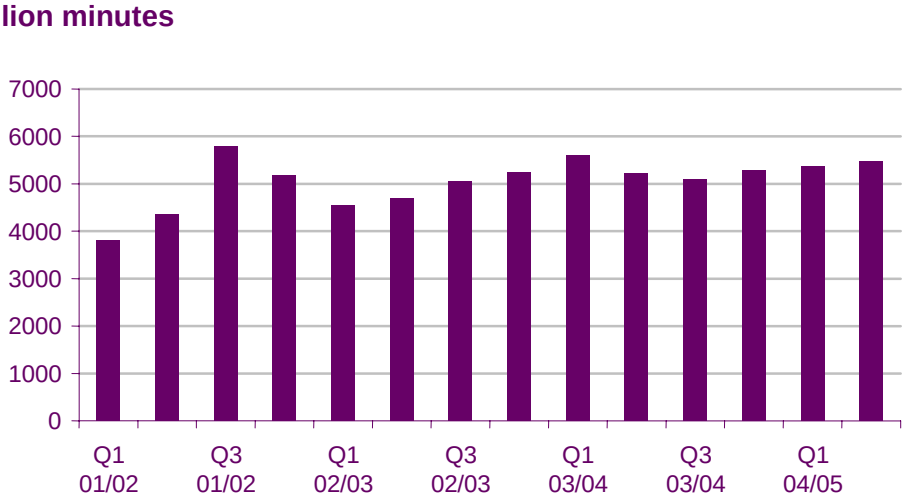
Assessment of SMP in the market for Single Transit

Market shares

A5.58 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 A5.2. 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 A5.2 Single transit sold by BT



Ease of market entry

A5.59 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.

A5.60 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

A5.61 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

A5.62 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.

A5.63 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

A5.64 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.

Consultation responses

A5.65 In its consultation response, BT makes the points that the reason its market share is 100% is because of the regulatory construction of the market, and that direct interconnection should be seen as a substitute. BT states that Ofcom should deregulate single transit because it has the same competitive conditions as other transit services, and that by regulating single transit, Ofcom is disincentivising network build.

A5.66 Single transit is used when operators have no direct interconnection with each other. Establishing direct connection is unlikely to be economic for most operators and so is unlikely to constrain single transit prices to the competitive level and indeed has not done so. As noted above, competitive conditions differ from those of ITT because of the need for a much higher level of connectivity to provide single transit. There is no reason to suppose that single transit services would not be provided in a competitive market.

A5.67 As BT is the only provider of single transit, the competitive conditions are not the same as those in ITC/ITT. Ofcom also notes that build by operators to BT's tandem exchanges has taken place despite the regulation of single transit, so there is no evidence that single transit regulation disincentivises build. Operators should continue to build if the volume of traffic justifies such build.

Conclusions and forward look on SMP in Single Transit

A5.68 Ofcom is of the view that, for the foreseeable future, will continue to depend on BT for single transit where 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

A5.69 In the consultation document, Ofcom noted that it was, at BT's request, 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.

A5.70 Ofcom's work in this area, in terms of investigating ways in which the bad debt risk can be reduced, is still in the early stages. However, further to BT's comments expressed in its consultation response and subsequently, Ofcom has reviewed the case for reflecting some of the bad debt in single transit when setting the relevant charge control. This issue is covered in Section 6 of this document.

Market for fixed geographic call termination

Retail level definitions

A5.71 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

A5.72 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.

A5.73 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.

A5.74 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.

A5.75 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 (e.g. through VoB).

A5.76 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.

A5.77 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).

A5.78 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

A5.79 Ofcom considers that although competition exists 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

A5.80 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

A5.81 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.

A5.82 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.

A5.83 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 principle.

Supply side substitution at the wholesale level

A5.84 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

A5.85 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

A5.86 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.

A5.87 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 would have countervailing buyer power in the absence of the any-to-any principle. It can use this countervailing power to force other network providers to charge below their costs of termination.

A5.88 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

A5.89 Ofcom's view is that the definition of the market for geographic call termination on narrowband networks will remain unchanged through the duration of the next NCCs 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

A5.90 An interconnection circuit links the exchanges of two interconnecting operators in order to enable traffic to pass between their networks.

A5.91 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

A5.92 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.

A5.93 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 is confirming its market power determination in 2003 as BT continues to have SMP (see Section 4 of this document).

A5.94 In order to remedy SMP in these markets, Oftel imposed remedies on BT as to the first two above-mentioned markets in 2003 and is re-setting remedies in the LTC market (see Section 6 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.

A5.95 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 currently in place and those that are hereby being set or re-set by Ofcom.

A5.96 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…"

A5.97 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

A5.98 Ofcom considers that it would be insufficient to regulate only one type of interconnection circuit product.

CSI

A5.99 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

A5.100 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.

A5.101 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

A5.102 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

A5.103 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.

A5.104 Any competing 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 administrative 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.

A5.105 However, as explained in Section 5 above, Ofcom has concluded 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 6

Detailed charge control modelling

Introduction

A6.1 As set out in Section 6, 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
- Discusses the key factors in the model affecting the value of X.

Ofcom's methodology

The technology neutral model

A6.2 As the 21CN replaces the PSTN, some existing wholesale products are likely to be replaced by new products which fulfil the same function.

A6.3 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 proposed 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.

A6.4 Consistent with this approach, Ofcom has developed a cost forecasting model which is "technologically neutral" (see Section 6). 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).

Consultation comments

A6.5 All respondents commenting on this issue agreed with the adoption of the technologically neutral modelling approach (although the support of some was based on this not precluding the regulation of services delivered entirely over the 21CN within the same period). This is further discussed in paragraphs 6.113 to 6.115 of Section 6.

Ofcom's conclusions

A6.6 Due to the positive consultation responses Ofcom has not made any fundamental changes to its technologically neutral modelling approach.

Overview of model

High level structure of model

A6.7 The following sections outline the structure of the model and provide details on the key data inputs, assumptions and main calculations in the model.

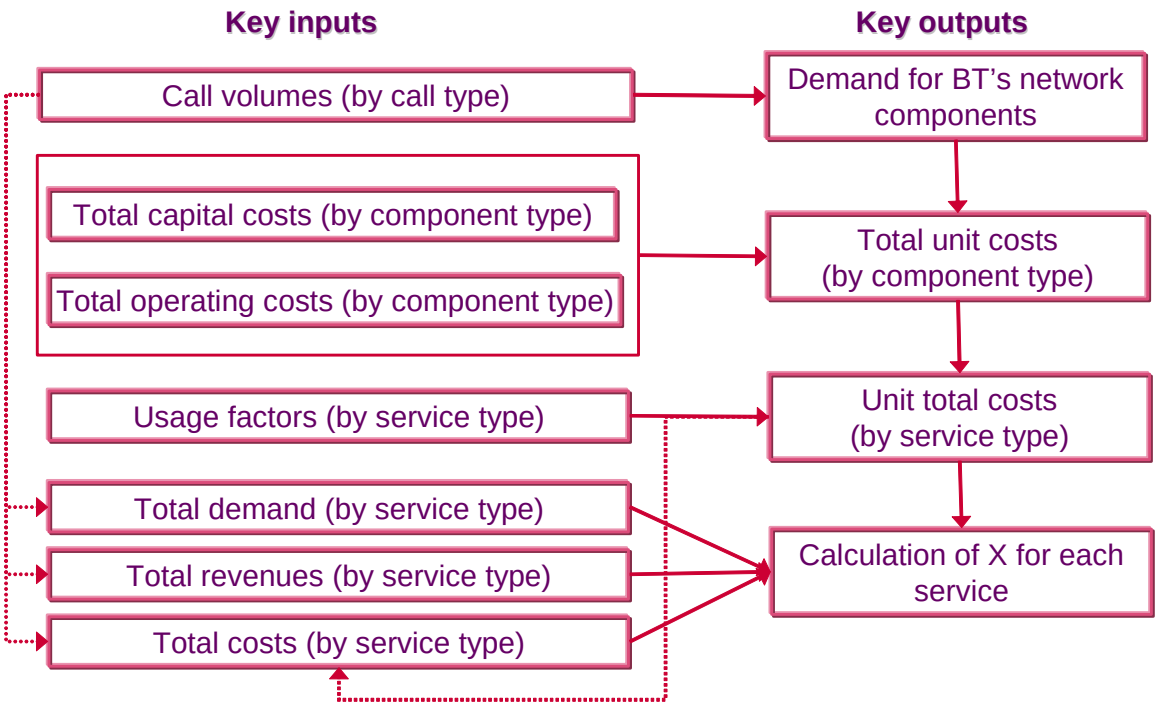
A6.8 The objective of the cost forecasting model is to forecast how BT's costs for the services included in the NCC will change over the period of its existence. This then allows different groups of costs to be combined into different possible charge control baskets.

A6.9 The model is constructed in four blocks. These are:

- **Inputs**, in the form of base year financial data and key assumptions;
- **Key calculations**, such as total capital and operating 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 each of these.

A6.10 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 A6.1.

Figure A6.1 High level flow diagram of the NCC model



Key inputs to the model

A6.11 The inputs to the model are described in Table A6.1. Key inputs to the model are either in the form of key assumptions or base year data provided by BT.

Table A6.1 – 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.
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 Ofcom's view of BT's 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 type	These are provided by BT for each service and call type from 2003/04 to 2009/10. They measure the average usage of a service (e.g. call origination) by a particular call type (e.g. local calls).
Asset price changes	These set 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	These set out BT's historic factor price changes for the pay and non-pay operating 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.
Starting charges	The model includes the actual average charges for all services for the years 2003/04, 2004/05 and 2005/06, as published by BT. It should be noted that in the March Consultation charges for the years 2004/05 and 2005/06 were calculated by applying the relevant X factor for each service to the previous year's charge. Ofcom has now amended this approach to take account of the actual charges.
Asset volume elasticities (AVEs)	These set 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 (CVEs)	These set 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 relative to the average AVE. 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 A6.73 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 operating costs	These are operating 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

A6.12 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 operating costs;
- Calculation of total unit costs by service type; and
- Calculation of the value of X for each regulated service.

A6.13 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 (2003/04). Therefore all calculations explained in the tables below are in nominal terms unless otherwise stated. It should however be noted that all key calculations are then converted to real terms and the values of X for various services calculated in real terms too.

Calculation of network component volumes

A6.14 Network component volumes are calculated as the product of call volumes by retail call type and the associated routing factor by component type. Ofcom has prepared its own forecasts of retail call volumes (please see paragraphs A6.50 for detailed discussions).

Calculation of total network capital costs

A6.15 Total capital costs are calculated in three 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.
- Finally "steady state" and "additional" costs are summed to give a value for the total network capital costs.

Steady state capital costs

Table A6.2 – The steady state capital and depreciation costs

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 A6.1.
Capital expenditure (capex)	The base year capital expenditure is equal to the OCM depreciation. The forecasts are calculated by multiplying the previous year capex value by the nominal asset price change and the year on year efficiency gains assumed by Ofcom.
Disposals	It is assumed that in the base year (2003/04) disposals are equal to capex. The forecasts are calculated by inflating prior year values by the asset price trend.
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.

Additional capital costs

A6.16 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 A6.3 – Additional capital and depreciation costs associated with volume growth

Calculation	Description
Additional capex	The forecasts are calculated as the addition of: a) the sum of the previous year total GRC and the product of half of the difference between the previous year capital expenditure and disposals, both multiplied by the asset price trend; b) half of the difference between the current year capital expenditure and the current year disposals; and The sum of a) and b) are multiplied by the AVE and 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.

A6.17 From this point it is possible to calculate the total capital and depreciation costs. The model does this in the way described in Table A6.4.

Table A6.4– 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 operating costs

A6.18 Operating costs are forecast in a similar manner to capital costs described above.

Table A6.5 – 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

A6.19 Total unit costs by service type are calculated as described in the table below.

Table A6.6 – Total costs

Calculation	**Description**
Real total costs	This is calculated as the sum of the total real capital costs (Table A6.4) and the total real operating costs (Table A6.5)
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 the 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

A6.20 The key outputs of the model are 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.

A6.21 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 A6.7 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 A6.7 – Calculation of the value of X

Calculation	Description
Unit charges	Unit average charges for 2003/04, 2004/05 and 2005/06 are provided by BT. 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 A6.6.
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 or basket of services.

A6.22 Although the calculation of X for each basket is as explained in Table A6.7 above there are some differences introduced for some of the services. These are briefly described below.

Call origination and call termination

A6.23 Call origination and call termination are subject to different values of X as calculated by the model. The difference in the values of X between the two is over 1%, which Ofcom believes to be material. The two key reasons for this difference are: a) the different values of starting profits where call origination is £18m higher than call termination in 2003/04 and b) the extra costs of intermediate services such as emergency and operator assistance ("OA") that need to be recovered via call origination (but not call termination). If this approach were substituted by one where the excess profits and costs are recovered over both of the services then this would give rise to the situation where one service (i.e. call termination) is over-recovering and the other one (i.e. call origination) is under-recovering. Ofcom does not believe this to be an acceptable position and hence has applied different values of X to call termination and call origination as calculated by the model.

Single Transit

A6.24 As discussed in paragraphs 6.149 to 6.156 of Section 6 Ofcom has made an allowance for the bad debt risk BT faces in Single Transit. The amount of bad debt to be included in the model is calculated as follows:

- Total payments to terminating operators for single transit ("ST") and inter tandem transit ("ITT") for the financial years ended 31 March 2004 and 31 March 2005 are provided by BT. Forecasts are calculated by inflating prior year values by the change in total ST and ITT volumes.

- The actual total gross revenue apportionable to ST is calculated as the sum of the product of the total revenue (referred to in the above bullet point) and the proportion of ST volumes to the total ST and ITT volumes and the ST revenue calculated by the model. Forecasts are calculate by inflating prior year revenues by the rate of change of payments to terminating operators and the rate of change of ST volumes over the total of ST and ITT volumes.

- Finally the ST bad debt cost is calculated as the product of the bad debt percentage (0.25% as discussed in Section 6) and the gross revenue apportionable to ST. The amount of bad debt calculated is than added to the total cost of ST as calculated by the main model.

ISB

A6.25 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 rentals and per km rentals. Each of these services include Customer

Sited Interconnect (CSI), Intra Building Circuits (IBC), Interconnection Extension Circuits (IEC), Re-arrangements and ISI Transmission Link.

- 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 operating costs. These are then forecast in proportion to exogenous variables such as AVE, CVE, efficiency gain, input price changes and volumes changes.

- Unit forecast costs are calculated as total forecast costs divided by total volumes.

PPP

A6.26 PPP is now subject to separate controls outside the ISB basket. This is because the cost drivers for these two services are different, where PPP costs are largely salary related and are driven by the interconnecting activity of other operators.

A6.27 In addition, the base year costs and revenues for PPP have been adjusted to take into account the changes introduced by the July 2004 PPP decision[47]:

- £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 retail 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.

FRIACO

A6.28 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.

A6.29 Unit costs for FRIACO at the DLE ("DLE FRIACO") are calculated by taking into consideration the total numbers of Local Exchange ("LE") circuits. Similarly unit costs for single tandem FRIACO ("ST FRIACO") are calculated by taking into consideration the total numbers of Local Tandem ("LT") circuits.

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

A6.30 The charge for DLE FRIACO is based on three components and the value of X calculated 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[48] per FRIACO port

A6.31 In calculating the charge for DLE FRIACO, the charge for the LECO circuit is multiplied by an adjustment ratio[49] which reflects the number of call origination circuits required per FRIACO port. Therefore the charge for DLE FRIACO can be represented as:

A x adjustment ratio (LECO) + B + C

A6.32 A similar approach is taken for calculating the charge for ST FRIACO. For this two further charges would need to be specified (in addition to the ones listed above for DLE FRIACO) which are:

- (D) Local tandem circuit (excluding FRIACO port at tandem switch)
- (E) FRIACO port at tandem switch

A6.33 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 ST FRIACO can be represented as:

A x adjustment ratio (LECO) + (B+D) x adjustment ratio (L-T) + C + E

Consultation comments

A6.34 Respondents had various comments on the structure of the NCC model as discussed in the below paragraphs.

- All respondents commenting on this suggested that call origination and call termination should have the same X as the two services are essentially made up of the same network components. As explained in paragraph A6.23 Ofcom does not believe this to be appropriate. For more discussions on this point see paragraphs 6.128 to 6.132 in Section 6.
- All respondents agreed that PPP and ISB services should be subject to separate controls as the competitive conditions of these two services are different. For more discussions see paragraphs 6.122 to 6.127 in Section 6.
- BT noted that it could not achieve Ofcom's projected efficiency gains in PPP, as half of the cost is pay, which it believes will rise in real terms. Ofcom has applied the efficiency factor to all operating costs for all network components. Hence Ofcom believes PPP should be

[48] Please note that this is the portion of PPP charged to FRIACO.
[49] For more detailed discussion on the AR for DLE FRIACO please see Annex 9.

subject to the same efficiency factor as the other network components.

- UKCTA, Energis and C&W stated that there should be separate sub-caps on each type of interconnection circuit (i.e. connection, fixed rentals and per km rentals) to reduce potential price volatility and other risks on operators. Ofcom does not agree with this approach, as there is no evidence that BT has not met its SMP conditions in pricing these services (see paragraph 6.126).

- BT noted that all base year costs should be adjusted to incorporate the effects of newly arranged future 'cumulo' rates bills[50]. However, Ofcom rejects the approach of selectively including specific changes in costs (even where these are known) to offset against an empirically observed efficiency trend. In order to avoid the appearance of subjectivity, this approach would require an attempt to map out all known or expected cost changes over the next NCC period, which is not practicable.

Ofcom's conclusions

A6.35 Ofcom has subjected Call Origination and Call Termination to separate values of X as calculated by the model.

A6.36 Ofcom has subjected PPP and ISB services to separate charge controls. Further, for reasons outlined in paragraph A6.34, Ofcom has not subjected each different ISB service (connections, fixed rentals and per km rentals) to separate sub-caps.

Model periods

A6.37 The model uses BT's base year data for the financial year end 31 March 2004 (2003/04) and forecasts cost values between 2004/05 and 2009/10. The values of X for the next charge control are calculated over a four year modelling period between 2005/06 and 2009/10. The next NCC period starts in October 2005 which is half way through 2005/06.

A6.38 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 as shown in the figure below.

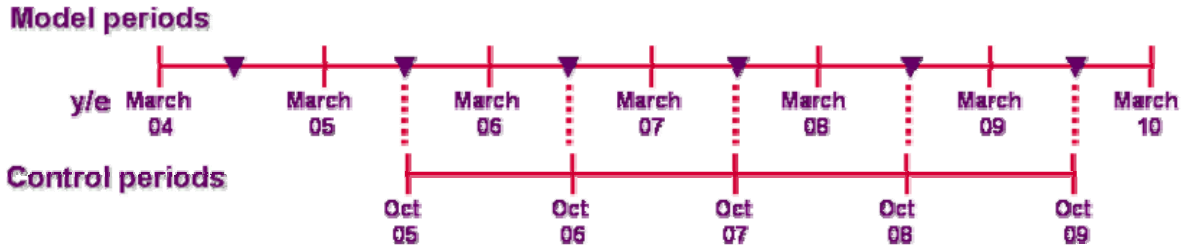
A6.39 It should be noted that the model does not use actual cost and volume data for the year ending 31 March 2005 (year 2004/05), but forecasts these as explained above. The reasons for adopting this approach are:

- The effect of PSTN run-down, which is likely to have increased operating costs and decreased capital costs, making 2004/05 data inappropriate as the basis of the technologically neutral model; and

[50] Cumulo rates refer to BT's business rates paid on its network business.

- The difficulty in confirming at this stage the level and accuracy of 2004/05 volumes provided by BT by retail call type and standard service, combined with the fact that Ofcom already has a reasonable base of volume data with which to forecast BT volumes.

Figure A6.1 High level flow diagram of the NCC model



Consultation comments

A6.40 All respondents commenting on this issue agreed that it is appropriate to set the next NCCs to last for four years. This seems mainly due to the fact that respondents welcome the stability provided by a longer charge control and also due to the adoption of the technologically neutral approach that addresses the modelling challenges associated with migration to the 21CN network. For more discussions see paragraphs 6.116 to 6.117 in Section 4.

Ofcom's conclusion

A6.41 In view of favourable consultation responses Ofcom has kept a four year modelling period for the next charge control.

Discussion of key parameters effecting the value of X

A6.42 The value of X calculated for each of the regulated services depends on a number of key model parameters which are discussed below. In the March Consultation, Ofcom identified reasonable ranges for these key parameters. In the light of responses, Ofcom has concluded on appropriate values for the key parameters as set out below.

Cost basis

A6.43 In previous charge control reviews, Oftel modelled the charge control on two different cost bases; 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. This was for consistency with the LLU charges which were set in 2000 on the basis of LRIC+EPMU data. Consistency was considered necessary in order to avoid the double recovery of some costs, firstly in the charge for LLU and secondly in the charges for network services which could result from inconsistent treatments of common costs. In addition it was noted that the total costs of inland conveyance on a LRIC+EPMU basis were not significantly different from CCA FAC. However, the decision was not based on any claimed intrinsic superiority of LRIC+EPMU over CCA FAC, which was regarded as likely to be little different, although both these were regarded as superior to historic cost (HCA) FAC which did not provide appropriate entry or investment signals.

A6.44 In the March Consultation, Ofcom published values of X based on both methods, and indicated that the final values of X selected would vary depending on the cost basis chosen.

A6.45 Ofcom has decided to set the new control using CCA FAC as the cost basis. This decision is driven and supported by the fact that the use of CCA FAC is:

- More transparent and reliable. CCA FAC data is based on BT's audited regulatory financial statements whereas LRIC+EPMU data are produced more irregularly and to a lower standard of audit.

- Consistent with the overall principle of cost recovery. The values of X in the network charge control are set so as to allow BT just to recover its costs including common costs and an appropriate return on capital in the final year of the cap. LRIC+EPMU and CCA FAC are alternative cost definitions which are consistent with overall cost recovery and can be used for this purpose.

- Consistent with Ofcom's legal requirements. The condition by which BT's charges are controlled requires them to be reasonably derived from costs on a forward looking long run incremental cost basis and allowing an appropriate mark up for the recovery of common costs and an appropriate return on capital employed. Where the firm is dominant, LRIC+EPMU is generally regarded as consistent with this requirement. However, CCA FAC should also be consistent with this approach, particularly where LRIC costs have been derived from such CCA FAC cost data in the first place. In this case the implicit mark-up is equal to the difference between CCA FAC and LRIC and it may not be too dissimilar to EPMU.

- Consistent with floors and ceilings. Ofcom has conducted the necessary investigations to ensure that CCA FAC costs are between LRIC floors and SAC ceilings for the relevant services.

- Consistent with other price controls. The network charge control, the LLU and WLR charges and the NTS retail uplift will all be reset on a consistent basis in a similar timeframe. Furthermore, the retail price cap was set on a CCA FAC basis.

Consultation comments

A6.46 UKCTA, C&W, Energis and Scottish and Southern Energy plc support Ofcom's move to CCA FAC as the cost basis on the basis of the greater transparency and audit assurance it provides. BT noted benefits to both cost bases, and in addition noted that the cost basis decision should be applied consistently across regulated products. For more discussions see paragraphs 6.137 to 6.138 in Section 6.

A6.47 Other respondents have not made a specific reference to this matter.

Ofcom's conclusions

A6.48 Based on paragraph A6.46 detailing the advantages of moving to CCA FAC as the cost basis and the favourable consultation responses, Ofcom has used this as the cost basis in determining the values of X.

Volumes

A6.49 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).

A6.50 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.

A6.51 The Ofcom base case scenario is based on the following total market growth trends. The methodology used in putting the forecasts together is explained in detail in paragraphs A6.55 to A6.68.

Table A6.8 – Ofcom market growth forecasts for 2005-2009

Ofcom central case	**Compound annual growth rate ("CAGR") 2005-2009**
Business Access Lines	-4.4%
Residential Access Lines	-0.04%
Local Calls	-3.0%
National Calls	-3.0%
NTS calls	-0.5%
Data Dial	-4.7%
FRIACO	-47.1%
Incoming International Calls	-4.1%
Calls from Mobiles	-7.5%
Outgoing International Calls	-3.0%
Calls to mobiles	-3.0%
Voice over IP (VoIP)	+48.4%

A6.52 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 A6.9 – Ofcom's assumptions for BT's market share in 2009/10

Ofcom central case	**BT market share in 2009/10**
Business Access Lines	78.5%
Residential Access Lines	82.2%
Local Calls	43.5%
National Calls	36.2%
NTS calls	68.1%
Data Dial	43.5%
FRIACO	100.0%
Incoming International Calls	48.9%
Outgoing International Calls	23.4%

Calls to mobiles	49.2%
Voice over IP (VoIP)	51.8%

A6.53 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 data traffic over Broadband ("DoB")*;* and
- The growth of Voice over Broadband ("VoB")*.*

The number of telephone lines and average usage pattern

A6.54 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.

A6.55 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

A6.56 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.

A6.57 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 of DoB

A6.58 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 (i.e. it loosens the control, possibly significantly). There are, however, arguments for not reflecting the forecast

reduction in its entirety in the model. When calculating the effect of broadband data substitution Ofcom has sought to clarify two key important points:

- What level of broadband substitution should be taken into account (discussed in paragraphs A6.60-A6.63 below); and

- How should the effects of broadband substitution be reflected in the volume forecasts (discussed in paragraph A6.64-A6.65).

What level of broadband substitution should be taken into account

A6.59 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 some of the retailing activity; and

- 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 NC*C*.

A6.60 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; and

- 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).

A6.61 Based on the above arguments, in the March Consultation Ofcom had 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 i.e. the maximum view of economies of scope and the incentive effects described above).

A6.62 Ofcom has now decided to use a figure of 30%, closer to the bottom of the range. The choice of a number at the bottom of the range acknowledges the argument that BT could lose additional market share as customers switch to broadband and the likely extent of re-use of components as well as the provision of appropriate incentives and protection of narrowband customers. Paragraph A6.71 gives further detail on this decision.

How should the effects of broadband substitution be reflected in the volume forecasts

A6.63 Ofcom has assumed that the figure for total broadband subscribers reaches around 14m by the end of the next charge control (which is more than double its level in 2003/04). Of the annual growth in broadband subscriber numbers, 90% is assumed to come from narrowband users. It is then assumed that 30% of broadband substitution should be treated as remaining on the narrowband network for modelling purposes to reflect economies of scope and incentives. The annual (absolute) growth in broadband subscribers is then multiplied by (30% x 90%, i.e. the percentage of broadband substitution not remaining on the narrowband network) to give the reduction in forecast narrowband volumes due to broadband substitution.

A6.64 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.

The growth in VoB

A6.65 Ofcom has followed a similar methodology in taking into account the effects of broadband substitution in voice over the next charge control, although some of the assumptions differ and these are explained in the paragraphs below.

A6.66 VoB forecasts prepared by Ovum[51] 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 retail call minutes by 2009/10.

A6.67 As for data, Ofcom has treated 30% of the projected reduction in PSTN volumes due to VoIP substitution as remaining on the PSTN. This means that the remainder (70% x 20%) of VoIP calls will substitute conventional retail call minutes and leave the PSTN. However, of this latter group of VoIP calls BT have acknowledged that a proportion may still return for termination on the PSTN and have provided routing factors for these.

Consultation comments

A6.68 There have been varied responses to the volume forecasts (see paragraphs 6.133 to 6.136 in Section 6). C&W pointed out the difficulty of making robust assumptions on the broadband economies of scope and that Ofcom should take into account its policy aims when deciding on the matter. UKCTA and Energis noted the forecasts to be too pessimistic and urged Ofcom to use the upper end of broadband substitution being added back i.e. 60%. On the other hand Scottish and Southern Electric and Thus found the forecasts reasonable.

A6.69 Vodafone had the following specific comments:

[51] Consumer VoIP forecasts, Ovum, August 2004.

- Vodafone noted that the decline in business exchange lines of 4.5% is unwarranted based on their own calculations. Ofcom has consistently applied the approach discussed in paragraph A6.50 in calculating its volume forecasts and believes the data and the results to be reasonable. In particular, it has estimated the trend over a period including both rising and falling volumes, which is therefore not unduly influenced by recent falls.

- Vodafone noted that BT's business exchange line market share in 2009/10 should be held at 83% (as per 2003/04). Ofcom notes that the decrease in BT's business exchange lines from 83.5% in 2003/04 to 78.5% in 2009/10 is not material and does not have a material effect on the values of X calculated. In addition the number of business exchange lines is forecast in a consistent manner with all retail call types and Ofcom believes this to be a reasonable approach.

- Vodafone requested an explanation as to why calls from fixed phones to mobiles reduce at the same rate as local and national calls, while call from mobiles to fixed decrease at a faster rate. Ofcom notes that the total market figures for calls from fixed phones to mobiles is based on BT call volumes only (as data from other operators is not fully available). If we compare BT-only calls from fixed phones to mobiles with BT-only calls from mobiles to fixed phones these levels of reduction are more comparable, being -7.5% and -5.1% respectively. Ofcom believes that there is no necessary reason for these type of calls to decrease at the same rate as this may be influenced by changes in the relative prices of mobile-mobile, fixed-mobile and mobile-fixed calls.

- Vodafone noted that it is not clear whether Ofcom is anticipating any impact on volumes from the growing price competition represented by CPS. Ofcom notes that the effect of price competition on volumes is not explicitly modelled. However, the effect of falling prices will be reflected in the trends used to generate the forecasts.

- Vodafone noted that Ofcom's forecast methodology for the growth of VoIP are unclear. The methodology applied by Ofcom in calculating the VoIP forecasts is explained in detail in paragraphs A6.59 to A6.68.

- Vodafone noted that quarterly volume data published by Ofcom and Oftel show a considerable fluctuation. In preparing its volume forecasts Ofcom has only taken into account historic data from Q3 2001 onwards hence avoiding issues arising from inconsistent definitions prior to this period. The year 2001 was also one of large scale take up of CPS and FRIACO, and therefore distortion of any trends is avoided by excluding these earlier periods. Ofcom believes that a mild fluctuation in actual volume trends is not unreasonable.

A6.70 BT, on the other hand, articulated the following thoughts:

- BT noted that forecast volumes should decline between 6% to 7% (or greater) per annum. In the March Consultation Ofcom had noted overall retail call volumes to decline by 4.5% between 2005-2009. The updated volume forecasts used in this statement suggest a decline in the same period of 6%, broadly in line with the BT figure.

- BT stated that broadband add-back should be 12% or less. Ofcom has set out above its reasons for using a figure of 30%. It also believes that, under certain assumptions, BT's view that at most 12% of costs are common between narrow and broadband is in fact consistent with 30% add-back. In addition, Ofcom's add-back assumption should be considered in the context of the other assumptions in the model. For example, it could be argued that a higher forecast for total broadband subscriber numbers should be accompanied by a lower projection for the proportion of subscribers who switch from narrowband and a higher rate of add-back. This is because higher broadband subscriber numbers may indicate that broadband services are attracting customers who had not previously considered the internet worthwhile, and also increases the subscriber base over which costs can be recovered. It should also be noted that the values of X in the network charge control model are not highly sensitive to changes in the add-back assumption. For example, the combined effect of increasing broadband subscribers from 13.2m to 14.2m and increasing add-back from 20% to 30% might change the modelled call origination X by about 0.2%, which after rounding may not even change the final value of X.

- BT stated that broadband add-back effectively results in double counting, as the economy of scope is already reflected in the 4.5% annual rate of efficiency growth assumed. For the following reasons, Ofcom does not accept that the add-back double-counts the economy of scope effect.

    - Firstly, in the period to 2003/04 used to estimate the underlying rate of real unit cost reduction, the number of broadband subscribers was small relative to the number of narrowband subscribers and relative to the number of broadband subscribers expected in future. The impact of broadband economies of scope will therefore also have been relatively small in the period to 2003/04. Ofcom's report on the telecommunications market 2005 shows that, at the end of 2003, there were only 3.2m broadband subscribers, a number which is expected to grow to some 14m by the end of the next charge control period.

    - Secondly, it is arguable that any such effect would be offset by a related factor not captured in Ofcom's efficiency modelling. It is not clear that, to the extent that there has been broadband substitution of narrowband traffic in the period to 2003/04, this has resulted in a reduction in BT's PSTN network costs. Indeed, to the extent that PSTN volumes have been lower than they would otherwise have been in this period as a result of broadband substitution, PSTN unit costs will tend to have been higher than they would have been in the absence of such substitution. As Ofcom has made no adjustment to past volumes to allow for this effect, it is arguable that the measured

rate of real unit cost reduction over the period used for Ofcom's efficiency modelling is in fact an understatement of the underlying rate.

- Thirdly, Ofcom has conducted a detailed examination of the sources of the reductions in BT's unit costs in the period 1999/00 to 2003/04. It has been decided that the reduction is in part due to accounting adjustments which it is not legitimate to regard as repeatable, while others are genuine efficiency gains of a kind which it is reasonable to expect BT to continue to make in future[52]. Ofcom believes that, to the extent that these result from economies of scope arising from the introduction of new services, it is reasonable to expect BT to continue to benefit from the introduction of new services in this way (particularly as it moves to the NGN, although no additional allowance has been made for this).

Ofcom's conclusions

A6.71 Ofcom believes that the volume forecasts set out in paragraph A6.51, reflecting the analysis in this annex, and a figure of 30% add-back of reductions in PSTN volumes due to broadband substitution, are reasonable positions.

Efficiency

Ofcom's efficiency calculations

A6.72 The efficiency factor is an important parameter as it determines the rate by which real unit capital and operating expenditure are expected to decrease year on year before taking account of volume and input price changes. It should be noted that no adjustments are made to the efficiency factor to include the effect of anticipated savings from 21CN. Ofcom's calculations suggest a range of 4.5% to 5.5% for the year on year efficiency figure . When calculating the efficiency factor 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;
- Accounting adjustments to BT's financial data for 2003/04; and
- BT's efficiency relative to that of appropriate comparator companies.

BT's underlying rate of real unit cost reduction

A6.73 Ofcom has assumed that, in a technology-neutral sense, BT will be able to achieve the same underlying rate of real unit cost reduction over the period 2005/06 to 2009/10 as it has over the period 1999/00 to 2003/04. 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:

[52] For a discussion of the accounting adjustments included in the calculation of the efficiency factor please see paragraphs A6-82-A6.83 below.

- 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 A6.76-A6.77).

- 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[53] and changes in input prices[54] 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)[55].

- 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 components for either 1999/00 or 2003/04. As the use of these cost weights has a material impact on the final value of the efficiency factor and neither approach can be regarded as being the best, Ofcom has decided to use the average cost weights (for 1999/00 and 2003/04) when calculating the final efficiency factor.

Accounting adjustments for BT's data in 2003/04

A6.74 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 operating costs (excluding depreciation) in BT's core network through accounting adjustments.

[53] 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.
[54] Changes in input prices are the weighted average of the pay and non-pay category input prices between 1999/00 and 2003/04.
[55] 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.

A6.75 While 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 ("adjustment A"). This adjustment arises as a result of BT apportioning building costs to switches. The total accounting adjustment amounts to £32.7m of which a) £14.1m is due to the change in BT's apportionment methodology and b) £18.6m is due to the switches becoming smaller over time. Ofcom believes that the latter is an efficiency gain that could be repeated in the future and therefore has not added the amount of £18.6m to the operating costs in 2003/04.

- Reclassification of costs out of the core network into Select Services ("adjustment B"). A proportion of core network costs (amounting to £13.3m) have been apportioned to Select Services. Ofcom considers that there is no reason why BT will not in future introduce similar services to those that gave rise to this cost re-allocation, with its associated economy of scope. Ofcom notes that BT's 21CN changes are partly being introduced to enhance the customer experience, and considers that such changes should be viewed in the same way as Ofcom is treating other efficiency issues. That is, that were a hypothetical PSTN network to continue to exist, BT would seek to make improvements using that network rather than the 21CN. In the same way that Ofcom is not adjusting for specific 21CN savings within the 2005-9 NCC, in place of a hypothetical projection, Ofcom does not assume that BT's range of services would stand still for the purposes of modelling a hypothetical PSTN network. Ofcom has therefore not adjusted the operational costs in 2003/04 for this accounting adjustment.

A6.76 The combined total effect of these adjustments was to reduce network costs by £46m. Ofcom believes that £18.6m of adjustment A and all of adjustment B arise as a result of 'economies of scope' and thus should be treated as genuine cost reductions when calculating BT's efficiency. Had Ofcom fully accepted these two adjustments, the efficiency range quoted in paragraph A6.72 would have reduced, all other things being equal, by about 1%.

BT's efficiency relative to that of appropriate comparator companies

A6.77 As in the last NCC review, Ofcom has commissioned economic consultants NERA to carry out studies to examine the efficiency of BT's network relative to 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.

A6.78 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 firm's 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.

A6.79 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. Ofcom's preferred approach conceptually is to use the upper bound, in which the cost of capital varies, but given some concerns about the regression involved, considers that it is reasonable to base BT's overall efficiency score on the mid-point of constant and varying cost of capital figures calculated by NERA.

A6.80 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 requirements 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.

A6.81 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.

A6.82 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 includes 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.

Consultation comments

A6.83 The comments received on the efficiency factor were varied (see paragraphs 6.118 to 6.119 in Section 6). BT, UKCTA, C&W and Energis agreed with Ofcom's approach of not adjusting the efficiency factor to include any efficiency gains resulting from 21CN. These respondents also agreed with the range for the efficiency factor of 2.5%-4.5% proposed by Ofcom in the March Consultation.

A6.84 Scottish and Southern Electric plc found Ofcom's proposed approach of not assuming any efficiencies in costs beyond the normal level as unduly conservative. Ofcom does not agree with this assertion: it would not be appropriate for Ofcom to take into account efficiency gains arising from 21CN, while excluding any associated start-up and parallel running costs.

A6.85 BT has made a number of observations with regards to the calculation of the efficiency factor which are summarised below:

- BT noted that certain one-off accounting adjustments are dealt with inappropriately. These relate to adjustments A and B discussed in paragraph A6.76. BT notes that recognition of the one off nature of these accounting adjustments would suggest an annual efficiency factor of 2%. As discussed in paragraph A6.77 Ofcom believes over 50% of the former and 100% of the latter savings arise as a result of economies of scope.

- BT stated that the use of the upper decile as the efficiency benchmark creates an unrealistic high target. BT points out that a company operating in a competitive environment would earn its cost of capital, hence the appropriate benchmark would be the average rather than decile. BT references a paper prepared by Professor Paul Grout in response to the partial private circuits charge control consultation. Ofcom responded to this point in a recent decision on the partial private circuits charge control.[56] As set out in that document, Ofcom is of the view that the sample of US LECs used to assess BT's comparative efficiency is not representative of a sample of US companies of average competitiveness or efficiency, as at least some of the operators in the sample faced limited competition, particularly during the earlier part of the time period covered by the study. Hence Ofcom considers it appropriate to adopt an efficiency benchmark above the average of the group.

- BT has also made some confidential comments on the appropriateness of the modelling methodology and data used by NERA. Ofcom does not consider that any of the issues raised by BT justify a change in the efficiency factor which should be used.

- BT believes that the efficiency factor should not be higher than 2%. BT points out that the "frontier shift" calculated by NERA is around 1.5% and this further supports the fact that the efficiency factor should be no greater than 2%. As noted in paragraph A6.82 above, the NERA efficiency frontier is likely to be less appropriate for modelling NCC costs as it would include efficiencies of both access and core networks.

- On cost weights (see A6.74), BT has suggested that 2003/04 weights should be used, based mainly on assuming that rates of unit cost reduction are the same for each component in the future as they were historically. However,Ofcom believes that this is not necessarily a valid assumption. Data suggest very large variability in rates of efficiency gain for individual components from year to year, while overall efficiency growth is more stable. One reason may be

[56] http://www.ofcom.org.uk/consult/condocs/ppc_charge_control/statement/#content

that technical change is not a smooth process but is embodied in investments which occur at infrequent intervals. Thus if there are large cost reductions in one component in one year, this may not be repeated in the next year because it is unlikely that BT would replace new equipment so soon. Instead it might be more likely to invest in making savings in one of the areas where costs have fallen less rapidly. This approach supports the use of the average between 1999/2000 and 2003/04 cost weights, rather than reflecting 2003/04 cost weights alone.

Ofcom's conclusion

A6.86 Ofcom's calculations suggest a range of 4.5% to 5.5% for the year on year efficiency figure depending on whether the low or high estimate of comparative inefficiency is used, and on the treatment of BT's proposed accounting adjustments. The lower value would be consistent with using the low NERA catch-up value and making a partial adjustment for BT's Select Services accounting adjustment. This range is slightly higher than the one presented in the March Consultation, and the reason for this is the use of the average cost weights (see paragraph A6.74). In selecting the final value of the efficiency factor a degree of judgement needs to be applied to ensure that the value calculated is a reasonable target going forward, for example by comparison with the historical precedents. As a result of this Ofcom has decided to use 4.5% as a reasonable year on year efficiency gain.

Asset-volume elasticities (AVEs)

A6.87 An asset-volume elasticity is defined as the percentage increase in gross assets, valued at replacement cost, for a 1% increase in volume. In the March Consultation 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. These were based on assumptions used in the last price control review, which were based on a top-down model of BT's costs.

A6.88 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).

A6.89 Ofcom has used the central value (which equates to 0.38 for inland call conveyance) as the asset volume elasticity in producing the final values of X.

Consultation comments

A6.90 BT commented that as PSTN volumes are shrinking assets are less likely to be responsive to volumes and that an AVE of 0.2 or less is justified. As explained in paragraph A6.89 Ofcom's approach is technologically neutral and hence no change to the AVE values is required.

Ofcom's conclusions

A6.91 As discussed in paragraph A6.89 as a result of Ofcom's technologically neutral approach no change to the central AVE values is required.

Cost-volume elasticities (CVEs)

A6.92 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. In the March Consulation 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 were based on assumptions used in the last price control review.

A6.93 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).

A6.94 Ofcom has used the central value (which equates to 0.25 for inland call conveyance) as the cost volume elasticity in producing the final values of X.

Consultation comments

A6.95 BT commented that as PSTN volumes are shrinking costs are less likely to be responsive to volumes and that a CVE of 0.2 or less is justified. As explained in paragraph A6.94 Ofcom's approach is technologically neutral and hence no change to the CVE values is required.

Ofcom's conclusions

A6.96 As discussed in paragraph A6.94 as a result of Ofcom's technologically neutral approach no change to the central CVE values is required.

Investment levels

A6.97 Two approaches to the forecasting of investment were considered in the March Consultation . 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.

A6.98 The second approach was to use the model to derive projections for investment. This is most consistent with Ofcom's technologically 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. Ofcom has used this second approach in finalising the values of X.

Cost of Capital

A6.99 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. While 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.

A6.100 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.

A6.101 Ofcom has now concluded its review of BT's cost of capital as discussed in Section 6 and its view is that an appropriate value for BT's core network is 11.4%.

Change in asset and other input prices

A6.102 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.

A6.103 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.

A6.104 Asset and other input price assumptions have been based on past trends as discussed above.

Conclusions on the values of X

A6.105 The values of X calculated by Ofcom for the various services controlled under the NCC and based on the assumptions described in the above paragraphs are summarised in the table below.

Table A6.10 – Values of X applying to NCC services

Service	**Future controls 2005-9**
Call termination	RPI – 5.00%
Call origination	RPI – 3.75%
Single transit	RPI – 11.50%
Local-tandem conveyance	Safeguard cap of RPI – 0%
Interconnection circuits (ISB)	RPI – 5.25%
Product management, policy and planning (PPP)	RPI + 0.75%
DLE FRIACO	RPI – 8.00%
Single Tandem FRIACO	RPI – 8.50%

Annex 7

FRIACO adjustment ratio revision

Revision of the value of the Adjustment Ratio for DLE FRIACO

Introduction

A7.1 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.

A7.2 The Adjustment Ratio (AR) is used in the derivation of the regulated charges for FRIACO and captures the average number of Local 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.

A7.3 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

A7.4 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

A7.5 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.

A7.6 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 (i.e. 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).

A7.7 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 NCCs

A7.8 For the preparation of the NCCs, 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 A7.1. 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 A7.1 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 A7.2 Calculations of the Adjustment Ratio

Method	LECO EPC	FRIACO EPC	AR (figures in brackets are shown with "mark-ups"[57])	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 calculate 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 up to 1)

Explanation of the calculations

Method 1

A7.9 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

A7.10 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.

[57] 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

A7.11 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

A7.12 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 i.e. morning, afternoon and evening. When LECOs are outside their individual busy hours, no additional capacity is needed to serve FRIACO traffic.

A7.13 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 A7.3 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 A7.4 BH EPCs of all circuits (used in Method 4)

Morning BH EPC	0.296
Afternoon BH EPC	0.305
Evening BH EPC	0.320

A7.14 A comparison of the tables above shows that, the morning and evening busy hour EPCs used in Method 4 (and shown in Table A7.4) are in general, lower than the morning and evening busy hour EPCs provided for all the months in Table A7.3. 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. Ofcom commented in the consultation document that, 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.

A7.15 Each of these figures in Table A7.4, 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[58]. 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

A7.16 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.

A7.17 The current range of values calculated for the consultation document 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.

A7.18 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 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

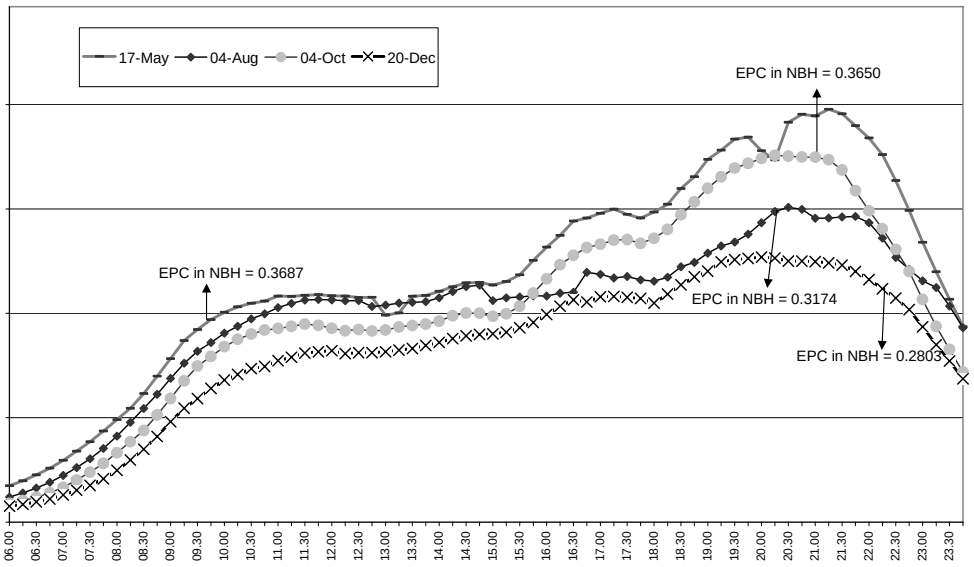
[58] This information on the percentage of concentrators was provided by BT for the November 2004 Statement and reflects BT data for selected months of 2002, 2003 and 2004. Ofcom has no reason to believe that this likely to change significantly over the coming years.

in such traffic. However, with the increasing take-up 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.

A7.19 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.

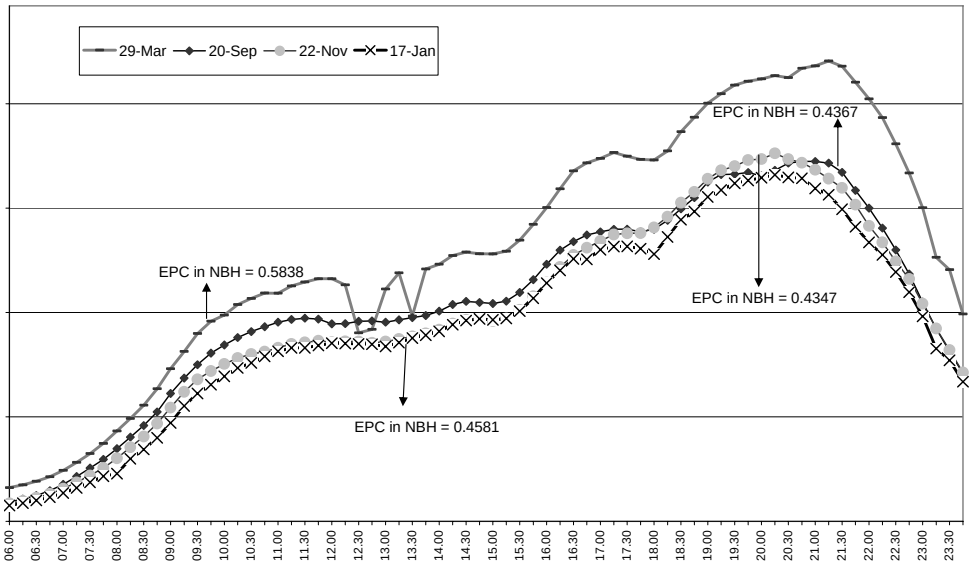
A7.20 To understand if this is the case, the following figures compare the EPCs on those days that have a busy hour at similar times (morning, afternoon or evening).

Figure 1: Comparison of FRIACO traffic data between days when Network BH is in the morning



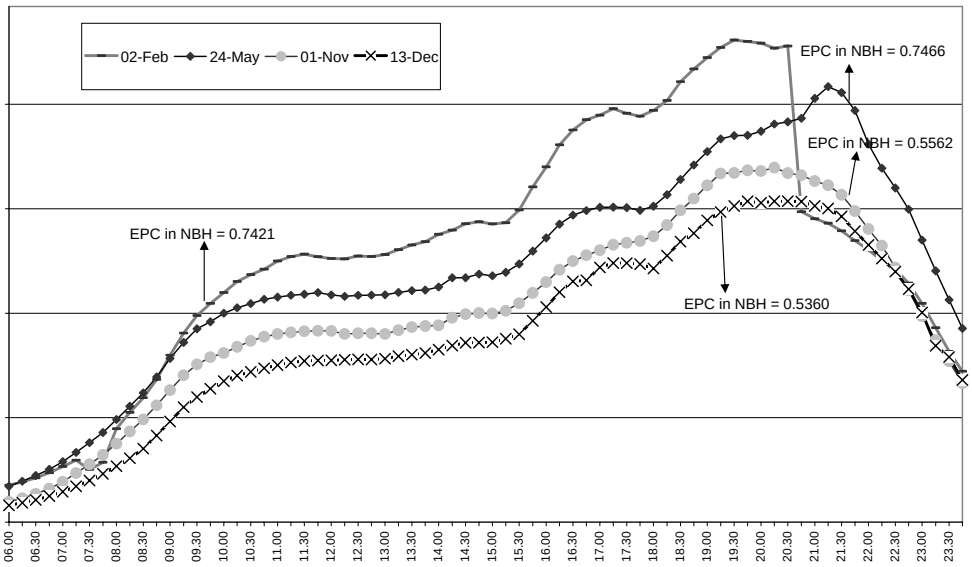
NBH:
17 May - 10:11:00
4 Aug - 10:15-11:15
4 Oct - 10:15-11:15
20 Dec - 10:00-11:00

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

A7.21 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.

A7.22 Ofcom is of the view (a view that BT concurs with) that FRIACO traffic is likely to reduce further during the next NCCs. 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

A7.23 In the consultation document Ofcom presented the view that either Method 3 or Method 4 provides a reasonable estimate of the value of the AR. Hence Ofcom proposed as the value a midpoint between the values of 1.59 and 1.77, rounded to the first decimal for the AR. **This value is 1.70[59].**

Reviewing the Adjustment Ratio in the NCC

A7.24 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.

A7.25 Ofcom considers that, because 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 considered in the consultation document whether a periodic review of the AR by Ofcom is needed and if so, the appropriate frequency of the review. Ofcom was of the view that it now had 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 was proposing (i.e. 1.7) reflected the best estimate of the AR using a reasonably lengthy time series of data. Therefore there could be a case that the 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.

A7.26 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 is difficult to judge if this is an effect of seasonality or a general downward trend. Given this uncertainty, the consultation document stated that it could be argued that the FRIACO AR needs to be reviewed periodically, the period of review perhaps being annual.

A7.27 Ofcom therefore consulted (see Section 6) 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.

[59] 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.

ST FRIACO

A7.28 The current value of the AR (LECO) is 2 and AR (LT) is 1.19. These values were 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 take-up of ST FRIACO and traffic had not reached a mature or stable level. Ofcom however indicated that the review of the NCCs would be an appropriate time to consider if the values of the AR for ST FRIACO should be evaluated again.

A7.29 Ofcom has obtained data from BT that shows that there continues to be very little take-up 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.

A7.30 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.

Responses to the Consultation and Ofcom's views

Question: 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?

A7.31 BT responded that it does not believe that Ofcom should be micro managing a product that may possibly be withdrawn before the end of the next charge control because of limited demand from operators who are moving in to offer broadband services. Once the adjustment ratio review is completed, a safeguard cap approach would allow more flexibility to agree sensible migration paths with wholesale customers along with an appropriate path to product withdrawal. Reviewing the adjustment ratio intermittently and changing the methodology would create uncertainty. This should either be the last adjustment ratio review or it should be done at predetermined levels using a method that does not change.

A7.32 BT also stated that the method closest to BT's view of how the calculation should be done is Ofcom's Method 4. It is noticeable that this method does not support a reduction in the ratio. BT also stated that Ofcom has applied an uplift of 1.7% to the adjustment ratio because the EPCs is based on information on the number of ports in recorded in service, even though some of them may have been ceased. Given that the number of ports is in rapid decline, this uplift should now be higher, and by using 1.7%, Ofcom may be underestimating the adjustment ratio.

A7.33 Energis expressed the view that the proposed value of the adjustment ratio is still high; Method 4 overstates the adjustment ratio and should not be included. They referred to the argument made by Ofcom that although there is a risk that Method 4 may overstate the AR, it is possible that the migration to broadband and mobile origination might reduce the LECO EPCs, in which case method 4

might not be an overstatement. Energis was of the view that this argument is flawed because:

- the move to broadband would reduce the FRIACO EPCs more than LECO EPCs because the decline in unmetered narrowband services is quicker than metered and would reduce the adjustment ratio; and
- the switch to mobile has slowed significantly and therefore the expected change to LECO EPCs is likely to be less significant now than previously. Hence the historical LECO EPCs should be considered as the stable basis.

A7.34 Energis stated that if the above two assumptions are correct, Ofcom's justification for Method 4 is flawed. It claimed that Method 4 represents an outlier figure, and that if there are any doubts on the assumptions behind Method 4, then this method should be discounted and the average of the other methods should be used to calculate an adjustment ratio of 1.60.

A7.35 Energis reiterated its view that BT should be required to retrospectively apply the resultant change to the AR back to November 2004, because Ofcom stated in the consultation that the additional information received from BT has increased Ofcom's confidence in understanding the true AR position by narrowing down the possibilities within the original range considered. Energis stated also that since this is not due to changes in traffic over time, the AR should be applied retrospectively.

A7.36 Energis stated that if Ofcom accepted Energis' arguments in relation to the value of the AR, and agreed to apply it restrospectively, it would support a move that fixed the value of the adjustment ratio at a level of 1.60 for the duration of the NCCs. UKCTA's views matched those of Energis, except that UKCTA did not propose retrospective application of the new AR.

A7.37 C&W responded by saying that they did not believe that there is a compelling justification for annual reviews because it is unlikely that the underlying cost of FRIACO will decrease in the future, given the migration to broadband. Hence there is no need to review the charge on the grounds of consumer protection. Additionally, a future review would carry the risk that the source data could be skewed by the move towards 21CN, and if this risk was not manageable then a future review would not be practicable.

Ofcom's views

The value of the AR for DLE FRIACO

A7.38 Ofcom explained in the consultation that either Method 3 or Method 4 provides a reasonable estimate of the value of the AR and without a strong reason to choose any individual method, Ofcom was proposing the midpoint between Method 3 and Method 4.

A7.39 BT has provided no strong reason why it believes that Method 4 is more appropriate. BT also stated that the uplift of 1.7% applied by Ofcom should be higher because the total number of FRIACO ports is in decline. But BT has not provided any evidence to support this statement that Ofcom can consider further in the preparation of this Statement.

A7.40 Energis' view is that the move to broadband would reduce the FRIACO EPCs more than LECO EPCs because broadband is replacing FRIACO. The other point that Energis makes is that the switch to mobile origination has slowed significantly and the expected change in LECO EPCs is not likely to occur and hence historical EPCs should be considered.

A7.41 Ofcom's view is that it is useful to discuss two separate points regarding the use of Method 4 in the adjustment ratio:

(a) Based on the available data, Method 4 can be regarded as reasonable; however Method 4 should not be the sole basis for the determination of the adjustment ratio because Method 4 may also overstate or understate the LECO EPCs. The LECO EPCs used in the analysis may be lower than the LECO EPCs that would result from only those circuits that busy in the morning, afternoon or evening (i.e. those resulting from the complex methodology, as shown in Table 4). On the hand, since the EPC figures used in the analysis include erlangs from LECO circuits that are outside their busy hours as well, at least some of the LECO EPCs may be overstated. For instance, BT says that only 16% of concentrators have a busy hour in the afternoon, but the total erlangs in the afternoon is higher than that in the morning (when 30% of concentrators have a busy hour), thereby leading to a higher afternoon EPC figure. If the erlangs of only the 16% of concentrators was considered, the EPC may have been lower. Therefore, it is unclear if Method 4 would understate or overstate the adjustment ratio relative to the complex methodology.

(b) Looking forward, it is even more unclear what LECO EPCs and FRIACO EPCs might result. Ofcom discussed that the move to broadband and mobile origination might well reduce the true LECO EPCs. Energis' view is that with the move to broadband, FRIACO EPCs are likely to reduce faster than LECO EPCs might be valid, as indeed might be the impact of mobile origination. Given that prediction of LECO EPCs is difficult, Ofcom proposed in the consultation that the value of the adjustment ratio be reviewed again within the charge control period.

A7.42 Energis has also made the argument that since the proposed value of the AR at 1.7 has reduced from the current value of 1.78, mainly due to Ofcom's increased understanding from new information and not due to a change in traffic patterns, the value of the AR should be set retrospectively to November 2004.

A7.43 Ofcom's proposed value of the AR in the Consultation was based on a more complete set of data[60] than the data set used in the Statement in November 2004[61]. To that extent, the increased information takes into account Ofcom's better understanding of the market through observing the change in traffic patterns such as seasonality and the reduction in total traffic within the same season (see Figure 3 for the difference in total traffic between February 2004 and December 2004, both constituting the same winter season, but in consecutive winter years). Ofcom sees no justification for applying the value of the AR retrospectively when the value of the AR is clearly based on the changing traffic profile.

[60] using additional information for the months of September, October, November, December 2004 and January 2005

[61] which only used data for some months from February to August 2004.

A7.44 In setting the value of the adjustment ratio, Ofcom is striking a balance between its objectives of certainty and stability in the charge and cost causality, both of which it regards as being relevant. Ofcom has adopted a consistent and reasonable approach to striking this balance by periodically reviewing the AR, but not applying any charge changes retrospectively. Ofcom considers that such an approach is still justified.

Conclusion on the value of the AR

A7.45 Ofcom is of the view that it has received no evidence nor has it received sufficiently robust arguments for changing the value of the AR proposed in the consultation. During the preparation of this Statement, BT has provided information on the EPCs for LECO circuits and FRIACO ports for two days in May 2005. Ofcom has considered this information along with the existing information and has found that the inclusion of a few more days in May does not significantly change the value of the AR.

A7.46 Ofcom concludes that given the evidence available, the AR for DLE FRIACO should be set at a value of 1.7 when the new charge controls take effect.

A7.47 Ofcom has received no further evidence or discussion on the value of the AR for ST FRIACO. Hence, Ofcom concludes that the value of the AR (LECO) for ST FRIACO should be set at 1.19, and that for AR(LT) for ST FRIACO should be set at 2 when the new charge controls take effect.

Reviewing the value of the AR for DLE FRIACO

A7.48 Ofcom's objectives in setting a value for the adjustment ratio have always been to achieve a trade-off between certainty and stability in the charge on the one hand, and cost causality on the other. In the early days of FRIACO when the market was growing, there was a risk that certainty and stability might be undermined if the value only reflected current EPCs and did not reflect the growing trend. This was the reason that a mature EPC level for FRIACO was used, but was reviewed periodically to ensure that the value of the adjustment ratio still met the objective of cost causality.

A7.49 Over time however, the FRIACO market has not only stabilised but is in decline as retail consumers (and FRIACO purchasers) move to broadband services. Therefore, while stability and certainty remain important for business planning, they no longer carry the weight they did before. At the same time, Ofcom has access to more and better information on the pattern of FRIACO traffic relative to LECO traffic. This means that the risk that the AR might not be cost causal or not reflect cost causality in the future is lower. In making a decision on whether to periodically review the adjustment ratio or fix a charge for the duration of the control, Ofcom has considered the risk, however small, in fixing a value that might not reflect changing traffic patterns.

A7.50 Ofcom discussed in the consultation that LECO EPCs and FRIACO EPCs have fallen over 2004/05; but since no comparator of the busy hour EPCs was available for previous years, it was difficult to conclude whether this was due to seasonality or due to the changing traffic patterns.

A7.51 Given that this still remains the case during the preparation of this Statement, Ofcom is of the view that fixing the value of the AR for DLE FRIACO throughout the charge control may be premature and might still carry the risk of not reflecting

cost causality if a significant fall in FRIACO traffic means that a lower value of the AR is appropriate. Ofcom also does not agree with UKCTA's point that the move to 21CN would result in skewed data. The reduction in FRIACO demand is more likely to be a result of a shift of retail demand towards broadband than due to a move to 21CN, and in that respect, is not likely to be skewed.

A7.52 Ofcom believes that it does not require significant management or oversight in order to conduct an annual review of the adjustment ratio, as long as BT is able to furnish the required data.

A7.53 Ofcom concludes that it is proportionate to review the value of the adjustment ratio at a future date, probably not before Autumn 2006, depending on market conditions, the volume of FRIACO traffic and any evidence of significant changes in EPCs. Any decision to fix the value would be taken after a review of the data at that point.

Annex 8

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, e.g. 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.