BASIC DETAILS

Consultation title: Review of the fixed narrowband services markets: Consultation on the proposed markets, market power determinations and remedies – Published5 February 2013

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BT's response to Ofcom's consultation Document

"Review of the fixed narrowband services markets: Consultation on the proposed markets, market power determinations and remedies"

NON-CONFIDENTIAL VERSION

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2.) Executive Summary

Overview

There has been radical change in these markets since the last market review. Mobile networks, MPF and cable TV operators are all competing to provide voice services at ever-lower prices, while both residential and business customers increasingly buy voice as part of a larger bundle of services. In assessing these markets Ofcom has a responsibility to take a forward look at competition and demonstrate that any regulation imposed is both necessary and proportionate. In this consultation, however, Ofcom is proposing simply to re-impose most of the same regulatory regime that has existed for over a decade, apparently ignoring the impact of this change on the real choices available to customers. There is a clear opportunity to enhance Ofcom's deregulation agenda by recognising the impact of bundled purchases and adopting lighter touch regulation where there is already strong competition.

While there are welcome changes to some aspects of non-price regulation (CPS, IA and Single Transit), the key issue remains that Ofcom has taken a "one size fits all" approach to the application of charge control and non-discrimination remedies. The many layers of competition in fixed markets face significant disruption from rapid changes to the structure of network charges. Ofcom has recognised that there will be no clear benefit to consumers from reductions in fixed termination rates, which are already among the lowest anywhere. But there will be costs for some businesses, especially in the NTS sector, that will not be easily rebalanced, if at all. This will lead to huge disruption and, potentially, business casualties, if Ofcom does not give these businesses time to adjust. To enable a smoother transition to the new charging regime, there should be a glide path to pure LRIC termination, as was allowed in the mobile industry. We also point out that Ofcom has made a number of modelling errors that lead to an understatement of the level of costs involved in call origination and termination, and is not allowing BT to recover its efficiently-incurred costs.

Market definition and market power

Narrowband markets are increasingly competitive

Both volumes and revenues from fixed voice telephony have fallen since the last market review, as customers have a wider choice of supply. In 2011, mobile call volumes outstripped fixed by 52% to 48%, and this trend is continuing. BT's share of retail fixed call minutes has fallen below 40% and continues to decline. Alongside the familiar trend of fixed-mobile convergence, traditional voice suppliers also face competition from MPF, cable and "over-the-top" voice applications and non-voice

new media – and 15% of households no longer have a fixed voice line at all¹. We present detailed analysis of changes to the retail markets in Annex 1 and in our answers to Ofcom's consultation question 3.1. We consider this evidence supports the case for a converged voice market, or at the very least, the need to reflect the strong pricing constraints that mobile and other technologies impose on fixed voice services.

Most customers buy voice as part of a bundle of services

The most significant development in recent years has been the increase in the number of consumers buying voice service as part of a package of services, rather than as a stand-alone product. Research commissioned by BT shows that 74% of all UK households now buy voice service as part of a bundled offer, together with broadband and, often, pay-TV². We expect this proportion will continue to rise throughout the market review period. Call minutes are generally bundled in at very low prices and it is actually more expensive to take a broadband package without the voice service from some suppliers. In parallel, business customers are also increasingly purchasing bundles of access, calls and data. Specifically, Ofcom's analysis understates the importance of MPF operators providing voice calls. Where Ofcom has already deregulated wholesale broadband, (WBA Market 3), it follows that voice should also be deregulated, when sold as part of a bundle.

Regulation should recognise the variances in market conditions

It is evident that market conditions are not uniform across the UK. For most households, consumers have a choice of narrowband, broadband or mobile service. As Ofcom has already established in its review of the broadband market, market conditions for the purchase of broadband packages are effectively competitive for the large majority of UK premises – over 77% in the last review – and these operators are offering bundled voice and broadband packages. This is likely to rise when the market is reviewed again next year. No single player has market power in this footprint, and it is neither necessary nor reasonable to impose the full range of *ex ante* obligations on BT when selling voice services as part of a bundle.

Ofcom has taken a static view of a dynamic market

Despite the evidence of market convergence, increased competition on the supply side and changing purchasing patterns by businesses and consumers, Ofcom has maintained a static view of the market, rather than taking a forward-looking view. Although Ofcom acknowledges the limitations of the traditional Hypothetical Monopolist Test (HMT), it appears to have been applied in a mechanistic way. Ofcom's survey is not a reliable basis for determining economic markets as it is very limited in scope, and the results are not conclusive. The effects of fixed-mobile substitution and the influence of MPF services have been ignored and, in its analysis of SMP, Ofcom makes no allowance for

¹ Source: paragraph 3.30 and Figure 3.5 from Ofcom's consultation document "Review of the fixed narrowband services market: Consultation on the proposed markets, market power determinations and remedies" published 5 February 2013

² Source: "BT Flows research Wave 10 (July-December 2012)", carried out by ICM Research

constraints from a wide variety of alternatives which are essentially competing for fixed services, mainly on the basis of price. The evidence shows that there is already a case for deregulating this market as a whole, but even within the confines of current market definitions, Ofcom should recognise that lighter touch regulation is appropriate in competitive areas. The limitations of the traditional approach to market definition and market power assessment are explored in the paper by Dot.Econ (Annex 2) and our answers to questions 3 and 5 of the consultation.

Even if the market definition were to remain unchanged, the competitive conditions are clearly different and so different remedies should apply. The paper by Copenhagen Economics (Annex 3) sets out the case for adopting a different approach, with remedies tailored to the real level of competition. We note that Ofcom has already adopted something of this approach in other market reviews, such as the lighter touch regulation in the WECLA region set out in the Business Connectivity Market Review. In particular, our view is that call origination, when sold by BT as part of a bundled offering, should not be subject to a non-discrimination constraint. In such a scenario, BT's objective would be the freedom to offer lower prices on a selective basis, when competing for wholesale contracts for broadband and voice combined deals. For customers purchasing fixed line voice services only, the current regulation would remain in place, so these customers would keep the benefits of existing consumer protection.

Remedies

Changes to non-price regulation are moving in the right direction

CPS and IA are no longer significant drivers of competition, and the number of customers using these services continues to decline. We therefore support the proposal to remove the obligation to supply CPS on BT's retail exchange lines, and to remove the IA obligation (see our answers to Ofcom's question 5.5). Similarly, the NTS Call Origination Condition will become obsolete once Ofcom's proposed NGCS regime comes into force. The Condition should therefore be removed as soon as practicable. As regards Single Transit, (question 7) we agree that the imposition of SMP remedies is unnecessary and disproportionate, given that there are more than 40 alternative suppliers and BT's total revenues for the service have dropped to $\pounds \ll$ million p.a.

Ofcom is radically changing the way wholesale call charges are set

The move to pure LRIC as the basis for setting termination charges will lead to a massive reduction in the revenue for these services and a need to rebalance wholesale charges. Together with the move to NGN-based cost models and other changes Ofcom is proposing, this will entail major disruption to current business models. To some extent these changes have been the expected consequence of

previous regulatory decisions by the European Commission as well as by Ofcom³. What is unexpected, and unreasonable, however, is the immediate implementation of the changes from day one of the control. Ofcom's usual practice, and in fact what happened in the case of the Mobiles, is that the whole charge control period is, in effect, a glide path to the new charges. This allows time for all CPs to minimise the costs of adjusting to the new regime. Ofcom has taken a completely different approach here, which will severely disrupt business models.

Ofcom needs to take account of fixed network dynamics

The charge control methodology adopted by Ofcom in this review draws heavily on the principles developed during the MCT review. Ofcom's proposal not to impose a glidepath for fixed calls rests on the assertion that there are no costs from an immediate step down. We present evidence here that shows in fact there is considerable market disruption and therefore a glidepath should be allowed to facilitate industry transition. This is explored in detail in our response to Ofcom's question 11.

In the mobile market a glidepath was allowed due to the presence of consumer contracts. In the fixed market, unlike mobile, there is a dynamic and multi-layered market. BT has been obliged to offer a range of wholesale services for many years. Operators choose which components they wish to buy and this has encouraged innovative entry into the market over time. Added to this, over 150 companies have invested in their own infrastructure to combine with wholesale services in order to offer a wide variety of competitive wholesale and retail services. Hundreds more have little or no infrastructure at all but rely entirely on wholesale services. The complexity and fragmentation of these markets mean that even small changes in the regulatory environment can have serious knock-on effects.

The changes will disrupt business models

In the MCT appeal, the case for a glide path was made largely because there was a need for consumer contracts to be reworked, and this would take time. Here, the impact is much more on intermediate suppliers. Ofcom dismissed our analysis of the costs to some of these customers as "theoretical" in the consultation – but this is far from a theoretical problem for those businesses that could be forced to withdraw from the market if Ofcom insists on going ahead with the change immediately.

As a consequence of the many business models, the proposed change in cost allocation will affect the numerous service providers in radically different ways. For some, revenues will be immediately dislocated depending on the imbalance between call origination and termination. Ofcom has misunderstood the impact on these operators, as we explain further in our response. CPS operators will see a windfall gain, since their net termination payments will fall. Conversely, there will be

³ Commission Recommendation on the regulatory treatment of fixed and mobile termination rates in the EU (2009/396/EC), May 2009 and the Ofcom Mobile Call Termination Statement, March 2011

directly connected terminators who will see their income drop - some by as much as 80% - with no change in their costs. It is very likely that these, and other operators, who are reliant on revenues from termination, could exit the market as a result of an immediate move to pure LRIC. At the very least, they should be allowed time to adjust their business models and customer contracts, particularly as some of the smaller companies have only recently become aware that these changes are to be made. We consider that Ofcom has so far failed to engage seriously with the companies most affected by these proposals, or to take on board the impacts it will have.

The benefits of pure LRIC don't justify an immediate change

As Wholesale call termination charges are much lower in both absolute terms and as a proportion of the retail charge, we agree with Ofcom's own analysis that the direct benefits to the consumer of the move to pure LRIC will actually be immaterial.

In the MCT case, there were issues of competition and barriers to entry cited as benefits to the move to pure LRIC. We do not believe there is evidence of any actual competitive distortion that needs to be addressed in the fixed market. Ofcom has to have '*utmost regard*' of the EC Recommendation but it also has to consider the balance of costs and benefits before abandoning the well-established strong preference for glide paths. A glide path of similar duration to the MCT would allow for the realignment of business models, the renegotiation of contracts and preserve the incentives of a predictable regulatory framework.

Ofcom's approach denies BT the opportunity to recover common costs

Ofcom allows the rebalancing of common costs between call origination and termination in the model, which is appropriate. This is in contrast to the Mobile market, where the retail prices were able to be adjusted by each MNO at the retail level. However, the method of allocating external common costs adopted in the model proposed by Ofcom does not set wholesale call prices at a level necessary to recover the costs of providing the service, which cannot be correct. The total costs recovered should not be affected, particularly when all BT's relevant prices are charge controlled and reported. We believe Ofcom has understated the costs by %million – these must be recovered from call origination (see question 8.2 below).

The Charge Control model does not reflect reality

In contrast to the MCT, and the approach adopted by other NRAs, Ofcom has opted to propose charges based on a model that is not rooted in reality. Instead of basing the charge control on the existing network, Ofcom's proposal is based on a hypothetical 'next generation network' that is deemed to have already been built and loaded with pre-existing customers. Although we consider that BT's voice services will move to some form of NGN at some point, in common with many

operators around the world, we believe the most efficient way to provide the bulk of voice services at present, and certainly within the life of this charge control, is to continue to invest in our TDM assets. We have provided reports by Bell Labs to support this view (Annex 5).

Consequently, we believe that Ofcom needs to move the proposals to a position in which they reflect reality and follow the example of NRAs in countries which are in a similar position to the UK, such as Italy and Republic of Ireland. They should start with looking at what is actually deployed, migrating to an NGN over the period of the control. We also include later in our response on questions 8 and 9 some detailed observations on the proposed model and point out where we consider costs have been understated or omitted.

The model contains a number of mistakes

The modelling approach has a number of shortcomings that cause the cost outputs to be too low. The model is based on a market share assumption of 50%, which is unrealistic and departs from the guidance given by the EU. A 25% market share should be used in the modelling.

On the cost side, Ofcom seriously under-estimates the costs of power and passive infrastructure and has omitted a number of key items of cost such as the voice gateway, the cost of dual sourcing and OSS costs required for operating both TDM and IP costs in parallel. As the model is purely hypothetical, a constant WACC figure should be used as the varying WACC causes a serious distortion in the economic depreciation calculation, which results in far too much cost being allocated into the past. We give more detail on these and other issues with the model at section 9 of our response.

Where price controls are applied, they should be fair

Overall, it is clear that Ofcom has both failed to take into account properly the features of the fixed market and made a number of modelling errors. We provide evidence, supported by external consultants, (Annexes 2, 3 and 4) that demonstrate these failings and their impact on different stakeholders. This has led Ofcom to the erroneous conclusion that they can set aside their long established preference for Glidepaths and immediately impose charges that do not allow for full cost recovery.

List of independent reports referred to in this response

Report	Description
Report by Dotecon: Overview on Retail market Boundaries	Looks at substitution in the retail market and its implications for market definition at the wholesale level.
Report by Copenhagen Economics: Review of Ofcom's SMP Assessment and Remedies for Call Origination	Copenhagen Economics review the evidence for Ofcom's assessment that BT continues to hold a position of SMP and conclude significant deregulation could be extended with no regulatory risk. Any remedies applied should not hinder BT from responding to competition.
Bell Labs Analysis for BT – PSTN Service Mapping – Full Listing	Bell labs consider which features of the TDM PSTN could be moved to IP and conclude that 36% could not be replicated.
Bell Labs analysis for BT "PSTN Industry Analysis and service provider strategies: Synopsis"	Bell Labs provide a series of designs for an NGN built today and consider the viable alternatives that could co-exist.
Bell Labs Analysis for BT – PSTN Service Mapping Analysis	A survey of network providers of around the world, looking at how others are approaching the issue of an IP network,
Analysys Mason report "Narrowband Market Review – International Review and Analysis of Ofcom's fixed LRIC model	Analysys Mason provides a detailed comparison with models in Europe.
Deloitte's Report for BT - Regulated FTR Benchmarking Analysis	Deloittes show how, once differing labour and accommodating rates are taken into consideration, you would expect UK termination rates to be twice the European average, rather than the bottom.
Cullen Table 1 - Fixed termination rates (FTRs) – pure LRIC	Provides an update on the latest implementation of EU Recommendation on Termination rates across Europe.

3.) Market developments in retail services excluding the Hull Area

Question 3.1: Do you agree with our assessment that both the business and residential retail fixed narrowband calls markets in the United Kingdom have remained competitive since 2009 and that we expect the same competitive conditions to continue during the period of this review as long as appropriate wholesale regulations remain in place? If not, please explain why.

3.1) Whilst we agree with Ofcom's assessment that both the business and residential retail fixed narrowband calls markets have remained competitive since 2009, the level of competition in these markets has increased significantly since 2009, and this trend is likely to continue in the coming years. Therefore it is not necessary to leave certain wholesale regulations in place, as explained further in our response to question 5.5 below.

3.2) As noted by Ofcom, BT's retail market share for residential calls has continued to decline since the 2009 review. Apart from the very few remaining customers who take Carrier Pre-Select (CPS) calls over BT Retail lines, consumers buy their calls and lines as a package, and BT's share of retail fixed voice continues to fall. At Quarter 1 2010/11, BT Retail "active" residential customers (i.e. those making calls over BT Retail lines) amounted to a \gg % share of the market; this had dropped to just below \gg % by Quarter 3 2012/13. Clearly consumers continue to have a high level of choice between different providers of retail calls.

3.3) Calls prices have continued to fall since the 2009 review, as shown in Ofcom's Figure 3.1, reflecting on-going competitive pressures. The growth of fixed price call packages will continue and with the move to pure (Long Run Incremental Cost (LRIC) for termination, suppliers will increasingly include additional call destinations within inclusive call packages (for example international and mobile), and will continue to compete on price to win customers.

3.4) Of com has also noted the continuing trend for narrowband calls to be sold as part of a bundle of services including broadband and, increasingly, pay TV. This trend has to a great extent been due to the growth in full Local Loop Unbundling (LLU). BT's own research has shown an even higher level of bundling than is shown in Ofcom's Figure 3.3, with \gg % of total UK households holding either a dual, triple or quad play bundle at December 2012⁴, see figure below.

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3.5) Our competitor research, in figure below, shows that key providers continue to grow their bundled base quarter on quarter, as customers consolidate their product holding⁵.

⁴ Source: "BT Flows research Wave 10 (July-December 2012)", carried out by ICM Research

⁵ Solus means a single product from the supplier (e.g. fixed voice-only, TV-only) Dual means two products from the same supplier (e.g. fixed voice and broadband) Triple means three products from the same supplier (generally fixed voice, broadband and TV) Quad means four products from the same supplier (generally fixed voice, broadband, TV and mobile)

3.6) ≫The rapid growth of bundling has affected the strength of competitive constraints on the calls market. In broad terms, the marketplace for consumers is evolving in the direction of competition for the provision of a cluster group of services. The primary "lead" products are broadband and Pay TV, with fixed voice largely a "free" or very low cost addition. This puts additional pricing constraints on voice services sold separately, as it is generally not possible to distinguish between customers who are only interested in calls services on their own and customers that would be willing to substitute a single voice product for one that is sold as part of a bundle.

3.7) The business market remains extremely competitive. Fixed minutes continue to decline (by approximately 13% since 2009) as does the average pence per minute revenue (by approximately 20% since 2009) and BT's market share (from 34% in 2009 to 33.5% in 2012). The increasing competitive nature of the market is further illustrated by larger customers' ability to achieve significant price reductions at the same time as more favourable terms and conditions (lower volume commitments and lower minimum terms etc.).

3.8) The LLU footprint has increased since 2008 and resellers are enjoying a lot of success in the business market. Price is the key factor in winning calls bids in the current economic environment. Cuts in public sector budgets have resulted in significant price reductions in this area. Both LLU operators in particular are able to beat BT on price by a notable margin to win large bids across all customer types. Call origination is now an important element in the relevant cost stacks for these contracts.

3.9) We expect the business market to remain highly competitive with further pressures on prices during the period of this review.

4.) Market developments in retail services in the Hull Area

Question 4.1: Do you agree with our assessment that no material changes have occurred in the retail markets in the Hull Area since the last review in 2009? If not, please explain why.

4.1) No comment

Question 4.2: Do you agree with our assessment that ex post competition law remedies would now be sufficient to address any competition concerns identified during the period covered by this review and that it would no longer be appropriate to maintain regulation for retail narrowband call services in the Hull Area? If not, please explain why.

4.2) No comment

5.) Wholesale call origination

Question 5.1: Do you agree with our assessment that the relevant service market is "Wholesale call origination on a fixed narrowband network"? If not, please explain why.

5.1) We do not agree that as Ofcom suggests, the relevant product market for wholesale call origination should be defined so narrowly, as we consider that indirect constraints are strong for many groups of consumers and businesses. We provide detailed economic analysis of our assessment at Annex 1. In our view, the issue of market definition should not preclude Ofcom from ensuring that any SMP assessment takes all of these constraints fully into account irrespective as to whether the services are formally included at the market boundary stage or not. We refer in particular to the observations by both Dotecon and Copenhagen Economics on this point (see Annexes). Even if Ofcom decides not to include indirect constraints in its market definition, it is still incumbent on Ofcom to consider these constraints in its analysis of market power.

5.2) As we have discussed at length with Ofcom and in our response to Ofcom's Call for Inputs, we consider that the relevant downstream focal product is now a product bundle of voice and data services combined. Our statistics are somewhat higher than Ofcom's and suggest about 76% of consumers (as quoted in the response to question 3.1 above). A high proportion of calls are now supplied with lines access by all CPs and in this context, it makes little sense to look at substitution possibilities separately for calls and lines. For businesses, there is not only bundling but also technological migration to other services including VoIP and SIP services. At any point in time, some firms will contemplate switching and upgrading their systems and relative costs will be highly affected by the relative prices of competitive alternatives. We do not feel that Ofcom's survey can adequately capture the relevant options for either consumers or businesses whereby Ofcom could then reasonably conclude there is a narrow downstream market.

5.3) The nature of bundling can be described as both 'vertical' (access and calls) and 'horizontal' (calls with broadband and pay TV). We feel that both of these features need to be fully taken into account at the stage of product, customer and geographic definition and indeed it is the interaction of these that is of paramount relevance when it comes to a market power assessment. We do not believe that Ofcom's analysis of indirect constraints is able to capture the true set of price constraints from alternative forms of communication either across different geographies or over time.

Question 5.2: Do you agree with our assessment that there are two relevant geographic markets: "The United Kingdom excluding the Hull Area" and "The Hull Area"? If not, please explain why.

5.4) We believe that a distinction should be made between "solus" voice consumers (those who take only a calls service with their exchange line) and those taking bundles of services. The conditions of competition are quite different within the UK and this will largely follow the pattern of markets established in the WBA market review. This is in addition to the UK-wide constraints from mobile for example and which can be a realistic alternative for many households who currently just have voice services alone.

Question 5.3: Do you agree with our assessment that BT has SMP in the market for "Wholesale call origination on a fixed narrowband network" in the United Kingdom excluding the Hull Area? If not, please explain why.

5.5) We do not agree with Ofcom's SMP analysis which effectively is based on a single indicator of market power and which itself is likely unreliable, namely BT's market share of fixed originated minutes.

5.6) Otherwise the SMP assessment largely replicates the discussion on market boundaries, with analysis of minority customers or CPs allegedly reliant on BT for voice services. Ofcom does not offer any quantitative evidence using the Hypothetical Monopolist Test (HMT) and the responses to its customer survey. Instead, Ofcom largely relies on assertions of dependency on BT for small groups of customers and/or CPs for wholesale call origination. We do not consider that Ofcom's HMT has made proper modified Greenfield site assumptions in its assessments. Nor has it reflected on BT's true incentives to continue to supply wholesale call origination absent regulation. The assessment of indirect constraints at this level is also largely a market boundary thought experiment rather than any clear demonstration that BT has market power.

5.7) These weaknesses are all the more apparent given that Ofcom provides no forward look at all on any of the relevant indicators of market power; for example we provided detailed statistics with projections to Ofcom in BT's Call for Inputs response, for example on likely growth of bundled services open to full competition and we do not see that any of this has been taken into account in Ofcom's Consultation. We expect even faster substitution in the business market to substitutes such as mobile and VoIP and we are quite clear that these changes are driven by price factors along with the vertical and horizontal bundling of voice and data.

5.8) We refer to the Report by Copenhagen Economics on Ofcom's SMP assessment and approach to remedies. Notwithstanding any overall designation of SMP, our position is that given the materiality of direct and indirect constraints, we should be given much more flexibility in the pricing of call origination and that traditional restrictive remedies are inappropriate.

Question 5.4: Do you agree with our assessment that KCOM has SMP in the market for "Wholesale call origination on a fixed narrowband network" in the Hull Area? If not, please explain why.

5.9) No comment

Question 5.5: Do you agree with the remedies imposed on BT in the market for "Wholesale call origination on a fixed narrowband network" in the United Kingdom excluding the Hull Area? If not, please explain why.

5.10) Of com has proposed the following remedies for BT:

- Requirement to provide network access on reasonable request
- Requests for new forms of network access
- Requirement not to unduly discriminate
- Requirement to publish a reference offer
- Requirement to notify charges
- Requirement to notify technical information
- Transparency as to quality of service
- Cost accounting
- Accounting separation
- Specific form of network access (Carrier Pre-Selection on non-BT Retail lines only)
- Requirement to provide NTS wholesale call origination until unbundled remedy introduced
- Charge Control

5.11) Of com has also proposed the removal of the requirement for cost orientation.

5.12) We will look first at the remedies that are being proposed. We will then provide some comment on remedies that have been removed. The following comments are made without prejudice to BT's view that it is not appropriate for SMP to be designated in Call Origination.

Looking at the proposed remedies individually:

Requirement to provide network access on reasonable request

5.13) We do not object to the retention of the obligation to provide network access on reasonable request. Where network access products are subject to a charge control, it is important that Ofcom should not impose an additional requirement for charges to be fair and reasonable. The charge control gives customers certainty of pricing over the market review period and an additional requirement on cost orientation would entail an unnecessary and disproportionate regulatory burden. Please see our response on Cost Orientation below.

Requests for new forms of network access

5.14) We do not object to the retention of this obligation. However we are not aware of any situation where such a reasonable request could be made.

Requirement not to unduly discriminate

We do not agree that Ofcom should apply a single non-discrimination criterion across all 5.15) aspects of the call origination market. As noted above, market conditions vary, in particular by reference to the state of competition for bundled broadband and voice services. As explained previously, we are strongly of the view that where end users choose to buy calls as part of a bundle with broadband (and in some cases also pay TV), there are a number of competing providers (in particular Sky), and BT no longer has SMP. We therefore suggest that Ofcom should apply differential remedies in line with the state of competition in broadband access. In view of all the direct and indirect constraints on BT's ability to increase prices, at the very least there should be a relaxation of some of the ex ante obligations, and in particular when call origination is sold by BT as part of a bundled offering, it should not be subject to a strictly interpreted and inflexible nondiscrimination obligation. BT should as a minimum have the freedom to apply differential pricing when bidding for combined broadband and calls services at the wholesale level. This would put BT on an even footing with other CPs competing for such contracts. For residential customers, BT would be better able to compete with those offering triple play packages such as the LLU operators and Virgin Media, from whom competition is fierce.

Requirement to publish a reference offer

5.16) We do not object to the retention of this obligation.

Requirement to notify charges

5.17) Ofcom has proposed that the notification period for regulated products is reduced from 90 to 56 days. We feel that this goes some way towards the BT aim of 28 days. As stated in BT's response to question 17 in Ofcom's Call for Inputs, we are still of the opinion that a 28 day period is sufficient. It is also in line with the SMP notification period allowed to MNOs which was sustained by Ofcom in the 2011 Wholesale mobile voice call termination market review

5.18) As Ofcom is aware, a number of CPs have been seeking BT's agreement to a change in the contractual notice period for changes to BT's charges for those call conveyance services covered by the Standard Interconnect Agreement (SIA). This has been through negotiation at the Interconnect Product Forum. These negotiations are nearing completion

5.19) Under paragraph 12 of the SIA BT has always had the contractual right to vary charges on 28 days' notice. This includes those SMP services where under regulation BT has to give the longer 90 day notice period. The CPs argue that they typically are required by contract with their reseller and retail customers to give 30 days' notice of changes to their charges. They argue that a 28 day notice provides insufficient time for them to consider BT's Charge Change notifications and adjust their own prices in turn leaving them commercially exposed for short periods. A 28 day notification period has been well established and in most instances pre-dates the commencement of trading of these CPs in the UK.

5.20) In relation to BT's wholesale offering for combined voice and broadband services, we have said that BT does not have effective market power and should be able to discriminate on price to compete with other CPs. In these circumstances it would be inappropriate to require BT to publish call origination prices in advance.

Requirement to notify technical information

5.21) We do not object to the need to notify this information.

Transparency as to quality of service

5.22) There has been no change to the obligation here, and BT is prepared to provide information as and when requested by Ofcom providing that there is sufficient time allowed for collection and also that any requests are proportionate.

Cost accounting and Accounting Separation

5.23) Whilst we welcome the removal of the requirement to publish Distributed Long Run Incremental Cost (DLRIC) and Distributed Stand Alone Cost (DSAC) information for certain services⁶ we are disappointed at Ofcom's proposals to retain other detailed cost accounting obligations. Reporting at a detailed level greater than the market or even basket level is disproportionate where cost orientation obligations do not apply.

5.24) Ofcom's proposals mean we will still be required to produce and, with the exception of DLRIC and DSAC information, publish on an annual basis a large amount of revenue, cost and volume information at the same high degree of component/service granularity.

5.25) Given Ofcom is proposing to use a bottom up model in setting the NCC, the publication of Fully Allocated Cost (FAC) information (and providing DLRIC and DSAC information privately to Ofcom) based on a top down model is misleading to users of the Regulatory Financial Statements (RFS).

⁶ Para 5.249 – Ofcom propose removing the requirement to publish DLRIC and DSAC for call origination; Para 6.171 – Ofcom propose removing the requirement to publish DLRIC and DSAC for call termination; Para 10.145 – Ofcom propose removing the requirement to publish DLRIC and DSAC for interconnect circuits

5.26) We have a number of concerns with Ofcom's rationale for maintaining these obligations and set these out in detail in our response to Ofcom's "Business Connectivity Market Review: Further Consultation" published on 15 November 2012⁷.

We have summarised our concerns below:

5.27) In terms of monitoring compliance with **charge controls**, the only relevant issues for consideration are year on year movements in prices and volumes across the relevant charge control baskets or sub-baskets. This enables weights to be applied to different prices and the overall level of achieved X to be revealed, providing the necessary transparency on compliance. Therefore, publication of cost information is not relevant to any assessment of compliance in this area as it does not help with identifying year on year movements in prices and volumes. In addition, BT supplies detailed information to Ofcom on an annual basis to prove compliance with the charge control for all regulated components.

5.28) In terms of monitoring compliance with **non-discrimination obligations**, regulatory reporting for these products can only identify price discrimination and, here, compliance is shown by simply confirming that internal and external customers face the same prices for the same regulated services. This does not require publication of cost information at a level of granularity below that of the defined markets. These observations are made notwithstanding our request for deregulation of call origination for key customer segments.

5.29) In relation to **information required to support Ofcom in conducting investigations** Ofcom has specific information gathering powers which it can rely on to request the information it requires for that purpose. However, the fact that Ofcom may require such information if it has to conduct a compliance investigation is not of itself a valid reason for requiring the routine provision to Ofcom or, in particular, the publication of a wider range of financial information such as that now proposed. Indeed, the fact that there are formal information gathering powers to be used in such circumstances suggests exactly the opposite.

5.30) We understand that **in conducting market reviews**, Ofcom will want to assess – among other things – evidence on profitability of services within certain defined markets. However, we do not consider that such granular data needs to be published on an annual basis to meet Ofcom's requirements. Such data would only be required during the market review process conducted once every three years – and Ofcom has the powers it needs to request that information at that time. We consider that it would be wholly inappropriate for Ofcom to base an obligation to report and publish information during the course of one market review because it needs that information to decide what obligations should be imposed in the next market review.

5.31) Where **charge controls are set** Ofcom has more recently used DLRIC and DSAC information as a reference point for considering whether start charge adjustments for individual services may be necessary. We do not believe that DLRIC and DSAC data can be used in a deterministic way to assess whether individual prices may need to be increased or decreased. A broader range of factors should be considered particularly in relation to the balance of upfront and recurring charges for individual

⁷Available at <u>http://stakeholders.ofcom.org.uk/consultations/bcmr-reconsultation/?showResponses=true</u>

services. Nevertheless, to the extent that Ofcom considers them a useful reference point, we would again note that Ofcom can request such information when required for the purposes of setting specific price controls and therefore such data does not need to be published.

5.32) In relation to **information required to support monitoring of effectiveness of remedies** our main concern here is that it is not clear what level of detail this requirement justifies especially given that remedies are reviewed every three years. For instance, even if it were appropriate to monitor the "effectiveness" of a charge control – as distinct from simply monitoring compliance with the control – during the charge control period, publishing costs and revenues at the level of the basket would be sufficient.

5.33) For information required to provide general transparency and assurance to stakeholders about our cost information we would question whether CPs are better able to "assess accuracy" of our cost information and the extent to which the need for transparency of detail can solely be justified by reference to the benefits of such transparency in providing general assurance to stakeholders around consistency and accuracy. However, even if there is benefit in providing some level of transparency through the annual publication of data, it is by no means clear what level of information and granularity of reporting is justified. We would argue that this cannot be a justification in itself to publish a high level of detail and publication should be justified by other requirements.

5.34) If Ofcom is not able to fully implement our suggestions as part of this consultation they should be considered as part of the on-going wider 'Regulatory Financial Reporting Review'.

Specific form of network access (Carrier Pre-Selection on non-BT Retail lines only)

5.35) We do not object to the requirement to provide CPS on WLR lines that are not serving BTR customers. We also have no objection to the retention of CPS SAD (Same and Adjacent Exchange), and also the requirement to provide both the Operator Assistance (OA) and non-OA versions of CPS.

5.36) We also agree with Ofcom's proposal to remove the obligation to provide IA, given that it is no longer a driver of competition at the retail level.

5.37) We agree with Ofcom that the focus of competition has moved away from calls-only services, and therefore that the obligation on BT to allow CPS and IA on BT Retail lines is no longer necessary or appropriate, particularly given that the retail calls and lines markets have been deemed to be fully competitive since the 2009 review. Even in the time since BT last provided Ofcom with data, volumes of residential consumers using CPS on BT Retail lines have fallen further, to \gg , and average weekly calls-only losses to CPS providers are now around \gg or less in most weeks. These volumes are obviously extremely low, showing that demand from both consumers and CPs is negligible. Therefore there will be little or no impact from the removal of this obligation.

5.38) For this reason we do not believe it is necessary or proportionate to impose a 12 month sunset clause. Ofcom should remove the obligation for new supply of CPS to customers with BT Retail lines with immediate effect. If necessary, Ofcom could retain an obligation on BT to allow customers with a BT Retail line who are currently with a CPS provider for their calls to continue with this arrangement for a further 12 months.

Requirement to provide NTS wholesale call origination until unbundled remedy introduced

5.39) We note that there has been a further delay in the publication of the final statement on the Non-Geographic Calls Services Review (NGCS) and that there is consequently a risk that the transitional period for NTS will extend beyond 2014. While prolonging the current regulatory structure has the benefit of reducing uncertainty in the industry, BT can foresee problems with the extension. BT's retail customers are migrating to competing suppliers: this migration changes the mix of calls within BT's discount packages and the average mix of calling patterns. Both of these affect the POLO rates determined by the NTS formula. Progressing POLO rate changes required by these remedies will drive uncertainty of revenue in the terminating market which in turn will likely result in multiple regulatory disputes for example, on the appropriate level of discount in the NTS formula.

Charge Control

5.40) See responses to relevant questions below.

Now turning to Ofcom's proposal to remove the requirement for Cost Orientation (a Basis of Charges obligation):

Cost Orientation

5.41) We agree with Ofcom's proposal not to impose cost orientation obligations in addition to charge controls. As Ofcom suggest, any risk of excessive pricing in these markets can be addressed effectively by a charge control. Cost orientation obligations would be unnecessary and disproportionate. Imposition of a separate cost orientation remedy alongside requirements to comply with basket controls (and sub-caps for interconnect) results in overlapping, overly complex and unnecessarily intrusive regulation that merely creates uncertainty for all stakeholders.

5.42) This is consistent with the response to the Business Connectivity Market Review (BCMR) consultation submitted by BT on 7 September 2013⁸. There are no clearly identified net benefits of

⁸BT response reference: BT's response to Ofcom's consultation document "Business Connectivity Market Review",

an obligation alongside charge controls. So we support a simpler overall approach to pricing constraints that is more clearly focussed on addressing identified market problems is required. Removing these obligations is an important step towards clearer and more transparent price regulation in line with Ofcom's core regulatory principles.

5.43) Ofcom has re-affirmed this conclusion the Statement it has just published on the Business Connectivity Markets and charge controls⁹. After careful consideration, Ofcom has decided it is inappropriate and disproportionate to impose cost orientation obligations. In short, Ofcom's conclusion is that it has specifically designed the charge controls to provide appropriate incentives for BT to make efficiency improvements and to achieve other objectives, that the competition problems are effectively addressed by the charge controls, the non-discrimination and the fair and reasonable pricing obligations, and that imposing any cost orientation obligations therefore results in more onerous remedies than is required to achieve Ofcom's aims. Whilst consistency with previous controls is important, Ofcom concludes this does take priority over other objectives and considerations relevant to Ofcom's regulatory responsibility.

Question 5.6: Do you agree with the remedies imposed on KCOM in the market for "Wholesale call origination on a fixed narrowband network" in the Hull Area? If not, please explain why.

5.44) No comment.

http://www.btplc.com/Thegroup/RegulatoryandPublicaffairs/Consultativeresponses/Ofcom/2012/BusinessConnectivityMarketReview/BT_part_1.pdf

⁹BCMR reference: Paragraph 9.69 onwards in Business Connectivity Market Review Ofcom Statement, 28 March 2013<u>, http://stakeholders.ofcom.org.uk/binaries/consultations/business-</u> <u>connectivity/statement/Sections8-16.pdf</u>

6.) Wholesale fixed geographic call termination

Question 6.1: Do you agree with our assessment that the relevant service market is "termination services that are provided by [named fixed communications provider] (CP) to another communications provider, for the termination of voice calls to United Kingdom geographic numbers which that CP has been allocated by Ofcom in the area served by that CP"? If not, please explain why.

6.1) We agree with Ofcom's definition of the termination service market

Question 6.2: Do you agree with our assessment that the relevant geographic market is determined by reference to the area in which the CP provides termination services and is not wider than the United Kingdom? If not, please explain why.

6.2) We agree that for call termination, geographic markets should be determined by reference to the area in which the CP operates.

Question 6.3: Do you agree with our assessment that each CP has SMP in the market for fixed geographic call termination to their number range? If not, please explain why.

6.3) We agree.

Question 6.4: Do you agree with the remedies imposed on BT in the market for fixed geographic call termination to its number range? If not, please explain why.

6.4) Of com has proposed the following remedies for BT:

- Requirement to provide network access on reasonable request
- Requirement not to unduly discriminate
- Charge control
- Requirement to publish a reference offer
- Requirement to notify charges
- Requirement to notify technical information
- Cost accounting
- Accounting separation

6.5) As for Call Origination, Ofcom has proposed to remove the obligation requiring cost orientation. Where the comments for Call Termination are the same as for Call Origination, please refer to the earlier response (Question 5.5)

Looking at the proposed remedies individually:

Requirement to provide network access on reasonable request

6.6) See response to question 5.5 at 5.13.

Requirement not to unduly discriminate

6.7) See response to question 5.5 at 5.15.

Charge Control

6.8) See response to question 5.5 at 5.40.

Requirement to publish a reference offer

6.9) See response to question 5.5 at 5.16.

Requirement to notify charges

6.10) See response to question 5.5 at 5.17.

Requirement to notify technical information

6.11) See response to question 5.5 at 5.21.

Cost accounting and Accounting separation

6.12) For the NCC, Ofcom have proposed using pure LRIC in their cost model for the call termination market. This approach will mean call termination rates no longer contribute to the recovery of common costs and they should be recovered from other regulated services, namely call origination.

6.13) We do not believe Ofcom have considered the reporting implications of this approach.

6.14) We are concerned the cost information reported in the Regulatory Financial Statements ("RFS") for the call origination and call termination markets will be misleading as our cost allocation methodologies assume call termination rates contribute to the recovery of common costs.

6.15) If this proposal is imposed upon us we would need to consider whether it is more appropriate that common costs are recovered by other services, such as call origination services, in the RFS to align with Ofcom's approach to the NCC.

6.16) If Ofcom does not address our concerns as part of this consultation they should be considered as part of the on-going wider 'Regulatory Financial Reporting Review'.

6.17) In addition, see response to question 5.5 at 4.23.

6.18) On Cost Orientation, please see the response to question 5.5.

Question 6.5: Do you agree with the remedies imposed on other CPs (excluding BT) in the market for fixed geographic call termination to their number range? If not, please explain why.

6.19) We agree with Ofcom that CPs should provide access on fair and reasonable Terms and Conditions in conjunction with guidance. Question 8.3 deals with what that guidance should be.

7.) Transit and conveyance services

Question 7.1: Do you agree with our assessment that there have been no material changes in the ST market since the 2009 review? If not, please explain why.

7.1) As we set out in BT's response to the Call for Inputs, the Single Transit (ST) market has continued to be highly competitive for the majority of traffic, with more than 40 CPs providing equivalent transit services. At the same time, the total value of the market has continued to shrink as more CPs make direct interconnect arrangements to avoid transit altogether. BT's revenues from ST have fallen from ≫ million p.a. in 2011/12 to less than ≫ million p.a. today, and we anticipate that this trend will continue.

7.2) As we stated in our Call for Inputs response in June 2012, there are around 450 CPs with numbers allocated to them and to whom BT sends traffic. Of these there are approximately 200 with whom BT interconnects and about 250 with whom BT interconnects via a third party. There are 44 CPs who supply the 250.

7.3) There is considerable diversity in the wholesale market. Operators who require Single Transit clearly have a choice and exercise it in what has become a competitive market.

Question 7.2: Do you agree with our assessment that ex post competition law remedies would now be sufficient to address the competition concerns identified during the period covered by this

review in the ST market and that it would no longer be appropriate to maintain regulation in this market? If not, please explain why.

7.4) We strongly support Ofcom's assessment on this. Given the minimal (and shrinking) size of the market, it would be unnecessary and disproportionate to continue to apply SMP regulation to BT's service. Ofcom's concern in the previous review was that, although there was vigorous competition on the "thick" routes, BT had a dominant position on certain "thin" routes. Although there are arguments as to why BT should not be deemed to have SMP, the reality is that BT has neither the incentive nor the practical capability to exploit the alleged market power on these routes. To set different charges by route would require amendment to BT's billing systems that would be costly to develop, and would have very limited revenue potential, given the very small size of the markets affected. In the circumstances it makes sense to rely on normal *ex post* remedies to deter any theoretical risk of harm. It is clearly disproportionate to require accounting separation and reporting on such a small market.

Question 7.3: Do you agree with our assessment that the LTC/LTT market in the United Kingdom has remained competitive since 2009 and that we expect the same competitive conditions to continue during the period of this review? If not, please explain why.

7.5) As we stated in our response to the Call for Inputs, we do not believe that the LTC/LTT market conditions have changed materially since Ofcom's review in 2009. If anything, BT's share of this market has declined and the market can be seen to be more competitive. Lerwick is still the only DLE where there is no CP interconnect, and the penetration of the major CPs has continued to grow rather than decline. There have been no competitive problems in this market since it was deregulated, and we expect the market conditions to remain competitive for the foreseeable future.

8.) Price regulation of termination and origination markets

Question 8.1: Do you agree that we should cap FTRs at LRIC? Please explain your reasons.

8.1) We note Ofcom's obligation to take the utmost account of the EC Recommendation on setting Fixed Termination Rates (FTRs) at Long Run Incremental Costs (LRIC)¹⁰. To date only 5 Countries have announced their intention to implement FTRs at LRIC in 2013, and there is no consistency of approach between them.

8.2) We also note Ofcom's view that if FTRs continued to be regulated at LRIC+ there would be an enduring advantage to fixed CPs over Mobile Operators. However, the consumer benefits of the

 $^{^{10}}$ Commission Recommendation on the regulatory treatment of fixed and mobile termination rates in the EU (2009/396/EC) – 7th May 2009

http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2009:124:0067:0074:EN:PDF

change are likely to be negligible. Ofcom [11.40] states that mobile customers who call fixed line subscribers can be expected to gain to the extent that MCPs pass on the reduction in charges for calls to fixed line numbers. Assuming a complete waterbed effect and relying on Ofcom's own figures, the maximum reduction in mobile retail charges would be 0.3%. This is insufficient for consumers to see a material reduction in mobile charges. On the other side, fixed customers would be likely to pay up to 0.7% more in price. According to Ofcom [Figure 3.5], 79% of households have both fixed and mobile devices so can be expected to gain little if anything on balance.

8.3) Should Ofcom decide to proceed with their cap on FTRs at LRIC, careful consideration must be given to the impact and timing of any change to ensure the best outcome for consumers in the UK. See below BT's response to question 11.1.

Question 8.2: Do you agree that wholesale call origination should be regulated on a LRIC+ basis where the "+" includes a mark-up to off-set the common cost recovery foregone from externally provided wholesale call termination on a LRIC basis? If not, please explain why.

8.4) If call origination is to be regulated, it should be priced on a basis that includes a mark-up to fully off-set the common costs subsequently excluded from wholesale call termination by the move to pure LRIC. To be clear, the offset should ensure that there is no net change to common cost recovered by BT based on the relevant forward-looking volumes which are applicable to origination and termination. The off-set should be complete and not partial.

8.5) As we set out in some detail in our parallel discussion on the issue of Glide path in our answer to Question 11.1, there is no suggestion that the current framework of FAC (Fully Allocated Cost) for termination has been set at an inefficient level as such. Rather there has been a policy decision to move to pure LRIC which has its origins not in the fixed sector at all but rather in the mobile sector. Unlike in the fixed sector and despite very high levels of concentration throughout the EU, the MNOs do not have to provide regulated access and are essentially all fully integrated network operators. MVNOs are essentially re-sellers (i.e. channels to market) and not network operators.

8.6) In the mobile sector, the 'other side' of mobile call termination is unregulated call origination and access. There is no requirement on the MNOs to wholesale the Radio Access Network or provide wholesale call origination and conveyance. Retail competition is between a very small number of network operators with comparatively simple retail tariffs and commercial relationships with other CPs, who will face a common increase in costs. They have the full opportunity to recover lost revenues commercially through the 'waterbed' effect; this is not the case for the fixed sector.

8.7) In the case of BT, third parties can purchase both origination and termination at regulated rates and no operator can increase retail prices beyond the changes in wholesale input rates as it would be undercut by its retail competitors. A particularly strong example of this is the case of CPSOs which, as all parties have noted, are in a position where the change in termination rates will have no impact on their revenues at all. This is a fundamental difference which by itself justifies a complete and financially neutral adjustment for the fixed sector.

8.8) More broadly, we do not believe that the move to pure LRIC and rebalancing is in any way intended as a device to drive greater efficiency *per se* within the fixed sector; rather it is to address a structural problem within the *mobile sector* to foster greater retail competition. There is no

suggestion in the Commission Recommendation or indeed in Ofcom's analysis that there will be material allocative or dynamic efficiencies arising to the fixed sector - which has in effect been caught by this change ostensibly to satisfy the principle of regulatory neutrality even though the services are kept separate at the retail level.

8.9) Nor is there any suggestion in Ofcom [8.57-8.78] that it is intended from the move to pure LRIC that the overall (fixed) industry level of prices is expected to change radically; rather Ofcom [8.57] characterises the resulting problem of cost recovery as one of static equilibrium through a Ramsey pricing framework.

8.10) As such, we can see no reason why Ofcom should wish the change to result in the fixed sector receiving an unexpected windfall gain or alternatively a windfall loss which would elicit exit and/or a possible rise in retail prices. We also accept that in making relative price changes, common costs should not be over-recovered as Ofcom [8.65] notes. There should be no danger of over recovery of common cost if the cost excluded from termination is fully transferred to origination. A purchaser of Call Origination will have to purchase a corresponding termination to complete the call. If the price decrease in one element is matched by the increase in the other, the overall common cost recovered from the call remains unchanged.

8.11) In contrast to the mobile sector, BT is required to provide details of cost allocations which show how much common cost has been allocated to regulated and unregulated services. We wish to stress that there is a very long history of investigation, review and reporting of BT's allocation of costs which has established the level of common cost call termination and origination are expected to achieve. Several price controls have set charges to recover this amount of common cost. A redistribution of recovery between origination and termination does not change BT's inability to recover costs elsewhere and should not change the amount recovered in total.

8.12) Across the BT network, Ofcom has only limited possibilities to ensure a fair recovery of these costs across regulated access products, even those which are linked to common downstream markets such as retail bundles of calls and broadband. The vast bulk of the UK is now fully competitive in broadband and Ofcom [8.72] expresses concerns over increasing WLR prices. We can also appreciate that it is difficult to maintain a structure of regulated prices in balance for services which cross different market reviews, quite apart from some potential distributional issues that might arise for certain customer groups. But for the reasons that Ofcom might be concerned at consumer exclusion if WLR prices went up, this will not happen if call origination is increased in price.

8.13) By the same token, BT does not have the opportunity to recover common costs from competitive services which are currently in effective competition unless our competitors were in precisely the same position as ourselves and affected identically by the move to pure LRIC. For the reasons we set out at length in our discussion on glide paths, this is rarely if ever the case from the many differences in underlying business models and asymmetries in traffic flows.

8.14) However, we do not see that this situation in any way means that opportunities foregone to raise other associated prices should prevent the full recovery of such common costs on call origination. Nor do we see that such a recovery will in any way distort effectively competitive markets. The input costs to a call are regulated call origination and call termination and are identical

for BT downstream retail divisions as external customers. There is no 'on-net' and 'off-net' distinction as exists in mobile markets.

8.15) Emphatically, what is being done in the move to pure LRIC is not equivalent to a common industry-wide measure such as a rise in oil prices in the broader economy and which can be expected to feed through affecting all sectors equally that consume the same amounts of energy.

8.16) Taken overall, there is no reason to believe that consumers will in any way be affected by a change to the *structure* of wholesale prices, although as we have noted elsewhere, there are significant imbalances in traffic flows which will affect relative finances of the various industry players. Failure to allow for full recovery will inevitably imply a net loss to the fixed sector as a whole and would not be consistent with Ofcom's principle that BT should have a reasonable opportunity to recover its efficiently incurred costs..

Question 8.3: Should the FTRs of CPs other than BT be presumed fair and reasonable where they are no higher than the Benchmark FTR? If not, please explain why.

8.17) Yes. BT supports Ofcom's view at A15.7 and A15.8 that:

Reciprocal charging as a continued basis for fair and reasonable charges

A15.7 Ofcom considers that, in principle, reciprocal charging, whereby the FTRs for wholesale fixed geographic call termination on other CPs' networks are based on the charges paid to BT for wholesale call termination on BT's network (as per the charge control), remains a fair and reasonable basis, consistent with SMP Condition 1 as set out in Schedule 3 of Annex 6, for all operators of fixed networks to set their termination charges in the United Kingdom.

Presumption that FTRs which are no higher than the Benchmark FTR are fair and reasonable

A15.8 FTRs for wholesale fixed geographic call termination are presumed to be fair and reasonable where the 24 hour average FTR is no higher than the charge control rate as applied to BT (hereafter referred to as the "Benchmark FTR"),

It is appropriate to consider this question in relation to the six criteria normally used by Ofcom

Cost Causation

8.18) It is a well-established principle that regulated charges should be associated with those of an efficient operator. The Benchmark Fixed Termination Rate (FTR) meets this principle as a norm in the UK, and provides the appropriate incentive for efficient investment to achieve lower costs and/or greater benefits for the consumer. In the mature UK market], there is no justification for the customers of an efficient operator to continue to subsidise those of a less efficient operator by paying a higher termination rate. This is especially true as all of the planning decisions made by a terminating Fixed Network CP that affect their network and how they connect their customers to it -

are within that Fixed Network CP's control. This is reflected in the EC Recommendation¹¹ where it is also stated that 'fixed CPs have the opportunity to build their networks in particular geographic areas and to focus on high-density routes and/or rent relevant network inputs from incumbent operators. This view implies that CPs will connect customers to their networks directly (and hence provide termination services) only where this can be more profitable than buying wholesale inputs from the incumbent'.

Cost Minimisation

8.19) The Benchmark FTR is the established proxy for the termination costs of an efficient operator in the current UK market for fixed geographic call termination and only this rate provides the appropriate incentive for others to minimise costs. Any other option which provided for the setting of a higher FTR would allow CPs to recover costs without minimising them.

Effective Competition

8.20) The benchmark FTR is a stable rate for the cost of an efficient operator in a comparatively mature industry. The LTC market in the UK is now fully competitive, and any arrangement that permits CPs to charge a FTR higher than the Benchmark FTR rate would distort competition.

Reciprocity

8.21) The same rate should normally apply for the exchange of traffic in both directions from the point nearest to the customer where signals can be exchanged. Applying a non-symmetric FTR would imply an acceptance of inefficient operation.

Practicability

8.22) This criterion is relatively simple to put into practice subject to both parties being willing to comply with the guidance

Distribution of Benefits

8.23) There is no justification for the customers of an efficient operator subsidising the customers of a less efficient operator by paying a higher termination rate, especially given that the termination service being provided by different CPs is in effect the same underlying service. Therefore a FTR no higher than the Benchmark FTR is fair and reasonable

¹¹http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2009:124:0067:0074:EN:PDF see Recital 16

Question 8.4: Should the FTR set by KCOM in the Hull Area be presumed fair and reasonable where it is no higher than the Benchmark FTR? If not, please explain why.

8.24) No comment

Question 8.5: Do you agree with our proposed approach to the regulation of wholesale call origination rates in the Hull Area? If not, please explain why.

8.25) No comment

Question 8.6: Do you agree that LRIC-based FTRs should not be adjusted for APCCs?

8.26) Yes. The setting of porting conveyance charges is covered by the General Conditions and not SMP regulation. Therefore the APCC should continue to be set in accordance with GC18.

9.) Cost modelling for call conveyance services

Question 9.1: Do you agree with our proposed approach to modelling the cost of fixed call origination and fixed call termination? If not, please explain why.

Overview

9.1) The modelling approach has a number of shortcomings that cause the model's cost estimates to be too low. This is exacerbated by the significant under-estimation of key cost elements and the omission of others. As a result the prices proposed for both fixed call origination and fixed call termination are set at too low a level. The model outputs are not properly validated by comparison to BT's top-down incurred NCC costs. The comparison of the model outputs made to rates set elsewhere in the EU is selective and fails to adjust for country specific variation in costs. Consequently the proposed prices are too low for existing fixed operators to recover fully their efficiently incurred costs in providing fixed voice calls. They are also much lower than rates set elsewhere in the EU in comparable countries.

9.2) The use of a retrospective build of a hypothetical NGN network starting in 2007/8 means that Ofcom's model is unrealistic and presupposes a migration to IP based voice services. Such a migration is insignificant in the UK and minimal migration is planned to occur in the UK. This contrasts with the approach taken by other NGAs where the bottom-up modelling broadly reflects the future plans to increase the take-up of IP-based voice services from a much higher base level. Other NGAs frequently model a mix of NGN and TDM services as this service migration is planned to occur. Ofcom's approach is also inconsistent with their UK mobile termination rate model, which is based on a blend of historical investment in 2G and 3G networks and anticipated future investment.

9.3) The model is based on a market share assumption that departs from the guidance given by the EU and is also inconsistent with the development of a competitive market. It is also inconsistent with the market structure in the UK where there are four main broadband providers. This is key because it is broadband demand that drives the dimensioning of the NGN networks rather than voice services. A 25% market share should be used in the modelling

9.4) On the cost side, Ofcom seriously under-estimated the costs of power and passive infrastructure and has omitted a number of key items of cost such as the voice gateway, the cost of dual sourcing and OSS costs required for operating both TDM and IP costs in parallel.

9.5) The Economic Depreciation calculations make no allowance for the fact that voice services have a higher value per unit of network capacity than broadband and so should be allocated a higher proportion of costs. As the model is purely hypothetical, a constant WACC figure should be used as the varying WACC causes a serious distortion and results in far too much cost being allocated into the past. The assumption of sharply declining operating costs is surprising and results in considerably more operating cost being allocated to the last 20 years than is incurred in these years. Too little operating cost is therefore allocated to the charge control years 9.6) The model fails to allocate all the fixed common costs not recovered from call termination to call origination because the denominator and numerator in the reallocation formula are inconsistent with each other.

9.7) If the cost model were to properly to include all costs on a *forward-looking* basis, the NGN costs will end up being significantly higher than BT's forecast top-down costs of sustaining the PSTN. This will demonstrate that sustaining the PSTN network is more cost-effective than building an NGN to deliver future voice services. BT's top-down forecast PSTN costs should therefore be used in the charge control for fixed call termination and origination prices.

These issues are dealt with more fully below.

The hypothetical bottom-up cost model

9.8) At paragraphs A11.4 and A11.5 in the consultation, Ofcom refers to the EC recommendation:

A11.4 The 2009 EC Recommendation states that:

The cost model should be based on efficient technologies available in the timeframe considered by the model. Therefore the core part of both fixed and mobile networks could in principle be Next-Generation-Network (NGN)-based.

A11.5 The Explanatory Note to the 2009 EC Recommendation provides further detail on technology choice as follows:

From a forward-looking perspective, a new operator would choose a packet-switched network with all services delivered over an IP core network. Given that regulating termination rates at the level of efficient costs aims at reflecting a situation which would prevail under competitive circumstances, this implies the selection of the most efficient technologies subject to the availability of such technologies in the timeframe considered by the model. In a competitive market, a new entrant would opt for the most efficient available technology, i.e. one based on NGN, for the purposes of building a core network. Hence, a BU model built today could assume that the core network is NGNbased, to the extent that the costs of such a network can be reliably identified.

9.9) We fully endorse that the cost model should be based on efficient technologies available in the timeframe considered by the model, but the model must include <u>all efficient costs</u> associated with providing the full range of services over the 'efficient' technology. From our own experience, and that of other operators around the world, the efficient option for a TDM operator is to sustain the TDM network for voice services in the short to medium term, and certainly for the period of the proposed charge control. On a forward view, a new operator would choose to deploy a packet-switched network with all services delivered over an IP core network, not least because many components required for a TDM network are no longer available. However the costs of sustaining a

TDM network using network assets which are largely fully depreciated is to be expected to deliver a lower overall cost base.

9.10) We commissioned Analysys Mason to review the approach taken in other European countries and mobile networks in the UK and we have associated their report with this submission¹². In all cases EU NRAs (and Ofcom in the case of UK MTRs) have based their modelling at least partially if not wholly on an infrastructure that already exists and which takes account of plans for future investment. Ofcom appears to be the only NRA taking a purely hypothetical approach in relation to Fixed Call Termination and Origination. The approach here contrasts with Ofcom's modelling of mobile networks in the UK which was firmly rooted in the existing spend on 2G and 3G cost models and on future plans to invest further in these networks.

9.11) We are concerned that Ofcom 's bottom up NGN cost model is entirely hypothetical based on a NGN network that does not exist, nor is ever planned to exist. This model does not comply with the EC Recommendation in that it uses technologies that were not available in the timeframe considered by the model. Unlike any other model developed to date in Europe. Ofcom has 100Gbit/s units in the core from 2007/08 when 100Gbit/s cards only became readily available from 2011/12 onwards. Furthermore, NGN voice requires synchronising timing over Ethernet which is only just becoming available. It is clearly unreasonable to include components in a network model prior to these components being available. The hypothetical nature of the Ofcom cost model goes a long way to explaining why the resulting costs are so far removed from those an efficient operator would incur in reality.

Starting Point

9.12) If Ofcom proceeds with their proposals on the basis of the existing cost model there will be a discontinuity in the costs BT is permitted to recover. In previous controls, Ofcom has always extolled the virtues of regulatory certainty and providing a glide path from one level of costs to another. Ofcom has also sought to take a technology neutral approach to avoid the disruption and harm caused by abrupt changes in charging. However, in this case, Ofcom has made the assumption that BT commenced its NGN rollout in 2007/8, before the start of the previous charge control, even though they explicitly stated that time it was not clear that NGN costs should be used. The reality is that BT has not commenced NGN rollout for voice at all, and <u>for good reason, reflecting the most efficient choices available to it</u>, has no plans to do so during the period of the next charge control. Therefore, there is no justification to make a one off change in the level of costs to be recovered at the start of the next control.

The case for sustaining the PSTN

9.13) Of compoints out at para A11.7, none of the incumbent operators have moved their services wholly onto an NGN, even though some have made NGN investments. BT itself has made some NGN investments, but our own conclusion and that of incumbents around the world is that it is more

¹² A report for BT Wholesale – Narrowband Market Review – international review and analysis of Ofcom's fixed LRIC Model 10 April 2013 – Analysys Mason

efficient to sustain TDM networks. There is little or no additional revenue to be had from migrating voice services to a NGN, and sustaining the TDM network enables the continued provision of the services on which customers have come to depend, some of which either cannot be replicated, or cannot be replicated economically on a NGN. We do not have the option of providing only a subset of existing services that a new entrant enjoys. We have both regulatory obligations and obligations to our existing customers to maintain the services and standards they have come to expect and manage any changes efficiently.

9.14) In common with TDM operators around the world, the most efficient option for us is to sustain the PSTN network, with a limited amount of investment, and where appropriate supporting growth or piecemeal replacement of some platforms with 'NGN' alternatives. Analysys Mason have highlighted a number of factors in the UK which suggest that it would be more efficient to sustain the TDM network in the short to medium term in the UK.

9.15) Firstly, the Next Generation Access (NGA) strategy in the UK is dominated by fibre to the cabinet (FTTC) and the use of VDSL which is accompanied by the continued use of TDM voice services. This contrasts with the strategy in some other countries where there is a higher proportion of fibre to the home (FTTH)

NGA Rollout Plans by Country - Forecast by Analysys Mason Research







Figure 5.2: FTTH rollout coverage forecasts by country [Source: Analysys Mason Research, Q1 2013]

9.16) In the UK, the NGA coverage of premises is forecast to be achieved mainly through a roll-out based on VDSL, with a limited roll-out of FTTH (expected to be around 5% of premises by 2018). This contrasts with a much higher proportion of FTTH in France, the Netherlands and Sweden.

9.17) Secondly, the retail offer of fixed voice in the UK today is overwhelmingly TDM-focused, based on PSTN and ISDN services. Migration to voice over broadband (VoBB) has been very limited within BT's fixed network. This is in contrast to some of the benchmark markets, in which take-up of VoBB has been significantly higher, as shown in below. This makes migration to NGN a less efficient and attractive option.


Figure 5.1: Voice over broadband channels as a percentage of total fixed voice channels [Source: Analysys Mason Research, Q3 2012]

Overview of Bell Labs findings

9.18) We also commissioned Bell Labs to study the factors which determine the speed and timing of migration, and produce some case studies¹³. Their conclusion is that whilst migration to next generation broadband voice is seen as an inevitable end state, PSTN shutdown is not expected to happen in most regions until approximately 2020 or beyond. Progress is inhibited because it is not possible to provide many voice services and features over VoIP, and maintain quality of service. As yet there is no industry-wide standard solution for next generation voice.

Bell Labs key findings

9.19) The study identified several trends common to all the surveyed SPs evaluated, taken in response to either market trends, government actions or to internal pressure within the SPs themselves as best practices. All SPs are investing to maintain the performance quality of their legacy network through End-of-Life (EoL), even if this reduces the earnings margins.

Key findings and common activities across the SPs include:

9.20) When considering fixed voice services only, the business case for large SPs may not justify retiring PSTN assets and moving subscribers to next generation networks; revenues from triple-play or broadband access must be considered in order to justify the case to move a subscriber. This financial balance will change in the future as PSTN platforms approach EoL and operational expenses per subscriber line increase.

¹³ PSTN INDUSTRY ANALYSIS AND SERVICE PROVIDER STRATEGIES: SYNOPSIS BELL LABS ANALYSIS FOR BT APRIL, 2013

9.21) For small SPs whose footprint in the telecom market is dominated by data and wireless services, the business case may already indicate that migration off PSTN would be beneficial.

9.22) Migration to next generation broadband voice is seen as an inevitable end state, due to PSTN technologies reaching eventual EoL. In addition, PSTN subscription rates for most SPs are in decline as subscribers move their service to voice over broadband or mobile solutions. However, PSTN shutdown is not expected to happen in most regions until approximately 2020 or beyond.

9.23) Most governments and regulatory agencies have addressed the life cycle of the legacy PSTN primarily from a service perspective. As long as service continues to be delivered to the end subscriber at the required levels of performance, few architectural or network requirements have been imposed. Additionally, they are working to understand the impact of emerging technologies such as mobile, VoIP and broadband access in meeting the social and economic needs of the served areas.

9.24) Service providers all have an overlay next generation voice platform, but an industry-wide standard solution for next generation voice does not exist as of yet. Current migration rates to the next generation broadband voice platforms are generally dominated by external (market and government) forces.

9.25) Proactive planning requires the collaboration of SPs with their customers, their vendors and the appropriate government and standards bodies. This collaboration is needed to ensure that all PSTN features planned for migration are appropriately addressed in the next generation platforms.

Validation of Ofcom's proposed prices based on the bottom up model. Comparisons with BT's incurred and forecast NCC costs to sustain the PSTN network

9.26) It is a prerequisite that BT should have a reasonable opportunity to recover efficiently incurred costs. In the case of any cost model, this will only be fulfilled if all the relevant costs an efficient operator would incur are included.

9.27) At the start of the 2009 to 2013 charge control BT's revenues from NCC services were below the incurred cost. This was a contributing factor behind the RPI + X formulae imposed on Call Origination, Call termination and PPP services where Ofcom did not allow a one-off starting price adjustment but allowed an upward-sloping glide-path.

9.28) BT's RFS shows that over the three years from 2008/9 to 2010/11 the ROCE values for Call Termination and Origination services have been persistently below BT's WACC. In 2011/12 the ROCE achieved is at or slightly above BT's cost of capital.

	2008/9	2009/10	2010/11	2011/12
Call Origination	0.6%	4.6%	0.9%	12.5%
Call Termination	0.4%	5.9%	(1.2%)	10.7%

BT's Return on Mean Capital Employed in NCC call services¹⁴

¹⁴ Source: BT's Regulatory Financial Statements. (2008/9 figures excluding duct revaluation impact)

9.29) This shows that returns have been considerably below BT's WACC until 2011/12 and it is only towards the end of the 2009 to 2013 NCC period that BT has been able to recover its efficiently incurred cost. (This is notwithstanding the fact that the published RFS statements reflect BT's heavily depreciated asset base and so costs are below the "technology neutral ongoing network" approach used to set prices over this period.)

9.30) BT has forecast NCC costs to 2016/7 by analysing operating costs and capital employed at a detailed level and applying a three-year CAGR to the change in costs to calculate the trend rate of costs that can be expected to be incurred in operating the PSTN. Power costs are forecast separately due to volatile prices historically. A price trend is applied using current prices and increasing these at the same rate as assumed in Ofcom's bottom up cost model. These total costs are shown in the figure below, which shows BT's total NCC revenues have been below Fully Allocated Cost (including return on mean capital employed at the WACC)¹⁵. A separate line on the chart shows the total NCC revenue (plus a forecast based on Ofcom's proposed prices). It can be seen that in the early years of the current charge control and before closely aligning with costs in 2011/12.



NCC revenue and costs

9.31) However, BT will also incur additional cost to "Sustain" the PSTN as the network ages and these costs must also be included when forecasting future costs. In generic terms, the costs of sustaining a PSTN network are set out in Chapter 5 of the Bell Labs PSTN Industry Analysis report.¹⁶ The cost of the sustain programme is shown above to ensure the cost forecasts include the additional costs that will be incurred in keeping the PSTN network operating as it ages. S

¹⁵ These values exclude the effect of one-off CCA adjustments shown within "other CCA adjustments" and the effect of the change in duct valuation methodology in 2009/10

¹⁶ Bell Labs analysis for BT "PSTN Industry Analysis and service provider strategies: Synopsis", April 2013,

NCC ppm comparisons



9.32) The figure above shows the same information on NCC costs and revenues, but this time the values are expressed in ppm terms. The total cost of the NCC network is calculated separately for call origination and call termination and the resultant ppm values added to derive an aggregate value. This shows that, although total costs have been falling, the decline in volumes mean that per unit costs have been rising gradually. This is expected to continue over the charge control. Once sustain costs are also included it can be seen that Ofcom's proposed prices are very significantly below the level that would allow BT to recover the costs incurred in sustaining the PSTN, even though these costs are based on a nearly fully depreciated network so has low levels of both depreciation and mean capital employed. The proposed prices therefore fail to allow BT to recover its efficiently incurred cost.

Market Share - Ofcom should revert to a 25% market share assumption.

9.33) The three possible market share Scenarios envisaged by Ofcom in the February Consultation are as follows:

"A12.104 Although we used a base case of 25% in the September 2012 Consultation, we envisaged three possible scenarios for market shares:

12.104.1 A market share of 50% of wholesale fixed lines nationwide for all years in the model.

12.104.2 A market share based on BT's historic market share and then a projected market share of access lines from BT's current level.

12.104.3 A market share based on an even split of the market between the largest direct access operators in recent years. To date, BT, Virgin Media, Sky, and TalkTalk have accounted

for the vast majority of directly connected residential customers across the country. An even split between these operators would suggest a 25% market share for the modelled operator."

9.34) Ofcom [A12.116-A12.126] provides a précis of responses to its initial proposal made in the Call for Inputs of using a 25% market share (the third Scenario [A12.104.3]) and notes that there is no consensus on this matter. The new proposal is the first Scenario [A12.104.1] which is for a 50% share to be used for modelling purposes, on a putative SMP assessment. The 25% assumption in the Call for Inputs is now rejected on the grounds [A12.117] that – "this assumption is inconsistent with our finding of SMP in the wholesale call origination market".

9.35) Even at this stage, and prior to any consideration of economic principles, we cannot appreciate the logic of Ofcom's change of position:

- It is the case that a 25% market share will likely be insufficient for a designation of a position of SMP¹⁷. This would have been just as true in September 2012 as now, with no new developments in the intervening six months. If it were appropriate to base the share on an SMP assumption it would have been so in September 2012. However Ofcom [A12.106] is clear that it took the opposite view then.
- There is no clear explanation of *why* Ofcom has changed its position (even putting aside the factual point above), other than a statement by Ofcom [A12.124] that this level *"sufficiently abstracts away from BT's market share"*. This does not appear to have a good theoretical basis, as any number materially above or even below our current share could have been said as meeting this criterion.

9.36) We suggest that to establish the merits of the assumptions made it is useful to identify all the key possibilities that are available so that a full assessment can be made on the basis of underlying economic principles. One of the more difficult aspects of assessing the three Scenarios is that they differ in important ways that are not just about a share threshold.

9.37) The following appear to us to be the main choices regarding the model and its components which can be combined in various ways:

- To model an 'actual' network (such as of BT or another specific operator), or to construct a model on the basis of a network of a hypothetical operator.
- To model costs and volumes with a presumption of that operator holding market power, or to model based on a notion of contestability in which the resulting shares make a presumption of effective competition.
- To set the level of market shares:

¹⁷ In fact, even European Commission (EC) Guidance notes that a market share of 50% is not definitive of market power.

- In a steady state or to adjust share over time typically from a position of SMP to effective competition. (This latter approach might be implemented using the current share of the SMP operator to a level at which there is a presumption of no market power.)
- Measured at the wholesale level or alternatively at the retail level.
- Based on a single service (voice) or combined voice and data.

9.38) Not all of these possibilities can be logically combined, for example to have the presumption of contestability and to keep shares at an SMP level. Further, the assumptions might well have interlinkages and a presumption of SMP would imply obligations to supply at the wholesale level whereas a contestable market might only have merchant sales.

9.39) To address these complexities we set out below our assessment of how Ofcom and the EC have looked at this issue as a matter of economic principle. We have tried to summarise what we understand Ofcom's position to be on these factors in the table below in terms of how the three Scenarios are constructed.

Comparison of the Ofcom three Scenarios

Scenario	Network – actual or hypothetical?	Operator holding SMP or contestable?	Shares set in steady state or allowed to adjust over time?	Shares set at the wholesale level or retail level?	Shares set on a single voice service or voice and data?
1 A market share of 50% of wholesale fixed lines for all years in the model.	Hypothetical network	SMP	Fixed	Wholesale	Voice alone (lines access)
2 A market based on BT's historic market share and then a projected market share from BT's current level.	Hypothetical network	SMP	Variable (actual shares)	Wholesale	Voice alone (lines access)
3 A market share based on an even split of the market between the largest direct access operators in recent years.	Hypothetical network	Contestable	Fixed	'Retail'	Voice and data (downstream market)

The Alternatives to Assess Market Shares and Costs

An actual network or a hypothetical network

9.40) Of com [A12.122] is clear that it is not an 'actual' model of BT which is being considered:

"In constructing our model, we have sought to create a model of a hypothetical national NGN. We have not sought to model BT's network. If we were trying to model the costs of BT's hypothetical NGN, we would have put considerably more weight on data provided by BT, but this may not represent our best view of a hypothetical efficient national NGN." The EC in its guidance discusses the merits of top down and bottom-up models and seems to leave open the choice to National Regulatory Authorities (NRAs)¹⁸.

9.41) The network model is a hypothetical one in all of the three Ofcom Scenarios, with Scenario 2 being a hybrid of sorts. In options 1 and 3, the market share modelled is also hypothetical, but in its modelling consultation of September 2012¹⁹, Ofcom [5.17] explained that in the second Scenario for setting market shares, it would use 'BT's market share today in wholesale exchange lines'. Ofcom would therefore be combining assumptions of hypothetical and actual in a dual fashion if this approach were adopted. Whilst this might be more consistent with top-down modelling in the past as Ofcom has indicated, we cannot see that this argument has any merit given that Ofcom is now doing effectively bottom-up modelling. If a new approach is needed and justified on its own terms, it does not seem particularly logical to claim as merit a feature of the previous approach, which is now no longer sustainable.

Presumption of contestability or market power?

9.42) In our view, Scenario 2 is internally inconsistent for the very reason that Ofcom set out in the September modelling consultation:

"5.17 The second scenario involves a market share which moves from monopoly (or near-monopoly) to BT's market share today in wholesale exchange lines. In so far as the model has a number of periods with monopoly or near monopoly provision, it is difficult to envisage this being a reasonable competitive market counterfactual – since our cost modelling should be seeking to mimic the path of prices in a competitive market. However, it would be more consistent with the approach we have taken to top-down modelling in past NCCs."

It can make no sense whatsoever so superimpose BT's *actual* market share on a model of an efficient entrant as a relevant benchmark if it is accepted the framework is purely a hypothetical one. If Ofcom was doing top-down modelling and considered that BT's network was such an appropriate model for an MEA, then to establish a fair cost-related charge at the output of that network might be appropriate. This Scenario combines elements of both which are in underlying contradiction to each other and which are likely to be mutually incompatible. As discussed below, the notion of hypothetical entrants combines with contestability in a fashion which will be to a degree arbitrary but *consistent* across different markets and regulatory settings²⁰.

9.43) The adoption of a hypothetical network potentially leaves open a wider range of assumptions with which to populate the model and these are examined below. The first and most

¹⁸Explanatory Note Guidelines 2009 Section 4.1.

¹⁹ Narrowband Market Review: Consultation on possible approaches to cost modelling for the Network Charge Control for the period 2013-2016, at

http://stakeholders.ofcom.org.uk/binaries/consultations/narrow-band-market-review/summary/condoc.pdf²⁰ In this sense it is also a consistent framework in the way that the SSNIP test takes an arbitrary price increase and time period to ensure consistency in treatment across different market boundary assessments or merger investigations.

important of these is the presumption of contestability; it is relevant however to note that this in turn is inextricably linked to the issue of the MEA upon which costs and prices will be calibrated.

9.44) All parties are aware that the situation with regard to voice is complicated when viewed from the perspective of an incumbent such as BT, as there are many technical possibilities to replace the PSTN, which in turn imply radically different product solutions and varying costs, as we will outline elsewhere. This complexity is one reason why incumbents almost everywhere are not rapidly migrating to an NGN of the sort that Ofcom is modelling.

9.45) It is difficult to know precisely what the MEA should be if both technical and economic criteria must simultaneously be met i.e. a new network solution has to be both technically capable of meeting requirements and likely backwardly compatible, and be economic at a cost which is the lowest to meet these requirements. We broadly <u>agree</u> with Ofcom's [A11.89-A11.95] discussion on this matter in the February 2013 Consultation.

9.46) Of com [A11.81] notes that even though the particular NGN that has been modelled cannot be definitively determined as the MEA, the theoretical underpinning of this model is profound:

"A11.81 Second, there are nevertheless good reasons to model the costs of an NGN as the basis for setting regulated rates for wholesale call origination and wholesale call termination:

• Setting regulated prices in recognition of contestable market principles is appropriate, even if we cannot definitively identify NGNs as the MEA: NGNs have been the technology of choice for recent entrants in voice calls markets and the demand for wholesale call termination and wholesale call origination is ultimately a derived demand from the retail call markets, which are competitive."

(with emphasis as in the original)

9.47) The EC Guidance (Explanatory Memorandum) also sets out the <u>general principle</u> of using a benchmark of efficiency and outcomes of <u>a competitive market</u> as follows:

"This common approach builds on the decisional practice of the Commission to-date and is set out in the Recommendation. The objective of the Recommendation is to define and set out clear common principles, in accordance with the current regulatory framework, on:

(a) the regulation of cost-oriented fixed and mobile termination rates in the EU, including common principles on the concepts of an efficient operator and symmetric regulation; and

(b) the identification and calculation of efficient costs consistent with those incurred in a competitive market."

9.48) We consider that it is particularly relevant that the EC emphasises:

- The need 'to promote efficient entry'; and
- The ability of small operators to produce in more limited geographic areas.

We can see nothing in the EC guidance to suggest using an SMP threshold either: (i) as a matter of principle; or (ii) as a pragmatic solution to uncertainty as to how to set the level at such a threshold 'sufficiently abstract from observed market share'.

9.49) Noting the fact that Ofcom (for good reasons) cannot formally identify its model with the MEA, which is the network which BT will actually build to replace its PSTN, Ofcom elsewhere itself espouses the generic virtues of <u>contestability</u>:

"A11.73 The MEA approach seeks to set regulated prices reflective of the costs faced by an entrant if the SMP market were in fact contestable. The approach is most appropriate for those services or parts of the network where assets can potentially be replicated by entrants (even if this might not be so in the short-run, in the longer-run entrants might successfully integrate upwards). The MEA approach fits well with the principle of effective competition, and fits well with dynamic and productive efficiency (because regulated rates are not based on incurred costs but modelled costs)."

9.50) Of com [A12.124] suggests that the SMP threshold 'abstracts from the share' but then claims it is consistent with a 'hypothetical national NGN modelling point'. We consider that this cannot be correct:

- Ofcom sets out the principle of contestability as discussed earlier as the important benchmark.
- Of com aligns the hypothetical model with contestability, and <u>not</u> with SMP.

We have considerable difficulties in appreciating Ofcom's reasoning and internal consistency on this matter and seeing how it aligns with EC guidance. We believe that the EC is correct to emphasise that the principle of contestability is the bedrock of this area of regulation. To depart from this principle if there are other Equally Efficient Operators, Ofcom will hinder the emergence of competition from setting prices too low.

9.51) If it is the case that Ofcom wishes to take a view of a 'hypothetical efficient operator' and align this to an SMP standard – and especially if the share is not flexed over time but maintained - it would imply that Ofcom believes that effective competition is never going to be possible. This is precisely why in the September modelling consultation Ofcom [5.16] explicitly *rejected* this option and the EC does not support it.

9.52) Further, this standard is especially problematic in the current case:

- There is no doubt that BT does not have SMP at either the retail or wholesale levels in broadband provision.
- At the minimum there is serious dispute as to whether BT has equivalent SMP in voice provision at the wholesale level.

9.53) This Scenario also does not align with the evidence even for call origination viewed at the retail level²¹. In the February Consultation, Ofcom describes a strong retail market in Section 3 (Table 3.1 and Table 3.2). These tables are reproduced below, with Ofcom's own accompanying text indicating that there are a large number of providers who are able to sustain their own business models with comparatively low overall market shares and the 25% threshold is by no means an extreme and unreasonable assumption.

Table 3.1 Residential voice call volume market share 48

	ВТ	Virgin Media	TalkTalk	Sky	Others
Q1 2009	45%	17%	[10-20]%	[5-10]%	[10-20]%
Q1 2010	40%	15%	[10-20]%	[5-10]%	[10-20]%
Q1 2011	38%	14%	[20-30]%	[5-10]%	[10-20]%
Q1 2012	38%	14%	[10-20]%	[10-20]%	[10-20]%

Source: Ofcom/operators. Note: Includes estimates where Ofcom does not receive data from operators; excludes non-geographic voice calls and data for KCOM

Table 3.2 Business voice call volume market share

	BT	cww	Virgin Media	Others
Q1 2009	35%	[10-20]%	6%	[40-50]%
Q1 2010	33%	[5-10]%	6%	[50-60]%
Q1 2011	33%	[10-20]%	6%	[50-60]%
Q12012	33%	[5-10]%	7%	[50-60]%

Source: Ofcom/operators. Note: Includes estimates where Ofcom does not receive data from operators; excludes non-geographic voice calls and data KCOM

"3.14 Although BT continues to retain a strong position in the market relative to other individual competitors (as it did in 2009), it has nevertheless continued to lose market share. There is a long tail of providers of fixed line business access and calls which, collectively, have increased their market share since Q1 2009."

9.54) Of com [A12.103 and Footnote 624] also quotes the position of the EC on this issue where 'low levels of output' are deemed as being sustainable for fixed operators:

"5.1.3. Efficient scale of operators

²¹ We discuss the issue of whether retail or wholesale shares are appropriate later on. It is our strongly held view that Ofcom has not correctly interpreted Commission guidance on this nor adopted correct Greenfield site assumptions.

It is particularly difficult to determine minimum efficient scale for fixed networks due to a number of factors. Firstly, in fixed networks operators have the ability to rent infrastructure and to purchase interconnection. Secondly, fixed operators have the opportunity to build their networks in a particular geographic area and focus on higher-density routes. Consequently, fixed operators can potentially achieve low unit costs at low levels of output and thereby reduce the impact of economies of scale.

When deciding on the appropriate single efficient scale of the modelled operator, NRAs should take into account the need to promote efficient entry, while also recognising that under certain conditions smaller operators can produce at low unit costs by operating in smaller geographic areas. Furthermore, smaller operators which cannot match the largest operators' scale advantages over broader geographic areas can be assumed to purchase wholesale inputs rather than self-provide termination services."

9.55) Based on EC guidance and the empirical evidence of competition in downstream markets, we do not consider it would be appropriate to adopt a *higher* number for the market share in the fixed sector compared to what has been assumed in the mobile sector, but if anything more likely a *lower* share number. Under a presumption of balanced traffic between origination and termination, small fixed operators should be able to have sustainable business models and modelling costs set on the basis of these shares are appropriate. As stated above, we cannot see that 25% is at all unreasonable.

9.56) In summary, we cannot see any EC guidance which supports Ofcom's benchmark of an SMP market share, nor do we consider it to meet the fundamentally important principle of contestability. The facts belie Ofcom's Scenario of entrenched market power.

Shares set in steady state or allowed to adjust over time?

9.57) As noted above, Ofcom adopts a static SMP share except in Scenario 2 in which 'actual' shares are used with a hypothetical entrant. We agree that in principle, a case can be made to flex the share (likely from a high to a lower share to reflect the time taken for an entrant to build up capacity and market its services). However, the speed of this adjustment used will have to be a judgement call, and will not avoid the difficulty of deciding what the final contestable share should be.

9.58) We do not consider that the EC envisaged this approach in setting charges for call origination and in the context of mobile services the EC simply states:

"5.2.3. Efficient scale of operators

To determine the minimum efficient scale for the purposes of the cost model, and taking account of market share developments in a number of EU Member States, the recommended approach is to set that scale at 20% market share."

9.59) The EC also states the following which suggests that a 25% share could only be exceeded with a high burden of proof:

"In case an NRA can prove that the market conditions in the territory of that Member State would imply a higher minimum efficient scale, e.g.

due to the maturity of the market operators may be expected to achieve the average market share, it could deviate from the recommended approach."

Shares set at the wholesale level or retail level?

9.60) Our reading of the EC guidance quoted above - 'in fixed networks operators have the ability to rent infrastructure and purchase interconnection' - is that it is the downstream *retail* level which is the appropriate level and not the upstream level of the service under consideration. NRAs should take a modified Greenfield site assumption of all other upstream regulation being in place to allow contestability in the market under consideration. In our case this would include WLA products and also a functioning WLR service under a presumption that BT has SMP in call origination²².

9.61) On this basis, the relevant share is at the BT Retail level alone, which was 38% according to Ofcom [Section 3] for voice origination in consumers, and 33% for businesses. This, however, does not capture the true retail position as it only for voice and this is a minority of the traffic across the network which Ofcom has modelled i.e. most costs are for provision of broadband and not voice.

9.62) Ofcom's Scenarios 1 and 2 are defined as at the wholesale level of exchange lines. In our view, however, for Scenario 3 the implicit share is actually at the downstream retail level and not the upstream wholesale level and this is the correct model. In Scenario 3 there is self-supply of the relevant service given upstream regulation in place and any self-supply of the upstream components themselves.

9.63) We consider that Ofcom has not properly interpreted EC guidance on this matter. We cannot discern anything in the text that Ofcom [A12.103] writes to support its interpretation that the share should be calibrated upstream *of the relevant market being considered*. In fact, to our understanding it would be highly perverse to go down this route and incompatible with Greenfield site assumptions.

9.64) Further, taking Ofcom's benchmark of upstream shares there is nothing intrinsically different in any case between Scenarios 2 and 3:

²² The requirement to set a call origination price would of course drop in any case were SMP in call origination not be found. Importantly, WLR would have to be re-specified as a product offered (if at all) across an NGN network and not envisaged as BT offers under current arrangements.

- Ofcom [5.17] in the September modelling consultation states that it would use BT's current share of wholesale access exchange lines. Given that Virgin Media does not wholesale access, this would imply roughly 70% of total lines.
- However the situation does not change at all in Scenario 3 BT would still have 70% of lines at the upstream wholesale level in any case. Implicitly Scenario 3 is therefore at the downstream *retail* level and not the upstream *wholesale* level.

That Scenario 3 at the *retail* level is the correct interpretation of the EC guidance, can be seen from a direct comparison of the situation in the mobile sector. The MNOs do not have a wholesale obligation, as there are four competing networks with direct access²³. There is no difference in the mobile world between access and (retail) calls.

9.65) This is no different from the position in the fixed sector given the upstream remedy of access and in our view, the EC guidance at section 5.23 applies directly. Suppose that as well as Virgin Media having a direct access network, Talk Talk Group (TTG) and Sky also had their own direct access networks and they were not reliant on BT to provide any services whatsoever to their customers (other than termination services). BT would (likely) not have to supply wholesale access services to other CPs and our share of upstream self-supply would be 25% and not 70%. But the situation downstream would be no different – the retail market would still be fully competitive. The fact is that BT supplies LLU to TTG and Sky, and this achieves exactly the same result downstream; our share of upstream wholesale access lines (total market comprising BT network plus Virgin Media) - is irrelevant for the purposes of the hypothetical modelling undertaken by Ofcom.

9.66) In our view, Scenarios 1 and 2 are simply wrong on this matter and do not reflect what the EC is promoting.

Shares set on a single voice service or voice and data?

9.67) In the February consultation, Ofcom [A12.105] states that across all three scenarios it has kept the modelled share constant across voice and broadband. This is implying therefore that the modelled hypothetical operator has SMP in a downstream market (broadband) and that the upstream remedy of LLU has thus far failed to solve this market failure.

9.68) Hypothetically this must be possible, but BT manifestly does not have SMP in broadband across most of the UK and Ofcom has accepted that CPs have near national coverage of LLU.

9.69) In BT's Call for Inputs response, we suggested that roughly 70% of consumers take a bundled service of voice and broadband. According to our RFS data, our share of retail lines of broadband at September 2012 was 29% and external wholesale broadband lines was 10% (down from 15% in June 2010). A forward look would put the external sales lower still and the strong possibility of retail

²³ In fact the reality is less competitive than this due to joint agreements between MNOs.

share falling also. Hence on either a retail view or wholesale view, BT does not and will not have SMP for broadband.

9.70) The EC set out the basis of the share assumption as one of contestability. Mobile operators are not given access obligations and only termination. In parallel, we therefore can see no basis for assuming in the model that: (i) the share can be based just on voice alone when manifestly the NGN is there to serve both voice and broadband; and (ii) an SMP assumption can be made for broadband when the reality of the situation dictates otherwise²⁴.

9.71) It logically follows from the arguments made above, that Ofcom in adopting an NGN can only assume a competitive or contestable share based on the combined services. If the hypothetical operator of the NGN had 25% share of customers (lines) then it would be expected to have the same share of both services. Scenarios 1 and 2 are therefore both misplaced in this respect.

9.72) We note that in the September modelling consultation, Ofcom [5.16] recognises for Scenario 1 the inappropriateness of a 50% share which 'may not be an appropriate competitive counterfactual'. For Scenario 2 as we have discussed above, this hybrid solution is wrong simply on its own terms, but if BT's share was to be imputed at some stage, then it would have to be the combined *retail* share and not that of access lines which is irrelevant for the reasons we have set out above.

Conclusions

9.73) We comment briefly on the merits of each of the three scenarios before concluding on what we see are the overall trade-offs in the choice of Scenario.

9.74) Scenario 1 is the least plausible one which fails on every ground:

- It is at the wrong level of assessment being at the upstream wholesale level and not the relevant downstream level.
- It makes a presumption of entrenched market power at both upstream and downstream levels.
- It is not supported in any way by EC guidance.
- The unit cost produced by the model assumes a network shared between Broadband and Voice supplying 50% of exchange lines. No operator is close to that volume and prices set at that level would not allow any operator to recover their costs.
- It is not supported by the self-evident facts of downstream competition in the current WBA market, which is only reliant on LLU and fibre-based services.

²⁴ Indeed which is why as quoted earlier the Commission noted that in a mature market, operators might achieve an average market share.

9.75) Scenario 2 is a little different conceptually to that of Scenario 1 with the downsides only mitigated by a glide path. There is nothing we can see in EC guidance to justify this approach for call origination.

9.76) Scenario 3 is actually correct in all respects:

- It implicitly makes the proper Greenfield site assumptions of regulation.
- It includes the generic assumption of contestability, which the EC has mandated for all such regulation.
- It is correctly placed at the downstream retail level with the upstream remedies in place.
- It is fully supported by the facts of competitive outturn of a combined calls and broadband marketplace which Ofcom has fully recognised in the 2010 WBA market review as pertaining to the majority of the UK²⁵.

9.77) Ofcom's proposal to use a 50% SMP threshold for both voice and data ensures that in the regulatory construct, our market power is entrenched in this review and presumably subsequent ones. It sets an extremely worrying precedent for any other review.

9.78) The workings of Ofcom's NGN model mean that there is a presumption of scale which BT does not enjoy particularly in the fully competitive market 3 of WBA. The downstream market for both consumers and businesses are dominated by bundles of data and voice, and voice only customers will likely continue to decline in absolute terms as well as relative levels. Scenario 2 only reduces this distortion to the extent that it moves quickly to the contestable level. Scenario 3 is ironically the only Scenario that not only fits with theory but also evidence.

9.79) We therefore re-iterate our position in response to the September modelling consultation that Scenario 3 is the only possible one which Ofcom can adopt and to choose another benchmark assumes that competition is not feasible which is stark contradiction to the absolute facts of the relevant downstream market which Ofcom is in fact modelling.

9.80) We invite Ofcom to give very careful consideration to this matter.

Volume Forecasts

9.81) Ofcom's voice forecasts are based on 3 year volume trend. It is doubtful that this approach will accurately capture all the factors that contribute to future volume trends and runs the risk of extrapolating short term volatility in volumes and ignoring longer term factors. Ofcom's volume forecast for residential minutes per line have a less than 20% probability of being met based on a

²⁵ Since then as we have demonstrated, there has been a massive expansion of LLU rollout by Sky and TTG.

forecast using statistical best fit projection of the key parameters. This indicates future voice volumes may be unduly optimistic.

9.82) BT is also concerned that the volume of broadband users connected to the NGN network will start to decline as fibre-based services are rolled out and customers migrate to fibre based access services. This factor has only been taken into account through a lower growth in the broadband usage per line. BT would also expect this to be reflected in lower volumes of Broadband end users served by the NGN network based on copper access.

Inclusion of ISDN volumes

9.83) In calculating the volume of calls to be carried by the model, Ofcom has included calls that originate on ISDN access lines. However, the model design contains no provision for an ISDN service. Either additional network elements have to be added to deal with ISDN or the volume of these calls removed from the forecasts.

Forecasting accuracy

9.84) Any forecast is only an estimate of the future that relies upon views on market and behavioural changes that are often the subject of a wide diversity of opinion. In our response to the Call for Inputs we commented on the methodology and assumptions employed to derive the forecasts used in the previous model. In this section we consider how the revised forecasts compare to historic trends.

9.85) A series of curve fitting approaches have been used to review the voice forecasts in the Ofcom NCC Voice model. These techniques produce both forecasts and uncertainty ranges associated with the forecasts. It is found that while the lines per household/premises forecasts are well within uncertainty ranges produced by the best curve fitting technique, the forecasts of calls originating per line (upper, medium and lower) are at the extreme upper end of the uncertainty ranges.

The Forecasting Approach

9.86) The following range of forecasting techniques have been applied; single moving average, double moving average, single exponential smoothing, Holt double exponential smoothing and autoregressive integrated moving average and a root mean square error measure used to select the one producing the best fit to the available (2005/06 to 2011/12) actuals.

Voice Lines per Household/Premises Forecasts

9.87) In the demand module of the Ofcom model there are individual forecasts for residential PSTN, residential ISDN2, business PSTN, business ISDN2 and business ISDN30 lines per premises. Of these the PSTN residential and business lines per premises are the most important in subsequently driving the model and therefore the statistical tools described above have been applied to these.

The autoregressive integrated moving average technique produces the best fit in both cases. The results are shown below. All the Ofcom forecasts are very close to the mean statistical trending forecast.





Call Origination per Line Forecasts

9.88) In the demand module of Ofcom model there are individual forecasts for all combinations of residential and business, local and national calls to fixed lines, plus residential and business calls to mobiles, international and other. But only the combined average residential minutes per line and average business minutes per line are subsequently used later in the model. (ISDN values are set equal to the PSTN values.) Therefore we examine these forecasts.

9.89) The best fit to the residential minutes originating per line historic data is obtained using the autoregressive integrated moving average technique. We see that all the Ofcom forecasts (even the lowest) are near the very top of the uncertainty range.



9.90) From the above graph (Figure 5) we see that the Ofcom medium forecast is roughly in the top 22% of possible outcomes in 2017/18. The Ofcom upper forecast is in roughly the top 17% and the Ofcom lower in the top 24%. Thus, based solely on curve fitting, it could be argued that even the most pessimistic of the Ofcom forecasts only has a 24% change of happening unless factors other than just combined historic data 2005/6 to 2011/12 are taken into account.

9.91) Next we turn to calls from business premises and get a similar picture although the Ofcom forecasts which are still above the mean are a litlle more likely to occur.



9.92) In summary the above analysis suggests that the Ofcom lines per premise forecasts look reasonable based upon trends in historic data (2005/06 to 2011/12) but the minutes per line forecasts look low and need to be underpinned by recourse to special events or trends not easily apparent in the top level historic data.

9.93) The results of statistical analysis of the forecasts would suggest that the range of call minute volumes in the model is too narrow and clustered at the extreme end of plausible results. We can see no reason why historic trends in call minutes per fixed line should not continue and Ofcom should adopt a base case more in line with expected outcomes.

9.94) Of com has significantly under-estimated costs due to omitting costs and by underestimating passive infrastructure and power costs

MSAN Gateway costs

9.95) The network cost model is constructed in such a way to clearly separate access components associated with the presence of a number of LINES (BA_MSAN_Access` line card), and with call setup and teardown (BA_MSAN_Voice gateway). However, both of these are set to zero cost in the model. BT believes this is flawed, as it erroneously removes a cost associated primarily with call set up and clear down – i.e. call origination and termination.

9.96) Using a zero value for the linecard unit cost may be a valid assumption in this model, since this cost is not sensitive to the volume of calls and could be wholly allocated to the line rather than call origination or termination. However, the function of the gateway is essential to call control. Without this function in place, the line card will provide a basic tone but will be unable to place or receive calls.

9.97) While MSAN architectures vary between vendors, the function of the gateway is still present, either on the line card or within the chassis. The functionality division is illustrated most clearly using the Fujitsu MSAN architecture, where the gateway is located in the main "hub" element of the chassis, rather than in the line cards. The voice gateway capability within the hub is then enabled when a software licence is purchased. The cost of the licence is based on the capacity of the MSAN and is not dependent upon the number of line cards installed. The Huawei architecture is somewhat different, with daughter cards used to provide call processing capability and these are dimensioned in terms of call handling capability, in increments of 192 simultaneous calls. The MSAN therefore needs to be dimensioned according to its application – with more call processing capacity needed in an area which handles primarily business lines, and on larger MSANs with more customers supported.

9.98) Both MSAN architectures used by BT have a clearly identifiable Gateway cost which is dependent on call throughput capacity and not driven by the number of lines. It is therefore essential that an element of cost is provided to recover the costs of the gateway component. Excluding this element from the model does not allow BT to recover the costs appropriately, and building a network without this element in place would deliver no capability for originating or terminating calls.

Power Costs

9.99) Ofcom's model has seriously under-estimated the current level of power costs. In 2013/14 BT has an electricity cost of 11.51p/kwh for the commodity element of power charges.²⁶This contrasts with a figure of around 5p/kwh used in the Ofcom model.

9.100) BT believes that the 5p/kwh figure Ofcom has inadvertently used the power station "factory gate" price or wholesale electricity price in its cost model rather than the cost of power delivered to the BT exchange sites. This can be seen from the total electricity commodity price BT pays which is made up of three components,

- a commodity price being the price of power at the power station imes
- distribution and transmission costs ≻and
- a green levy or carbon reduction charges imes

The second and third elements of the power costs appear to have been omitted from Ofcom's cost estimate. The total cost % in 2011/12, consistent with the 8.52p/kwh BT price list entry for 2011/12.

²⁶ See Openreach price list of LLU operators url:

http://www.openreach.co.uk/orpg/home/products/pricing/loadProductPriceDetails.do?data=5aGuT J%2Bu7bjhXjKH3sW9KvqqAFdbfkJJvFiM9%2FNj42QlMnGHsqdC0vzO163bJmh34D91D7M0q8u%2F%0 AllSgtIFAKw%3D%3D

9.101) The Openreach price list shows the power commodity cost incurred by BT that is recharged to LLU operators. For 2011/12 this was 8.52p per kwh increasing in 2012/13 to 9.05p per kwh. From April 2013 (2013/14) the price is 11.51p per kwh, Ofcom's model should therefore be adjusted so that from 2013/14 onwards the most up to date power costs are used.

9.102) It is expected that power prices will continue to increase significantly in the long term, particularly if the green levy element of prices is to increase. Any power cost increases should start from 2014/15 onwards using the actual costs in 2013/14 as the base year value.

9.103) Of com should allocate the forecast power usage cost to the year in which these costs are incurred. The economic depreciation module should not be used here as it will distort the recovery of these costs given the high level of volatility in the cost per kwh in the recent past.

Power Infrastructure and other accommodation based costs

9.104) Of com includes power commodity costs by applying the power rating on the network equipment and multiplies this by the number of hours per year to derive total electricity commodity usage. The cost of powering consumed in operating air conditioning units is taken to be 80% of power rating of each of the network transmission and switching equipment.

9.105) However, while power and cooling running costs are explicitly modelled, the model does not explicitly model the capital costs of the power or cooling equipment. Nor does it explicitly model the maintenance cost of this equipment. In its discussion of the model CSMG states the following:

"2.11 All nodes are assumed to require each of the following;

- DC power, battery back-up and generator
- AC power and Uninterrupted Power System (UPS)
- Air Conditioning
- Security
- Environmental Alarms
- Fire suppressant
- Cable management
- Management network

2.12 These "property" costs are not modelled individually on a bottom-up basis. Instead, an average capital cost per rack is estimated and applied proportionally to the network equipment based on rack space occupancy. We calculate the on-going costs as a percentage of the upfront capital cost (20%) and apply them proportionately in the same manner." ²⁷

²⁷ Ofcom Review of the fixed narrowband services markets, Annex 13 Fixed Narrowband Market Review NGN Cost Modelling.

9.106) Unfortunately, no detail is provided on the how the capital cost per rack has been estimated. An examination of the model shows that a number of 'rack' categories have been identified. Specifically:

- (12) Basic Access (BA) Rack;
- (50) Special Access (SA) Rack;
- (79) Aggregation Network (AN) Rack;
- (93) Core Network (CN) Rack;
- (127) Server (SVC) Rack;
- (165) IN Rack;
- (198) Remote Access (RA) Rack.

There are also a number of categories covering cabling requirements in buildings.

9.107) In all cases, except for SA Rack, the cost of the rack is shown as being £2,000 in 2012 – the SA Rack is shown as being £1,000. In addition the model allows for installation costs of £550 in all cases, including SA Rack and a 'retirement' charge of £275 (a discount factor is applied to this charge in the model). After allowing for real price changes the capital cost per rack is £2,618 in 2013/14. Operating costs are assumed to be 20% of capital equipment costs (i.e. capital costs exclusive of installation). There is no detailed break-down of how this assumption has been made.

9.108) According to the model the capital cost (inclusive of installation) associated with 'property' in 2013/14 is £2,618 per MSAN. The largest part of this cost is the equipment cost itself £1,902. Assuming a 10 year asset life, a 6.3% cost of capital and a price tilt of -3.4% per annum the annualised tilted annuity value of this cost is £412²⁸. The associated operating costs are £380 per annum. Hence, the total annualised is £792 per MSAN.

9.109) It is possible to compare the assumption made in Ofcom's model with the power infrastructure, cooling equipment, back-up power units, security costs with the charges set out in the Openreach price list for LLU operators for power and accommodation to examine whether the cost allowance of around £800 in total per MSAN is reasonable.

9.110) There are a number of elements that are needed for each site whilst some items relate to the power rating of the underlying equipment.

Looking at each cost element in turn, using Openreach's price list to identify an estimate of the relevant costs using the prices charged to LLU operators for similar items:

 $^{^{28}}$ The asset life and cost of capital assumptions are those used in the model. Rack equipment prices are assumed to decline by 4.9% per annum whereas labour costs are assumed to increase by 0.9% per annum. The average tilt factor for the rack including installation and retirement is approximately -3.4%.

Openreach power and infrastructure charges

						Volume needed for each 500W	Costpers	site/MSAN
Price list description	Date from	Date to	Up front cost	Rental	notes	MSAN per site	Rental	Capital
			£	£p.a.			£ p.a.	£
DC Power System								
DC System for FCP	01/04/2013			825.60		1	826	
DC Power capacity for FCP in kW (minimum 2kW)	01/04/2013			129.00		1	129	
Inverter chassis (N+1) for FCP only	01/04/2013			343.80		1	344	
Inverter module for FCP only	01/04/2013			203.52	x2 for resilience	2	407	
AC Power supply								
Rental per kW (Note 1, charges will appear in billed units of decawatts (10W)	01/04/2013			16.08		0.5	8	
AC Final Distribution Rental per 10kw increment per annum (Charges will appear in billed units of decawatts (10W)	01/04/2013			420.84		0.05	21	
FCP (Powerbase) AC only base unit 600mm (w) x 600mm (d) to include lighting and cable management	01/05/2012		2778.48			1		2,778
Provision of Standby Epower (ESS) Survey for capacity upgrade	01/04/2013		7 395.96		up front			
					planning	1		396
Rental of existing capacity per kW per annum (Note 2, charges will appear in billed units of decawatts (10W))	01/04/2013			195.96		0.5	98	
Additional battery string provided to provide 1 hour reserve at 4kw load for B-BUSS3 product only	01/05/2012	31/03/2013		288.84		0.125	36	
Air conditioning							net cost per 500W MSAN	
Cooling per kw	01/04/2013			1764.44	rental includes power usage	0.5	479	excluding power usage
Security and service charges								
Security rental per sq. metre	01/04/2013			27.60		1	28	
Service Charge per square metre	01/04/2013			65.16		1	65	
						Total	2,440	3,174

9.111) The cost of a 500W MSAN unit would therefore cost at each site annual costs of around £2,450 in power related rental costs with a capital cost in excess of £3,000. A number of the racks in the bottom-up model will house equipment with a power rating in excess of 500W and so will incur additional cost.

(Note these power related costs do not include any of the property rental costs which are shown in the LLU price list as "license fees" which are bespoke prices and vary by location.)

9.112) This demonstrates that bottom-up model has over-simplified the estimate of costs listed in section 2.11 of CSMG's report. Indicative costings based on the Openreach LLU price list indicate that these costs have been under-estimated by at least £2,000 per annum per rack

PPP Costs

9.113) Ofcom accepts that some of the activities covered by PPP may be incremental to external termination, but fixed for the subset of traffic, Ofcom believes that none of the activities are specific only to external termination (see A12.144). The cost of PPP is considerable, and includes items such as Billing and Finance, product management and account management. It is clear that some of these activities relate to external call termination only, and that Ofcom ought to identify the elements relating to call termination only and include these within the LRIC of Call Termination.

9.114) There are a number of activities that clearly relate to external call termination only.

- Setting prices and issuing NCCNs, and updating items on the price list when call termination prices are changed
- The capital and operating cost of providing a volume measurement system to identify volume of calls terminating on the BT network, where the calls entered the BT network and the operator who sent it.
- Maintenance of the Element Based Charging matrix (the EBC system), which sets out how incoming traffic will be invoiced, depending on the traffic destination and the entry point into BT's network
- Maintencance and update of price list entries for call termination and ensuring website is up to date.
- Processing of invoice for call termination calls and generating an invoice for this traffic.

It is clear that only a proportion of the PPP cost relates to these activities, but nevertheless it is also clear that these activities do have a cost and therefore an element of PPP costs should be included within the call termination cost.

9.115) The total cost for PPP amounted to £19m in 2011/12. The bottom-up cost model does not separately model the cost of PPP and so appears to under-estimate the total PPP cost that need to be included within NCC charges.

Recovery of Common Costs

9.116) Ofcom's formula for calculating the mark-up to Call Origination LRIC + costs to recover common costs not recovered from call termination fails to allow all these costs to be recovered. This is because the numerator and denominator used in Ofcom's calculation are not calculated consistently. This is explained in more detail below.

9.117) In the February Consultation Ofcom sets out a mechanism for including common costs not recovered from call termination within the costs of call origination. (See Annex 12 paragraphs A12.208 to A12.211). Ofcom's approach involves a three-step process:

• Step 1 – calculate the difference between LRIC+ and LRIC for wholesale call termination

- Step 2 multiply the output of Step 1 by the total incoming minutes of traffic for that year to calculate the "total cost under-recovery".
- Step 3 Calculate the in-year mark-up by dividing the total under recovery of costs by the total outgoing minutes of traffic (both on-net and off-net)

9.118) As we will explain in our answer to Question 8.2, BT supports the principle that if Call Termination is to be priced at pure LRIC, then all the common costs not recovered should be included in Call Origination charges. This ensures that the total costs associated with the provision of wholesale call services can be recovered from these services, consistent with Ofcom's cost recovery principle of cost causation.

9.119) However, BT has serious concerns about the nature of the calculation proposed by Ofcom to implement this principle. This is because Ofcom has only included the common costs associated with incoming traffic (i.e. excluding the call termination element of an on-net call) but has recovered these costs across all outgoing traffic (including on-net and off-net calls). This sets the price of a call, i.e. call origination plus call termination, at a level below the cost of providing that call, which is inconsistent with Ofcom's fundamental underlying principle that BT should have a reasonable opportunity to recover its efficiently incurred costs.

9.120) To ensure all relevant costs are included, the regulated call origination price should be calculated using the same source for the numerator and denominator - either all calls or off-net calls only should be used. As the model assumes balanced traffic between fixed operators, either approach should ensure a consistent treatment of common costs. Set out below is a simple example to illustrate how Ofcom's method of calculating the uplift to Call Origination fails to allow recovery all of its incurred costs:

- Suppose the network has a total of 500 million on-net calls, 500 million incoming off-net and 500 million outgoing off-net.
- Suppose further that the LRIC + cost of a call origination or termination segment is 0.2ppm and the pure LRIC is 0.05pp. This means that the common costs are 0.15ppm.

9.121) The reallocation of common costs from call termination to call origination makes no difference to the total cost of an end-end call. This cost remains at 0.4ppm (being 0.2ppm for call origination plus 0.2ppm for call termination.) There are in total 1,000 million call origination segments and 1,000 million call termination segments. This gives a total LRIC + cost of 2,000 million segments times 0.2ppm per segment equals £4m.

9.122) However, the Ofcom method operates as follows:

Step 1: calculate the difference between LRIC + and LRIC = 0.2ppm less 0.05ppm = 0.15ppm

Step 2: Multiple Step 1 output by total incoming calls = 0.15 * 500 million = £750,000 = "total cost under-recovery"

Step 3: Divide total under-recovery of cost by total outgoing minutes (both on-net and offnet) = £750,000 / 1,000 million minutes = 0.075ppm

9.123) This means that call origination minutes are now priced at LRIC + plus the contribution to under-recovery of cost:

This equals 0.2ppm + 0.075ppm = 0.275ppm The cost base for on-net calls is unchanged at 0.4ppm

9.124) In terms of total cost recovery, in the example

Off-net call origination = 500 million * 0.275ppm = £1.375 million Off net call termination = 500 million * 0.05pm = £0.250 million Total cost recovery prior to on-net traffic = £1.625 million

9.125) However, as explained in our answer to question 8.2, retail prices are at the competitive level and could not be further increased.

This means that the cost recovery from on-net traffic can be no higher than 500 million * $0.325 = \pm 1.625$ million Thus the total cost recovery = ± 1.625 million * 2 = ± 3.25 million

The difference between this cost recovery and the total cost of £4 million equals £750,000. Therefore costs have been under-recovered by £750,000 through this pricing structure.

9.126) Under BT's approach, the total common cost recovery would be calculated on all terminating traffic (including on-net traffic) and spread over all originating traffic (both on-net and off-net). This would give an under-recovery of common costs of 0.15ppm * 1,000 minutes = \pm 1.5m. This would then be divided by the 1,000 million minutes of originating traffic to give an increase in call origination of 0.15ppm for both all originating traffic. This would leave the total end-end cost of a call unchanged at 0.4ppm, but would have a 0.05ppm call termination price and a 0.35ppm call origination price. This would ensure that the prices allow a full cost recovery across all services of \pm 4m.

Passive Costs and Accommodation

9.127) BT's network comprises some 5,000 remote concentrator units and around 500 local exchange switch sites. The passive infrastructure costs include the accommodation to house the network equipment at these sites plus the duct and fibre to link the remote concentrator sites to the

host local exchange nodes. Under the scorched node assumption²⁹ all these network nodes are required and consequently the costs of passive infrastructure assets can be sourced from the assets allocated within the Regulatory Financial Statements to the NCC services.

9.128) Of comproposes to use the cost of the assets that are currently allocated to NCC services on a top-down basis (see paragraph 9.21 in the February consultation). This includes the cost of ducts, land and buildings (accommodation) and core transmission used to link exchanges (fibre).

9.129) BT agrees with this approach in principle, however Ofcom has adopted a different approach in its modelling. The passive infrastructure is included in the modelling by introducing a mark-up on the LRIC + costs. For outgoing calls (call origination) the mark-up is 36% made up of 8% for property costs, 20% for duct and 8% for fibre. The mark-up is 38% for call termination, made-up of 7%, 18% and 13% for property, duct and fibre respectively³⁰.

9.130) It is unclear how these "Ofcom Estimates" have been derived, but these differ substantially from the figures apportioned to the NCC services on the top-down basis. This estimate has been used without comparing the total cost with the relevant passive infrastructure costs BT's RFS has allocated to the NCC services resulting in a significant under-estimate of these.

9.131) BT has been able to identify the Accommodation Costs within the RFS as these costs are separately identified as a cost sector "BC". The total accommodation costs associated with NCC services, after excluding power related costs, amounted to \gtrsim in 2011/12 and has averaged around \approx per annum over the past five years. These costs are set out in the Table below.

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9.132) BT also separately identifies the cost of connecting the remote concentrator units to the switch sites and has two separate components – the "Remote to Local" transmission link and length components. The "link" component captures the cost of the transmission equipment whilst the "length" component captures the apportioned cost of the duct and fibre assets necessary to link these elements of the network.

9.133) The amount of cost allocated to the NCC services for the duct and fibre passive infrastructure assets can therefore be quantified by examining the costs of the Remote to Local Transmission Length component. Over the past five years this component's CCA cost has averaged £73 million. This cost varies somewhat from year to year, principally due to the influence of CCA adjustments as the duct and fibre assets are revalued each year. These holding gains and losses and

 ²⁹ See 2.10 of CSMG "Fixed narrowband Market Review: NGN Cost Modelling Model Documentation"
 ³⁰ see the element of Ofcom's model labelled 2.Network.Cost, "Input_Network" worksheet from row 315 onwards

other CCA adjustments substantially influence the total CCA costs. Excluding the effect of CCA holding gains and other adjustments, the cost was £61 million in 2011/12 and averaged £74 million over the past five years, shown in the table below.

Remote-local transmission length costs (duct ar					
(£m)	2007/08	2008/09	2009/10	2010/11	2011/12
MCE	299.8	303.7	308.7	332.5	281.8
WACC	11.4%	11.4%	11.0%	11.0%	9.7%
HCA operating costs	44.2	43.8	32.9	38.5	29.3
CCA capital costs (CCA MCE * WACC)	34.2	34.6	34.0	36.6	27.3
Operating and capital costs	78.4	78.4	66.9	75.1	56.6
Supplementary Depreciation	\times	\times	\times	\times	\times
Holding loss/(gain)	\times	\times	\times	\times	\times
Other CCA adjustments	- 3.5	- 6.9	2.8	17.1	- 7.2
RFS Total	69.9	64.3	73.9	107.2	48.1
Costs before CCA holding gains and other adjust	tments				
Operating and capital costs	78.4	78.4	66.9	75.1	56.6
Supplementary Depreciation	0.2	2.3	3.7	5.4	4.7
CCA costs prior to holding gains/losses	78.6	80.7	70.5	80.5	61.3

9.134) BT has calculated that Ofcom's model includes passive infrastructure costs averaging £10 million for accommodation and £40 million per annum for duct and fibre costs over the next charge control.

9.135) This total passive infrastructure costs allocated by BT's Regulatory Financial Statements has averaged over £140 million per annum compared with an average of around £50million per annum used in Ofcom's model. This shows that Ofcom has very significantly under-estimated the cost of passive network assets used to connect the remote concentrator sites to the local exchanges.

9.136) BT is also required to pay cummulo rates on its network infrastructure. The amount attributed to NCC services was \approx in 2011/12. The bottom-up model does not appear to have included anything for these costs that BT is obliged to pay on its network infrastructure. The amount allocated to NCC services should therefore be included in Ofcom's model.

Input price changes

9.137) The Ofcom model includes a weighted average real price reduction of 5.75% for opex meaning that it is assumed that operating costs will decline significantly year on year.

9.138) A large part of the reason for this is due to the model calculating operating costs as a percentage of capital costs, with the percentage unchanged over time. This approach implicitly assumes that the productivity of operating cost can match the rate at which network electronics costs can be expected to decline.

9.139) We believe this rate of productivity improvement is unrealistic and is not supported by any evidence. The decline in operating expenditure input costs implies a level of productivity growth significantly in excess of that which has been observed in the past.

9.140) Both BT and Ofcom have commissioned studies over the past ten years that examine the underlying trend in productivity growth. These econometric studies examining both BT's network businesses and US Local Exchange companies and identify both relative efficiency and the long term trend rate of productivity improvement. These studies consistently show the trend rate of productivity growth to be around 2% in real terms over the long term.³¹ BT suggests that Ofcom use this as the basis for real terms reductions in operating input costs in the cost modelling.

Voice Mail Server

9.141) Voice Mail Server costs are attributed across all call types whereas they should be attributed just across call termination. In a fixed network, these costs are primarily triggered by call termination and therefore contribute towards pure LRIC costs. By definition, Voice Mail Servers do not generate outbound calls.

Implementation Costs

9.142) The implementation costs in the base run of the NCC network module are too low. BT has already submitted more realistic numbers in response to a S135, submitted to Ofcom on 24 October 2012. A spreadsheet is attached ("*Copy of Days_to_Implement_S135_Review.xls*") which gives a more detailed breakdown of BT's submission. These are the figures which should be used in the model.

9.143) Please note that in checking these figures we found that the Optical Transport Network (OTN) chassis implementation costs submitted in the original submission contain a misinterpretation. We submitted a figure of 38.6 man-days which is the BT operational figure for a (Wave Division Multiplexing (WDM) 'structure'. If a singleton unit is required for the model input

- ³¹ NERA 2003: <u>http://stakeholders.ofcom.org.uk/binaries/consultations/charge/annexes/nera.pdf</u> Page 52, conclusion is real terms productivity improvement of 1.5% per annum
- **NERA 2008**: <u>http://stakeholders.ofcom.org.uk/binaries/consultations/llcc/annexes/operations.pdf</u> Paragraph 29. Real terms productivity improvements of ~2% per annum from 2002-2006.
- **Deloitte 2011**: <u>http://stakeholders.ofcom.org.uk/binaries/consultations/823069/responses/BT2.pdf</u> See page 3 summarises outputs from past efficiency reports, giving range 0.8% to 2.8% per annum for trend rate in efficiency improvement.

then the figure should be divided by two to give 19.3 man days per OTN Chassis. Figures for all other elements are as quoted in the original submission.

Cost elements missing from the model

9.144) Comparing the Ofcom model with BT's own 21CN cost model, a number of key elements are missing, or significantly under-estimated. These are:

- OSS/BSS costs
- Feasibility
- Intelligent network

OSS / BSS costs

9.145) The model places a cost of £50 million in 2012/13 to cover Operating Support Systems/Billing Support Systems (OSS/BSS). BT's plans for 21CN required an investment of approximately £100 million per annum for the first six years. This includes significant development cost to provide the extensive bespoke automation and diagnostics tools required to run an NGN at national scale with a significant customer base.

Feasibility, Design, build of operational centres and trials

9.146) It is inconceivable that an operator would just rollout a national network at the pace suggested by Ofcom without first establishing the reliability and developing efficient implementation methods. BT estimates that an investment of \gg would be needed to design and trial a complete NGN, including all of the capability for automated interaction with other operators at both systems and network level. The Pathfinder programme was the initial stage of this feasibility but only completed the early stages of this work and did not build a scale operation capable of national roll out. Ofcom appears not to have allowed any costs for this phase which would be needed equally by a new entrant or migration by an existing operator.

Intelligent Network (IN)

9.147) The model makes no assumptions about the IN, but in order to implement a significant number of user-features (such as 0800 calling), the model would need to include additional costs to either re-create IN interfaces, which typically do not exist on "off the shelf" soft switches, or to re-create the IN services as Application Servers associated with the soft switches. BT estimates that the cost added by this work would be approximately % million.

Validation of the outputs from the bottom-up model using international comparisons and BT's top-down model.

9.148) Ofcom claims that its proposed Call Termination rate is consistent with an international comparison of European NRA LRIC estimates, set out in Figure A12.12.

9.149) It is also shown that the proposed Call Termination rate of 0.04ppm (0.046 euro cents) is towards the bottom end of the estimates made by other NRAs.

9.150) BT observes that the very low Call Termination rate proposed in the UK is only within the range of European NRA rates because Malta is included in the comparison set. The rates proposed in France, Denmark and Ireland are all somewhat higher than the UK. It might be expected that these countries would be more comparable to the UK and so be a more appropriate comparator group.

9.151) The comparison takes no account of differences in cost levels between countries. Nor does the comparison examine how close to the model pure LRIC output prices have actually been set. (It is important to note that there are margins for error with the modelling, and there may be a risk of setting prices below the LRIC cost which would be undesirable.) There are also many EU countries that are in the process of setting call termination rates that are not included in the comparison such as Italy, Bulgaria and Germany that indicate a higher call termination rate is appropriate..

9.152) It is also worth noting that the countries whose termination rates are benchmarked are relatively small and do not include the largest EU member states of Italy, Spain and Germany. It might be expected that these large countries would be similar to the UK by virtue of their size.

9.153) BT would expect that in making any international comparison, Ofcom would seek to ensure that a fair comparison is being made, including an assessment of whether input cost levels are comparable.

9.154) It is surprising that Ofcom has chosen to use small Mediterranean island such as Malta as a comparator for the UK. There is no reason to believe why costs here should be comparable to those faced by companies in the UK. Property and pay costs in particular can be expected to be markedly higher in the UK. BT has commissioned Deloitte to compare the input costs in the UK with those in Ofcom's comparator group. Their report³² shows that UK property costs and pay cost are considerably higher than Malta and the other countries in Ofcom's comparator group. This means, other things being equal, the LRIC costs in the UK would expect to be more closely aligned with France and Ireland than with Malta.

9.155) Deloitte has compared the proposed Call Termination rates in the UK with average of those countries that have set a LRIC based rate (Italy, Malta, France, Denmark and Ireland) and this shows the UK rates to be considerably lower than rates set elsewhere without any justification given for why this might be expected.

³² Deloitte's Report for BT - Regulated FTR Benchmarking Analysis 10 April 2013

9.156) Deloitte's analysis also shows the UK price that would result if Ofcom had adopted the same approach to setting call termination rates as the other EU countries in the comparator group. This shows the 2013/14 LRIC based call termination cost would be expected to be nearly twice as high as the Ofcom proposal if a consistent approach to the modelling were taken. If allowance was also made for the higher price levels in the UK, the Call Termination rate would be expected to be close to 0.12 Eurocents in 2013/14 or slightly above 0.1ppm.

9.157) The International comparisons therefore support BT's view that Ofcom is proposing to set call termination rates at too low a level. Comparisons with rates being set by other European NRAs show that the Call Termination rate should be set above the top end of the range set out in Figure A12.12 due to higher input cost levels in the UK. We note the BEREC approach in their assessment of the Italian NRA's proposal³³ where they use an average of proposed rates as a comparator. This would give a call termination rate of 0.1ppm

Economic Depreciation

9.158) Ofcom's economic depreciation calculations allocate too little cost to voice services due to the implicit assumption that voice and broadband services have the same value per Mbit/s of peak network capacity. In fact the value of voice services is a factor of 5 times higher than broadband.

9.159) Of com should use a fixed WACC throughout the modelling period to avoid distortions due to changes in the WACC, which contributes to an excessive cost allocation into past time periods. This is a justified departure from actual WACCs as the model is purely hypothetical and so Of com is not bound to consider the impact on existing assets acquired in the past.

Relative value of voice and broadband services

9.160) Ofcom's economic depreciation model allocates network costs to each Mbit of network capacity equally, regardless of the services using the capacity. However, the Economic Depreciation of an asset allocates costs over time depending on the net value generated by the asset over time. This is itself driven by the difference between revenue and costs. Whilst Ofcom's model addresses the capital and operating cost of the asset, the volume of output produced, the asset life and the WACC, it does not explicitly consider differences in revenue generated by voice and broadband services. This is an important factor in the Economic Depreciation assessment as this determines the net value of the output used by each service. Ofcom's model allocates economic depreciation based on each Mbit of peak network capacity. In effect an implicit assumption is made that each Mbit of peak capacity has the same value.

9.161) However, voice services generate value from the use of capacity throughout the day and so the total value generated from a Mbit of peak capacity is considerably higher for voice services as

³³ <u>http://berec.europa.eu/eng/document_register/subject_matter/berec/opinions/1241-berec-opinion-on-phase-ii-investigation-case-it20131415call-termination-on-individual-public-telephone-networks-provided-ata-fixed-location-market-3-in-italy</u>

the revenue generated from all calls needs to be considered. Assuming Bandwidth of 0.27 Mbits per call, 9% of calls in the busy hour, 85% utilisation within busy hour, 250 busy hours per year, and ppm price of Call Origination + Call Termination of 0.45 ppm gives a value of voice services of $\pm 200^{34}$ per month per Mbit/s. This compares with a WBC price of £40 per Mbit/s per month. Voice services are therefore currently worth 5 times more than broadband services per peak Mbit/s. This factor should be used when allocating the economic depreciation to voice and broadband services.

WACC used in Economic Depreciation calculations

9.162) The bottom-up cost model is purely hypothetical and does not reflect any past level of actual investment made. This means that Ofcom does not need to be constrained by historical levels of the WACC of individual operators, as none of the investment in the cost model has actually been made. This contrasts with the mobile termination rate model, where much of the assets within the model were based on the actual investments made by the network operators, when the contemporary WACC would therefore be relevant to ensure the model was consistent with the recovery of the cost of past investment decisions.

9.163) There are benefits of using a single WACC value over the duration of the cost modelling because changes in WACC distort the recovery of cost through time. Ofcom's model suffers from allocating too much cost to the past so that the model costs are higher than the historic voice price levels, meaning these costs have to be re-allocated into the future. It would be better to use a stable WACC and to reduce the excessive tilting that occurs when the WACC is suddenly reduced . This can be justified by the fact that the investment model is a hypothetical model and so a hypothetical WACC can be used to reduce the distortions in the cost modelling. A forward looking view on the level of WACC applicable to the NGN is an alternative approach that would reduce the excessive allocation of costs into the past.

9.164) The adoption of a forward-looking WACC means that changes to factors such as the company's beta factor or gearing ratio will influence the economic depreciation calculation. In a hypothetical model, there is no reason to believe why these should change from year to year. However, if the WACC is based on actual network operators, changing observations of individual parameters will inevitably lead to changes in WACC from year to year.

Recovery of operating costs over time

9.165) Ofcom's model appears to allocate an excessive amount of operating costs to the later years of the cost modelling. Analysis Mason has compared the level of operating cost recovered through the Economic Depreciation calculation with the level of actual operating cost incurred in each year. A similar comparison has been made with other terminating rate models.

 $^{^{34}}$ 1Mbit / 0.27Mbit / 9% traffic in busy hour *85% utilisation * 250 busy hour * 60 mins per hour / 12 months * $\pounds 0.0045 = \pounds 197$ / month

9.166) Analysys Mason's report ³⁵shows that Ofcom's bottom-up model has a much higher ratio of operating costs recovered to costs incurred that other NGA models and the UK mobile termination model. This suggests that too little cost is being allocated to the early years of the cost model and the economic depreciation algorithm applied to operating costs understates the allocation of costs into the charge control period

Model Validation – comparison with international values and BT's topdown NCC costs

9.167) The retrospective cost allocation is restricted to be no higher than the prices charged in the past. However, the prices charged in the past were required to recover the ongoing costs of the PSTN network. It can be seen that the cost of PSTN on an incurred basis have, in fact, been higher than the prices BT has been allowed to charge, with prices being forecast to match costs by the final year of the charge control. (Ofcom allowed BT an upward glide in prices and rejected calls for a one-off price increase at the start of the charge control to reflect the fact that prices were below cost.)

9.168) This means that there is no scope for any retrospective recovery of hypothetical network costs at all in the current charge control period. The simplest way to address this is to start the deployment of the hypothetical network deployment from 2013/14 onwards so this issue does not apply.

9.169) Ofcom suggest³⁶ that "non-recovered" retrospective allocation of costs to periods prior to 2012/13 should be recovered over the next 32 years via a constant ppm uplift to costs. This is inconsistent with the operation of a competitive market. If Ofcom is determined to continue with a 2008/9 start for the hypothetical network, then any "under-recovered" costs should be completed over the next charge control so that these costs are recovered over the course of a single investment cycle and so will ensure prices become consistent with the operation of a competitive market.

³⁵ See section 9.2.2 Analysys Mason report "Narrowband Market Review – International Review and Analysis of Ofcom's fixed LRIC model April 2013

³⁶ See A12.198 to A12.203 of Ofcom's Review of the fixed narrowband services market consultation document, February 2013

10.) Interconnection

10.1) We note and strongly support Ofcom's conclusion at para A11.80 not to identify the modelled NGN as the MEA. Some form of NGN is likely to be the main platform for voice services when they migrate to a new technology, but there is no single option that enables all the features of the existing platform to be replicated, and there are many technical options for providing voice services in the future.

10.2) Bell Labs have carried out an exhaustive survey of the features of the PSTN Network in the UK and the degree of difficulty of replicating them over a NGN³⁷. 36% of the features currently provided simply cannot be duplicated on equipment available today and an IP network does not provide the performance or reliability achievable on a dedicated TDM network. An NGN clearly cannot be considered to be the MEA for existing voice services. The Bell Labs survey considered features related to basic call control and routing, "Application services" including Inbound calling, operator call routing; support of CPE including Voice Band Modems (widely used to support alarms and personal "panic buttons"); interworking features (which provide transparency of services to consumers where calls are made between networks), and regulatory aspects services such as number portability, payphone, CPS, Indirect Access, 999 call routing etc. Of the features reviewed, 60% related to Application services and Call Server capability or routing – i.e. those most likely to be noticed by customers making or receiving calls, or using services which rely on the capability such as EPOS (Electronic Point of Sale) terminals connecting via ISDN.

10.3) While there may be alternate solutions available using new technology, these would require end users to replace their own equipment, or fundamentally change the way they use services. They are therefore virtually impossible to implement without significant cost, and whilst withdrawal of such services may be possible in some cases, BT is required to support others as a result of SMP or USO. Operators in the UK who have implemented NGNs have not addressed these issues. Operators with USO and/or SMP will continue to bear the on-going cost to operate and maintain these services. Ofcom's modelling does not adequately represent the unique burden which falls onto such operators.

10.4) Examples of these features are:

- *Ring-back* features (including barring, prompts, and message waiting indicator) these are important to end users, and would decline in usefulness without full interworking between PSTN and NGN.
- **Operator services** 15x access routing for WLR operators, 112/999 calls These have complex routing arrangements including continuous retry to provide very high availability, and manual-hold capability to prevent the call being cleared until the answering emergency service has handled the call successfully
- Services for customers with impaired hearing Text Direct, Text Relay etc, and where voice band modems are used to provide text services over voice channels
- Dial-up internet services while these are in decline, they remain part of the USO
- **Regulatory services** including number portability, where a new industry-wide approach would need to be implemented, replacing the current "Termination redirect" approach used

³⁷ Bell Labs Analysis for BT – PSTN Service Mapping – Full Listing 04 April 2013 Bell Labs Analysis for BT – PSTN Service Mapping Analysis 04 April 2013
today. CPS, indirect access and selective call barring are other examples which BT is obliged to provide as a SMP remedy.

- ISDN services such as Cardway (EPOS support over ISDN B Channel), 3G Video interconnect used for transit calls between mobile operators
- **Business services** such as Business Port, enabling remote access to corporate access via PSTN; Call Director a number translation service using geographic numbers;
- **Inbound services** such as 0800, 0845 etc. These are implemented on a separate IN platform today, but would need to be re-created using NGN technology. While the basic platforms are available from vendors, the complexity of recreating the wide range of capability which customers expect is prohibitively complex and expensive.
- **Billing features** which rely on the significance of the origin or destination (e.g. 118 billing, inbound service billing) require a fundamental change to the billing systems to enable implementation.
- **Non-functional requirements** provision of GTPS (Government Telephony Preference Scheme), and overload management (for example during mass calling events) are not defined in NGN standards and would require bespoke development to implement.

10.5) In a practical NGN implementation, where the entire PSTN and associated services layer (Including the Intelligent Network and Operator Services platforms) would be replaced, these issues need to be addressed. Previous experience with implementation of 21CN voice services showed that industry consultation, which would be necessary to define technical solutions and interfaces, and to agree feature sunset strategies, would be protracted and complex. The resulting implementation is likely to be bespoke to the UK market, with costs incurred uniquely by the SMP operators who are obliged to provide certain capabilities, unlike new entrants who can enter the market selectively and "cherry pick" customers. These costs are not reflected in the current Ofcom MEA model.

10.6) In terms of what a future voice platform might look like, there are many possibilities. Ofcom's NGN cost model is loosely based on BT's proposals for 21CN. This was conceived at the beginning of the Millennium and it is unlikely that any new entrant would build such a network now. It is well known that our own plans have changed, and the reality is that it simply did not cost in to build that network. In common with other operators with a TDM network we are looking at a variety of options for when we eventually replace the PSTN, most of which involve voice over the top of Broadband. As already noted, customers increasingly make no distinction between the technologies used to access voice services, whether fixed or mobile, and any operator entering the market in 2013 would seek to serve the widest customer base using the appropriate technology choices, not to simply replicate the PSTN of today.

10.7) Bell Labs have reviewed the technical options available for providing voice services over a NGN³⁸. They have distilled these down to a list of 37 with pros and cons associated with each.

10.8) The options include three main variables:

- **The technology used to provide access** e.g. Copper baseband, Broadband, Fibre, WiFi,2G/3G, LTE
- **The placement of the "Terminal Adaptor"** the device which enables a POTS phone to be connected e.g. in the home, at the cabinet, in the exchange

³⁸ Bell Labs Analysis for BT – End to End – Next Generation Voice Network Architectures 04 April 2013

• **The call control technology deployed** – e.g. a monolithic Softswitch (which can only provide POTS service to a fixed line), an IMS (IP Multimedia Subsystem), with or without bandwidth management and admission control (necessary to guarantee quality of experience to users), and the signalling mechanism used to control the endpoint (either H.248 – which is more able to replicate legacy features, or SIP – which is more able to implement more complex features such as multimedia and mobility)

10.9) It is likely that an operator entering the market would use a combination of options. For example, service providers already provide fixed and mobile broadband, each underpinned multiple technologies. All would need to be supported to maximise market coverage. The Terminal Adaptor placement depends largely on customer needs. It is best placed in the exchange or cabinet where customers require minimal disruption, but for customers requiring more than just fixed POTS service, it will provide more flexibility and capability to end customers when it is placed in the home. The Call Control technology will need to evolve as the breadth of services evolves, and the number of endpoints increases. For an operator wishing to simply replicate the core features of the PSTN, the call server and MSAN approach is sufficient. For more sophisticated product offers, for example a fixed-mobile convergence package, an IMS approach provides the necessary functionality. Providing wireless access will require a 2G or 3G core, which will evolve to an EPC (Evolved Packet Core) as LTE is rolled out. As the range of technology options expands, so does the complexity of interworking. Signalling and media encoding conversion will needed to enable services to continue to be transparent to end users.

10.10) The costs and functionality will vary with each and this supports Ofcom's view that there are serious issues which mean that it is difficult to replicate all services, which in turn makes a robust comparison of replacement costs of TDM networks and NGNs very difficult. Ofcom's model assumes the simplest, least capable and least flexible of these options. It is unlikely that any operator starting to deploy a network today would use this option, as it would seriously constrain the market which they would be able to address. The market is also very dynamic, and it is likely that multiple technology options would exist in parallel, as new requirements are implemented (e.g. to support LTE access). Under these circumstances the NGN cannot be defined as the MEA for voice services.

10.11) These technology options will be added over time and not implemented through a massive up-front investment, as Ofcom's model suggests, where it is assumed that a single architecture will endure for the following 30 years. This is a very different situation to that which exists in the Mobile market reviews, where the technology and standards are global in nature, and technology changes tend to follow global waves which are predictable and predicated in a common architecture agreed by the GSMA. This well-established global market dynamic enables much more realistic assumptions to be made, such as the migration from 2G to 3G to LTE networks.

Points of Interconnection

10.12) We also support Ofcom's conclusion on points of interconnection at para A11.99:

A11.99 Having considered further the responses to the September 2012 Consultation, and in light of our reasoning on technology choice above, we now propose that the point of interconnection (and hence technology used for interconnection) would be determined by:

- for wholesale call termination, the network technology (and topology) by which the called party is physically connected; and
- for wholesale call origination, to the extent that regulated wholesale call origination services are required to be provided, the network technology (and topology) by which the calling party is physically connected

10.13) The efficient network for the UK will be based on a mixture of TDM and IP technology for the foreseeable future. The efficient interconnect will be a mixture of IP-IP, TDM-TDM and IP-TDM interworking. Therefore, we welcome Ofcom's recognition of this reality and their conclusion not to propose to require BT to offer IP interconnection at alternative Pols for the provision of wholesale call origination and wholesale call termination services from/to these customers. We also support Ofcom's conclusion at para A11.124 that the costs of conversion are subject to commercial negotiation.

Question 10.1: Do you agree with our assessment that BT and KCOM should be required to provide interconnect circuits? If not, please explain why.

10.14) Yes

Question 10.2: Do you agree with the obligations we propose to impose on BT in relation to the provision of interconnect circuits? If not, please explain why.

10.15) Ofcom has proposed the following remedies for BT:

- Requirement to provide network access on reasonable request
- Requests for new forms of network access
- Requirement not to unduly discriminate
- Requirement to publish a reference offer
- Requirement to notify charges
- Requirement to notify technical information
- Cost accounting
- Accounting separation
- Transparency as to quality of service
- Charge control

10.16) As for Call Origination and Call Termination, Ofcom has proposed to remove the obligation requiring cost orientation. The comments for Interconnect Circuits are the same as for Call Origination, so please refer to the earlier response (Question 5.5)

10.17) Looking at the proposed remedies individually:

Requirement to provide network access on reasonable request 10.18) See response to guestion 5.5 at 5.13.

Requests for new forms of network access 10.19) See response to question 5.5 at 5.14 .

Requirement not to unduly discriminate 10.20) See response to question 5.5 at 5.15.

Requirement to publish a reference offer 10.21) See response to question 5.5 at 5.16.

Requirement to notify charges 10.22) See response to question 5.5 at 5.17.

Requirement to notify technical information10.23) See response to question 5.5 at 5.21.

Cost accounting and Accounting separation 10.24) See response to question 5.5 at 5.23.

Transparency as to quality of service

10.25) BT is supportive of the proposals from Ofcom for the provision of Key Performance Indicators. This is the same as is currently supplied on a quarterly basis. We note that the requirement to publish to Ofcom separately with individual CP detail disappears, and we are supportive of this change.

Charge Control

10.26) See response to question 5.5 at 5.40.

Question 10.3: Do you agree with the obligations we propose to impose on KCOM in relation to the provision of interconnect circuits? If not, please explain why.

10.27) No comment

11.) Charge control specification

Question 11.1: Do you agree with our proposed glide paths? If not, please explain why.

11.1) In this section we explain why we do not agree with Ofcom's proposal for moving immediately from current regulated FTR charges based on LRIC+ to the new pure LRIC level, and why we believe that a glide path is both appropriate and reasonable. Such a glide path should have the same duration as the glide path mobile operators were granted for the drop of MTR to pure LRIC, that is two years and one day. Alternatively Ofcom should consider that a glide path of 18 months is reasonable to give industry the chance to adapt, or link it to the period Ofcom has planned to revise the NTS regime.

11.2) The principal reasons why we are strongly of the view that a glide path is needed are the following:

- We believe that any benefits which could arise out of a one-off drop implemented immediately are likely immaterial and will only occur if reductions in wholesale FTRs are reflected in mobile retail prices. The benefits would be immaterial both for consumers and providers of fixed services, neither of whom are indicating that termination rates are impeding competition or that an immediate move to pure LRIC will augment existing levels of competition. In large measure we agree with Ofcom's analysis of allocative efficiency which shows at best, only a small impact on end-users and therefore extremely limited allocative efficiency gains. However, Ofcom does not adequately recognise the imbalance in traffic between fixed and mobile networks, which has a material impact on the way in which revenues move between the sectors.
- On the other side, material harm can be expected from a one-off drop with no glide path, which will fall on both businesses and consumers. In particular, there are socially important NTS services where the reduction in revenue will likely affect the viability of some of these services as well as NTS operators who rely on termination income to support their business models. Without time to put in place relevant safeguards, we anticipate that consumers will experience an increase of nuisance calls as the costs of making such calls will fall dramatically. A glide path will assist all of industry to adjust for both of these impacts and also to generally re-balance tariffs in what are very complex value chains quite different from the mobile sector.
- A one-off drop would not be consistent with Ofcom's regulatory policy and common practice. Ofcom's regulatory practice is to grant a glide path when amending a charge control and this has been the case on one-way access markets and also in two-way access markets such as mobile termination. All industry players have set their business plans and forecasts on the basis that Ofcom will continue to provide a glide path. To move away from such a well-established precedent will send very poor signals to the market in terms of regulatory consistency.

- The modest allocative efficiency gains are insufficient to overturn the precedent of glide paths and their incentives for dynamic efficiency gains.
- A glide path would be in line with the policies of the vast majority of regulators across the EU. Only a very small numbers have complied with the EC aspirational target at 31 December 2012 and all EU regulators have considered it justified to adopt a glide path or provide a certain period to reduce FTR to pure LRIC. This as such should be reflected in any weight to be given to the original target date included in the Recommendation.

11.3) In summary, whilst we can agree with much of Ofcom's analysis and reasoning on economic effects, we consider that Ofcom has come to the wrong conclusion in deciding not to adopt a glide path. If benefits of a one-off move of FTR to pure LRIC are likely to be very modest or non-existent but there are identifiable costs and risks, it is manifestly reasonable to have a glide path which would mitigate those costs and risks. To adopt such an approach would be wholly in line with previous practice and the expectations of industry.

11.4) Our detailed arguments follow. We firstly address the issue of 'one-way' versus 'two-way' access where we consider that Ofcom has not appreciated fundamental differences between the fixed and mobile sectors. Secondly, we consider the effects of the move to pure LRIC on competition and consumers, focussing on particular issues in the fixed sector where there is no parallel in the mobile sector as well as the balance of revenues between the parties involved. Then we examine the issue of regulatory precedent and what Oftel and Ofcom have said and done in the past with respect to glide paths. Then we briefly address the issue of dynamic efficiency in the context of the submission made by DotEcon in the previous Call for Inputs. Finally, we present factual evidence on the implementation of the EC Recommendation where according to Cullen International, there is not a common approach to setting regulated wholesale rates but on the other hand a glidepath for termination is widespread.

The Issue Of One-Way versus Two-Way Access

11.5) At Ofcom [11.6] and following, Ofcom argues that, when considering the speed and length of a glide path for FTR, significance should be given to termination being a "two-way" service, in contrast to wholesale call origination being a "one-way" service. (We put to one side our position that BT does not have SMP in call origination in the comments that follow.) Ofcom's reasoning draws heavily on the principles developed during the Mobile Termination Market Review.

11.6) The following explains why in our view drawing firm conclusions from principles developed for one type of market, Mobile Termination to another, that of Fixed Termination, is not appropriate when considering the need for a glide path.

11.7) It may be true that call termination is a "two way" access service in the Mobile termination markets but this is not always the case for fixed termination. In the fixed sector, there are over 150 service providers with competing infrastructure, providing a wide range of services; some like CPS operators never provide call termination, others like NTS operators and other direct terminators never seek to buy termination as their own business is exclusively that of termination. The diversity in business models of fixed operators means that the claims made by Ofcom at [11.9] are not universally applicable to fixed termination and in many circumstances, call termination in fixed is far more akin to a "one way" service. By way of example, as BT understands, a significant number of NTS terminators do not have any other business and are simply operating on one side of the market. Put another way, the recovery of any loss of revenue will not be across common downstream markets where an industry-wide upstream increase in prices can be assumed to affect all downstream players equally.

11.8) Consequently, Ofcom cannot proceed on the assumption that FTR is a two-sided market in the same way as MTR. Thus Ofcom's rationale for favouring allocative over dynamic efficiency does not apply in all cases. Moreover, as explained below, the sudden change to FTRs proposed by Ofcom will have a very serious detriment to the business models of those CPs.

11.9) At Ofcom [11.9], Ofcom states that the two-sided nature of the market has two implications. The first is that there are alternative avenues of cost recovery: but in fact, that is not true for all fixed operators as noted above.

11.10) The second strand of Ofcom's argument is that:

"...by exposing certain assets or costs (e.g. common infrastructure across termination and other markets) to competition, it is possible to rely more on competition to drive dynamic efficiency (rather than rely on price-cap regulation and glide paths)"

BT is unsure of the precise point that Ofcom is making here. The infrastructure of competing fixed operators differs markedly from mobile operators and is not common to the same set of services between the two sets of operators although clearly there is some overlap. It follows that a single common infrastructure cannot be "exposed to competition" and that competition cannot achieve the same dynamic efficiency properties which price cap regulation and an accompanying glide path can achieve which is to incentivise efficiency gains to the ultimate benefit of consumers.

11.11) To the extent that Ofcom is suggesting that the way in which termination is regulated will have little effect on incentives for cost-reducing innovation, BT considers that the argument does not stand scrutiny. Specifically, Ofcom has not considered how the efficiency arguments apply differently to fixed and mobile sectors:

• In the mobile sector, retail prices are unregulated with no access regulation and there are four competing network operators. Therefore, if mobile call termination rates are cut

unexpectedly, there can be some adjustment to retail prices through the waterbed effect. The principal driver of cost efficiency is retail competition.

• In contrast, all of BT's relevant wholesale services are regulated. There can only be a change in wholesale call charges (and therefore, retail cost inputs) to the extent that this is permitted by regulation.

11.12) Second, Ofcom's argument proceeds on the basis that the principle of regulatory certainty can be put to one side in some contexts just because there are specific circumstances in play that limit what might be called the "narrow" effect on incentives for efficiency which are purely contained to the specific case in hand. Such an approach effectively ignores what might be considered to be the "broad" effect on the credibility of regulatory practice more widely: when Ofcom comes to regulate other services, market participants will not be able to determine in advance how Ofcom will classify them and whether a glide path will be offered or not. We discuss the matter of regulatory consistency in more detail in Section 4 below.

11.13) In the case of FTR, market participants could reasonably expect that Ofcom's proposal to reduce FTR would allow for a glide path because:

- Ofcom originally granted a four year glide path to MNOs with regards MTR, extending well beyond the EC recommendation deadline.
- The exceptional circumstances Ofcom said warranting deviation from allowing a glide path, are not met (see below).
- As Virgin Media points out [11.18], Ofcom's previous decision on FTR of September 2009 occurred four months after the EC Recommendation was adopted, yet it included common costs.

Effects on Competition

11.14) When assessing whether there is a need for a glide path, Ofcom [11.47] suggests that there will be the same pro-competitive effects from pure LRIC based FTR as in the mobile sector justifying a one-off drop to pure LRIC.

11.15) We consider this is wholly misplaced: a one-off drop to pure LRIC will have no positive impact on competition between fixed operators or between fixed and mobile operators. On the contrary, it will have a harmful effect on competition in some sectors such as the NTS market.

Competition between fixed operators

11.16) A one-off drop to pure LRIC will have no positive impact on competition between fixed operators. This is because the conditions of competition and upstream regulation in the fixed sector are quite different from those existing in the mobile sector. The structure of retail tariffs in the mobile sector (including in particular the on-net versus off-net distinction and free or heavily subsidised handsets) have arisen from historic practice that relied upon subsidy from termination charges. The high MTRs were instrumental in assisting operators with a high level of on-net traffic and encouraging additional customers from subsidising handsets. In practice, they had the effects of putting smaller mobile network operators and the fixed network operators at a commercial disadvantage.

11.17) We see no parallel with the fixed sector here and none of the responses to Ofcom's Call for Inputs showed any fixed CP clamouring for an immediate move to pure LRIC in order to remove competitive distortions. In the fixed world, there is no identifiable fixed entrant incurring significant sunk costs like 'Three' in the mobile world. Indeed, the high level of entry that has actually happened in the fixed market would indicate few competitive barriers. This may be a consequence of the very low level of fixed termination charges and their comparatively minor contribution to retail charges, but the competitive incentives noted by Ofcom at [8.34] appear to be more conjectural than actual for fixed operators.

11.18) On the other hand, a one-off move to pure LRIC will severely disrupt the business models of many CPs in this sector, in particular as net originating operators will receive an immediate boost while net terminators will be unable to recover their joint and common costs ('JCC') elsewhere.

Competition between fixed and mobile and equality of treatment

11.19) A one-off drop to pure LRIC will have no positive impact on competition between fixed operators and mobile operators. Ofcom [11.48-11.49] highlights a figure of £50M, or 0.3% of revenues, being savings for the mobile sector and as signifying no adverse competition effect between fixed and mobile. We consider this to be highly misleading, relying in particular on the current unbalanced set of traffic flows between the sectors.

11.20) The reduction in FTR proposed by Ofcom is not the result of FTR being priced above the competitive level. There is no suggestion that JCC are inefficiently incurred or that fixed CPs are exploiting their dominant position on their own network termination to earn monopoly rents. The proposed reduction in FTR merely results from a change in the definition of the competitive price from LRIC+ to pure LRIC, i.e. from one that includes JCC to one that does not.

11.21) The following analysis helps demonstrates that a one-off reduction of FTR to pure LRIC will not have any positive impact on competition between fixed and mobile; on the contrary it will put fixed operators at a disadvantage vis-à-vis mobile operators as the imbalance in traffic flows between fixed and mobile will accentuate the issue of recovery of JCC on other services.

11.22) If origination and termination were balanced, that is if a firm originates and terminates the same number of minutes, then whether JCC are loaded on to one side of the market or the other or shared equally would have no impact on the firm's ability to recover those costs, assuming there was no impact on market demand. The "waterbed" effect would mean that any loss of JCC from one side of the market could be recovered from the other.

11.23) However, where the two sides are not balanced, then for an individual firm, the loss of JCC from one side may require a larger increase on the other side to recover those JCC. Suppose that, as Ofcom proposes, JCC are removed from the termination charge. A net terminator that is a firm terminating more off-net minutes than it originates, would then require a disproportionate increase in the price of origination minutes to off-set the reduction in termination. A net originator would be in the opposite position.

11.24) The balance between off-net termination and off-net origination can be calculated as a simple ratio calculated as:

$$Y_i = {^TM_i}/_{OM_i}$$

Where TM = Terminating Minutes and OM = Originating Minutes and the subscript *i* refers to operator *i*.

For any value of Y greater than 1.0, the operator is a net terminator, and therefore, has a reduced opportunity to recover JCC that were previously part of the termination rate from origination. Clearly the higher the ratio, the less opportunity the operator has to adjust origination rates to recover the joint and common costs lost from termination.

11.25) The table below shows the number of fixed to mobile and mobile to fixed minutes (in millions)³⁹ along with the ratio of fixed termination to mobile termination. Although the absolute volumes of both types of call are reducing, the more rapid fall in fixed to mobile minutes means that the relevant ratio has increased in the recent past from 2.7 to 3.2. For fixed operators to recover JCC lost from termination under Ofcom's proposals, they would have to raise origination prices by more than twice the amount of JCC removed from termination.

³⁹ Source: Ofcom Telecommunications Market Data Update Q3 2012.

Period	Fixed to Mobile	Mobile to Fixed	Ratio
2010	11,846	31,999	2.70
2011	10,421	31,397	3.01
2012 (9 months)	7,173	23,268	3.24

Mobile and Fixed Interconnection Traffic⁴⁰

11.26) The money flows between MNOs and fixed are therefore currently highly unbalanced. This position is also reflected in the relative gains which MNOs would make compared to the fixed sector from Ofcom not allowing fixed CPs to have a comparable glide path. MNOs received significant revenue as a result of the two years and one day transition period to the order of £300m over April 2011 and April 2013 from price for termination being above pure LRIC. The equivalent 'excess payment' in the other direction would be only £100m to fixed CPs over the same length of period. We do not consider that this is equitable between the sectors but additionally, it implies that the challenge for fixed operators to improve their efficiency over time against the mobile sector (and which is increasingly in competition for narrowband and broadband services with the fixed sector) – is actually greater than for the mobile sector which can easily recover its costs at the retail layer.

11.27) Further, whilst the majority of excess payments to the MNOs by fixed operators were the result of MTRs remaining well above the LRIC+ rate, this was not the case for FTR which were below LRIC+ and a one-off reduction of FTR to pure LRIC will put fixed operators at a disadvantage vis-à-vis mobile operators. We can see no material distortions which hinder the MNOs and that would justify abandoning glide paths; it would not be equal regulatory treatment in favour of a precipitate move directly to pure LRIC pricing for the fixed sector.

Impact on Number Translation Services and corporate networks

11.28) It is clear that the proposed change to pure LRIC will seriously undermine the business models of many NTS operators; the absence of a glide path provides no realistic opportunity to adjust and it is our understanding that many NTS operators are either wholly or largely unaware of what Ofcom is proposing to do. We therefore urge Ofcom to launch a specific immediate consultation with the full range of NTS terminating operators to fully assess the impact of the proposals, to assess the likely impact of disruption to existing commercial relationships and especially with respect to termination.

NTS call termination

⁴⁰ Ofcom, Telecommunications market data tables, Q3 2012, <u>http://stakeholders.ofcom.org.uk/market-data-research/market-data/communications-market-reports/tables/q3 2012/</u>

11.29) The production chain for NTS has developed in response to the long established regulatory framework in the UK. The cost of the geographic call termination that underpins an NTS service can be a significant element in the retail price itself. An NTS provider (an SP serving a business customer e.g. an insurance firm) has the choices of: directly connecting to the delivery destinations of the business customer by aggregating all traffics at a switch and taking that traffic to the destination; purchasing an equivalent service from a third party provider using the network of that operator (which can be just aggregation or delivery or both but this is a private network and *outside* the regulatory regime associated with termination); or thirdly using regulated call termination across a public network such as via BT in which the regulatory regime for call termination *does* apply.

11.30) Over time, a balance between these alternatives has been found reflecting the different strategies pursued by the many players in this sector. A sudden reduction in call termination prices would seriously disrupt this equilibrium. Terminating operators which do not connect directly to their customers and so use BT (or another public operator) would see a sharp reduction in their costs compared to an operator that relies upon its own network directly, who may not be able to recover the common costs excluded from call termination and would find themselves priced out of the market. Consequently, third party suppliers of direct connection could suffer immediate loss of business as purchasing NTS operators switch to the new cheaper regulated call termination.

11.31) It follows from the above that, in contrast to Ofcom's [11.56] observation on this matter, a movement to pure LRIC does not 'level the playing field'. Directly connected operators would have to reduce their prices to the BT pure LRIC level if they wished to retain business. This will allow nothing for the recovery of their Joint and Common Costs. As these providers rely heavily on direct termination they may have few, if any, alternative avenues to increase prices elsewhere to make up the shortfall and a number are likely to fail. Ofcom have not suggested in any way that their service is inefficient or undesirable, but the effect of the move to pure LRIC will be to undermine this form of business model. A Glide path to allow for industry have time to adjust is essential in this marketplace.

NTS call origination

11.32) Under existing arrangements, in the case of low-cost calls to non-geographic numbers, the TCP may decide not to share the termination revenues with the service provider, but instead may reduce or waive its charges for hosting services that the service provider would otherwise pay⁴¹. A reduction in termination payments to pure LRIC rates may therefore lead to an increase in hosting costs for service providers. That in turn may increase the cost of calls, as service providers move to more expensive numbers to compensate (incurring further costs in so doing) and deterring vulnerable consumers from making calls⁴². Such an outcome appears to have been contemplated by

⁴¹ See Ofcom's consultation, Simplifying Non-geographic Numbers - Detailed proposals on the unbundled tariff and Freephone, 4 April 2012 [3.15]

⁴²Ofcom's consultation, Simplifying Non-geographic Numbers - Detailed proposals on the unbundled tariff and Freephone [4.61, 4.63]

Ofcom as being "likely" ⁴³. Since 7-11% of 080 and 0845 service providers may be providing a socially important service⁴⁴, and up to 30% of services on the 0844 range⁴⁵, that is a significant concern which we consider Ofcom should take into account.

11.33) Although payments to TCPs are similarly affected by the change i.e. out payments do not vary according to the precise means of termination, those operators who use regulated call termination to complete the service will have an offsetting cost reduction that is not available to those who use direct connection, upsetting the competitive balance and threatening their business model as discussed above. Such operators therefore face a double 'hit' of lower pass through from the retail level and a more difficult competitive business in their own activities, which can make a reduction of 6% margin very difficult to manage.

11.34) Nor do we think it likely that retail prices could easily adjust for any change in the structure of wholesale tariffs. It is unlikely that retail commercial contracts with end users would allow for automatic price increases as a result of variations in regulation and there will be inevitable delays in making changes to establish profitability between all the parties involved. Some of these services are provided free to end users, making a price increase in origination difficult to recover.

11.35) We believe that the proposed immediate introduction of Ofcom's proposals will cause unnecessary disruption in the NTS sector, to the detriment of competition, that could be mitigated or avoided by adopting a glide path. Given that Ofcom has planned to revise the NTS regime in about 18 months, we suggest that an equivalent glide path period for FTR is the *minimum period* required.

Corporate networks

11.36) Medium and Large businesses tend to connect their buildings with each other, and the outside world, by constructing or renting private networks. These networks include voice as well as data and broadband.

11.37) BT competes for this business by assembling wholesale services and providing a managed solution to business customers under the 'One Cloud' banner. Businesses tend to receive more calls than they originate so call termination is an important part of the service. \gg

11.38) 🔀

⁴³ Ofcom's consultation, Simplifying Non-geographic Numbers - Detailed proposals on the unbundled tariff and Freephone [9.99]

⁴⁴Ofcom's consultation, Simplifying Non-geographic Numbers - Detailed proposals on the unbundled tariff and Freephone [5.108]

⁴⁵Ofcom's consultation, Simplifying Non-geographic Numbers - Detailed proposals on the unbundled tariff and Freephone [9.313]

Effects on Consumers in Aggregate

11.39) Of com [11.40-11.45] concludes that any impact on consumer prices of bringing FTR down to pure LRIC as a one-off drop is likely to be very small. We agree with this conclusion.

11.40) However, whilst BT is a market leader with around 37% market share of call volumes for consumers and less for businesses⁴⁶, BT is also a net terminator. As such, BT would have no ability to pass on entirely any reduction in FTR through the recovery of any lost JCC from the origination side of the market other than that permitted by Ofcom if an SMP finding is maintained on origination. Any net terminating operator would have no ability to pass on reductions in FTR for the same reason.

11.41) Ofcom [Table 11.1] assumes that the reduction in termination revenues can be commercially recovered in the marketplace. In the context of the ladder pricing disputes, Ofcom⁴⁷ has expressed doubts as to the strength of a fixed tariff package effect from an industry-wide impact from a change in termination revenues. Specifically, Ofcom drew a distinction between the mobile sector and the fixed sector for those calls which were associated with an 'aftermarket' of subscription. An allocative efficiency gain will only occur if any reduction in wholesale costs is passed on to consumers through lower retail prices. We believe the scope for this is very limited in the fixed sector.

11.42) Ofcom [11.40] states that mobile customers who call fixed line subscribers can be expected to gain to the extent that mobile operators pass on the reduction in charges for calls to fixed line numbers. Assuming a complete pass through and relying on Ofcom's own figures, the maximum reduction in mobile retail charges would be of 0.3%. We consider that this is insufficient for consumers to see any material reduction in mobile charges. In any event, on the other side, fixed customers would be likely to pay up to 0.7% more in price, or £1.85 pa. According to Ofcom [Figure 3.5], 79% of households have both fixed and mobile devices so can be expected to gain little if anything on balance.

11.43) We suggest that taking account of the comparative inability of firms to pass on cost reductions to consumers, a glide path that incentivises firms to reduce JCC is likely to have better consumer outcomes. If wholesale cost reductions are not passed on to consumers, far from there being an increase in allocative efficiency, there will only be a transfer of surplus from retailers to wholesalers.

11.44) Additionally, we wish to draw Ofcom's attention to the fact that nuisance calls will likely increase dramatically further to the reduction of FTR to pure LRIC absent sufficient time allowed to introduce some counter measures. Ofcom have already recognised the need to address unwanted

⁴⁶ Ofcom Tables 3.1 and 3.2.

⁴⁷ Final Determination of the 0845 Dispute in August 2010 paragraph 7.53. This case is to be heard in the Supreme Court on appeal.

and nuisance calls likely to arise out of low termination rates, and that addressing these with appropriate enforcement mechanisms requires some time⁴⁸:

Lower termination rates may also lead to an increase in the prevalence of nuisance and unwanted calls (SPAM). The Analysys Mason report (see annex 8.1) briefly discuss whether these concerns have played a role in countries with very low (or negative in the case of Hong Kong) termination rates such as the US, Canada, Hong Kong and Singapore. In general, these concerns have been addressed with policy tools other than regulation of call termination services (such as 'do not call' lists).

Therefore it may be that this issue is best addressed through alternative policy approaches. For example, one possibility would be to review the enforcement of the current telephone preference scheme.

11.45) We note that the European Commission has also identified concerns raised by termination rates set at zero when considering the impact of Bill & Keep⁴⁹:

[...] one should note that setting the price of any service at zero may cause distortionary behaviour, bring arbitrage opportunities, lead to inefficient traffic routing and inefficient network utilisation. For instance, a potentially problematic issue might be inefficient routing of traffic from operators not participating in the Bill and Keep scheme.

11.46) An 80% reduction in the costs faced by originators of unwanted calls could be expected to produce a considerable increase in nuisance calls to consumers unless sufficient time is allowed to introduce the counter measures discussed.

11.47) There is clear evidence that nuisance calls lead to consumer harm and that this is of national concern. Ofcom have made action on nuisance calls a priority in their consumer protection agenda,^[1] and published a 5 point action plan in January.^[2] Indeed, the number one priority of Ofcom's advisory Communications Consumer Panel for 2013/14 is to "help reduce the incidence of silent calls and unrequested marketing calls"^[3]. The harm caused to consumers is underlined both by widespread national newspaper coverage and the fact that there was a separate Parliamentary debate on the issue in February this year.^[4] BT's own Nuisance Call Advice Line alone received

http://stakeholders.ofcom.org.uk/binaries/consultations/mobilecallterm/summary/mobile_call_term.pdf

 ⁴⁹ Commission staff working document accompanying the Commission Recommendation on the Regulatory Treatment of Fixed and Mobile Termination Rates in the EU, explanatory notes C(2009) 3359 final, SEC(2009)
600, <u>http://ec.europa.eu/governance/impact/ia_carried_out/docs/ia_2009/sec_2009_0600_en.pdf</u>, [page 30].

^[3] "Putting the consumer first: the work of the Communications Consumer Panel -Panel priorities and Work Plan 2013/14"

⁴⁸Ofcom's Wholesale mobile voice call termination Preliminary consultation on future regulation consultation,[6.51]

^[1] Ofcom Annual Plan 2013/14, 28 March 2013

^{1.) &}lt;sup>[2]</sup> "Action plan to tackle nuisance calls", Ofcom January 8, 2013

^{2.) &}lt;sup>[4]</sup> "MPs debate Nuisance Phone Calls", DeHavilland Alert, 28 February 2013, Debate

roughly [50,000 - confidential] calls a month last year from customers wanting advice and action. And Ofcom's own data shows the volume of these calls increasing even before the drastic reduction in termination rates, with over 70% of landline customers saying they received a marketing call in a six month period in 2012.^[5] Without a glidepath, Ofcom's proposals are likely to exacerbate this situation.

The Issue of Consistency of Regulatory Policy and Practice

11.48) A one-off drop of FTR to pure LRIC, without any glide path, would not be consistent with Ofcom's regulatory policy and established practice. On the contrary, there is a strong precedent for a glide path in everything both Oftel and Ofcom have argued for in the past. A one-off reduction with no glide path is highly unusual.

11.49) Before the 1997 charge control, Oftel set prices for wholesale fixed call origination and termination on an annual basis. In the 1997 charge control, Oftel stated:

"Oftel believes that it is now appropriate to move away from detailed control of charges for all interconnection services every year, and to rely instead on caps to control network charges"⁵⁰.

Oftel explained that: "Under a network cap, there would be a requirement for the level of charges to decline by RPI-X each year, and charges in any year could therefore be different from costs. If BT Network were to improve its efficiency by more than expected so that its cost base fell by more than was implied by the level of the cap, BT would be able to retain the efficiency gains. Similarly, if BT failed to reduce its network costs by the amount implied by the action of the cap over time, BT would face the prospect of a reduced rate of return"⁵¹.

11.50) The clear implication of Oftel's statement is that BT has an incentive to become more efficient faster than the charge control reduces prices, an incentive that did not exist under the previous annual charge review regime. This objective was explicitly stated in the 2001 NCC, in which Oftel stated:

"The purpose behind these changes was, first, to bring the charges into line with those that would prevail in a competitive market and, second, to improve the incentives on BT to increase its efficiency" ⁵².

^[5] Ofcom, 8 January 2013

⁵⁰ Oftel (1997): Pricing of Telecommunications Services from 1997: Controls and Consultative Document on BT Price Interconnection Charging [5.1]

⁵¹ Oftel (1997): Pricing of Telecommunications Services from 1997: Controls and Consultative Document on BT Price Interconnection Charging [5.5]

⁵² Oftel (2001) Proposal for a Network Charge Control [3.4]

11.51) Beyond these brief statements in 1997 and 2001, Oftel did not expand on the efficiency properties of periodic charge controls compared with annual rate setting. There was also no reference by Oftel as to whether the efficiency gained would be allocative or dynamic. However, Oftel's view was that as dynamic efficiency gains happen over time, a periodic charge control must incentivise dynamic efficiency gains, although this would not preclude allocative efficiency being present at both the start and end of the charge control.

11.52) In the 2009 NCC Statement⁵³, Ofcom also supported glide paths over a one-off adjustment. That was, of course, in the context of the same two-way access service and two-sided market that we are now concerned with. In proposing to maintain a glide path, even after the publication of the EC Recommendation on termination rates, Ofcom's view was that glide paths had stronger dynamic efficiency incentives. Ofcom stated:

"We believe that for the NCCs, the incentives for dynamic efficiency of price caps are stronger with glide paths than one-off adjustments. This is because outperformance of the control (i.e. the return on the investment in the cost saving activities) is retained for longer and not truncated at the end of each charge control period [...].

In previous price caps and NCCs Ofcom has favoured glide paths to align charges to the target efficient unit costs at the end of the control period and we do not believe it is appropriate to create an asymmetric framework for regulation by applying one-off adjustments in this case. This would not be consistent treatment of charge controls. We are, under section 3(3) [of the Communications Act 2003], required to have regard to the principle of consistency in performing our duties." ⁵⁴

11.53) Of com also reviewed the incentives of charge controls for dynamic and allocative efficiency in its 2012 leased line charge control consultation document⁵⁵. Of com recognised that it must set a balance between allocative and dynamic efficiency and said that if charge controls are set correctly, they have built-in safeguards for both types of efficiency⁵⁶. Of com also said that short charge controls tend to favour allocative efficiency and longer controls favour dynamic efficiency.

11.54) In the same consultation document, Ofcom considered the case for a glide path vs. a one-off adjustment⁵⁷. Ofcom stated that the principal benefit of a glide path is that:

⁵³ Ofcom (2009) 'Review of BT's Network Charge Controls Explanatory Statement and Notification of decisions on charge controls in wholesale narrowband markets' 15 September 2009

⁵⁴Ofcom (2009) 'Review of BT's Network Charge Controls Explanatory Statement and Notification of decisions on charge controls in wholesale narrowband markets' [4.107]

⁵⁵ Ofcom (2012) Leased Line Charge Control Proposals for a new charge control framework for certain leased lines services, 5 July 2012, [3.26 - 3.31]

⁵⁶ Ofcom (2012) Leased Line Charge Control Proposals for a new charge control framework for certain leased lines services, [3.29]

 $^{^{57}}$ Ofcom (2012) Leased Line Charge Control Proposals for a new charge control framework for certain leased lines services, [4.97 – 4.104]

"it approximates more closely to the workings of a competitive market than one-off reductions, where excess profits are gradually eroded as rivals improve their own efficiency. It also avoids discontinuities in prices over time and leads to a more stable and predictable background against which investment and other decisions may be taken, by both suppliers and customers" [4.99].

11.55) Of com also stated that a glide path has better incentives for efficiency as it allows the regulated firm to retain the benefits of cost reduction made under the previous charge control. Nevertheless, Of com noted that it will consider one-off adjustments "where there are strong allocative efficiency arguments for bringing charges into line with cost sooner...". The only specific instance in which a one-off reduction would be considered is "if prices of individual services are out of line with costs to an extent which could distort competition".

11.56) According to our research, the following precedents relied on by Three in its response to the call for input do not provide any justification for a one-off price change with no glide path:

- Oftel's move from annually determined historic cost accounting (HCA) fully allocated cost (FAC) charges to current cost accounting (CCA) and LRIC based charges. This happened during the move from annual determinations to the first Network Charge Control in 1997. This was a completely different situation to what is being considered here and a glide path between two completely different regimes would not have been possible.
- The 2004 review of BT's product management, policy and planning (PPP) charge. This was a very small charge in terms of financial impact on the industry and occurred as a result of a change in cost apportionment which excluded service centre costs from PPP. To put into perspective, the total cost of PPP was £19m in 2011-12 to be recovered across both internal and external minutes of the BT network.
- The 2008 leased lines charge control review. The LLCC comprised a number of related services in an overall price basket. The basket control was set to glide prices towards projected final costs in the normal manner. There was no adjustment to starting prices as BT changed the prices to better reflect the underlying costs prior to the start of the control itself.

11.57) Furthermore, in response to Ofcom's comment at [11.13], and in line with the CC's analysis rejecting a PO reduction of MTR to LRIC+⁵⁸, we believe that FTR does not meet the conditions previously identified by Ofcom in the LLU and WLR Consultation of 31 March 2011 to impose a one-off drop:

"In the context of the LLU and WLR charge controls, it is useful to understand the circumstances under which we might consider one-off reductions. This might include, for

⁵⁸ Competition Commission Determination, 9 February 2012, in case British Telecommunications plc and others v Office of Communications, Case 1180/3/3/11, [5-96 - 5-102]

example, scenarios where: There are strong allocative efficiency arguments for bringing prices into line with cost sooner [...]. The previous charges were unregulated or are not subject to charge control and where [BT's] charges are high relative to costs. There is a need to align the charges for corresponding ancillary services [...] and [...] where the charges for [...] variants are materially out of line and this may have a distorting effect on the market."

11.58) Indeed, in the case of FTR:

- There are no allocative efficiency reasons to bring charges into line with costs immediately, rather than over a glide path, in accordance with Ofcom's usual practice.
- FTR are regulated and are not high relative to costs.
- FTR are not to a level which could have a distorting effect on the market.

11.59) As discussed above, justifying a one-off drop by the two-sided nature of FTR is at odds with Ofcom's practice. The only time Ofcom had to set a charge control for two-sided markets was for MTR, where Ofcom originally granted a four year glide path, later reduced to two years and a day. There are good reasons to argue that a glide path is just as appropriate in the fixed sector as in the mobile sector, given its own distinct characteristics.

11.60) Our analysis above suggests that the allocative efficiency gain from a one-off cut in FTR is likely to be small or non-existent and highly dependent on the reduction being passed on to consumers. Any price reduction at the wholesale level without a commensurate reduction at the retail level is simply a transfer from wholesalers to retailers.

11.61) The imbalance in the market from traffic flows means that mobile CPs or mobile consumers are likely to gain. Conversely, fixed consumers and the customers of any net terminator, are likely to lose. We therefore do not consider that these minimal efficiency gains can reasonably be said to outweigh Ofcom's established precedent of using glide paths.

Effects on Incentives to Invest and Dynamic Efficiency

11.62) We invited DotEcon to respond to Ofcom's [11.15, 11.31] critique of their submission and model that a glide path is helpful to minimises costs of adjustment. DotEcon does not agree with Ofcom's appraisal of their submission and we reproduce their response on pages 94-96

11.63) Of com has clearly recognised the dynamic efficiency benefits of a glide path in the sections from the 2009 NCC quoted above. Again, it should be remembered that the proposed reduction in termination rates is not due to the current rate being above the competitive level, but to the fact that the recommended method of calculating the competitive level has changed. Therefore, if the charge control is to be used as means of reducing charges for the termination segment, then the dynamic efficiency incentives of a glide path still stand i.e. net terminators would be better

incentivised to reduced costs if they can keep the return in investment in cost saving activities for longer.

11.64) If each firm in the market had balanced traffic, i.e. terminated as much traffic as it originated, then the dynamic efficiency benefits of a glide path may not be compromised by a one-off reduction on one side of the market. However, as we have seen above, the market is balanced neither between fixed operators nor between fixed and mobile operators. Therefore, while some operators may have a slow reduction in the end-to-end call rate, others, in particular net terminators, will experience a sharp decrease.

11.65) This may be acceptable if those net terminators were charging a price above the competitive level, but this is not the case; emphatically current FTR are not at a level which Ofcom [Footnote 389] – 'could have a distorting effect on the market'. Thus there are no allocative or dynamic efficiency gains from a one-off reduction. On the contrary, a glide path - and even a comparatively short glide path - would have the dynamic efficiency incentives that Ofcom has highlighted in earlier consultations.

The EC Recommendation Deadline has not been Achieved across the EU

11.66) The EU Member States are far from having introduced pure LRIC FTR on a uniform basis. Contrary to Ofcom's statement at [8.12], it is not the case that most of the main European NRAs have already adopted pure LRIC for FTR.

11.67) We have asked Cullen International to produce an update of the state of implementation of the EC Recommendation across the 27 Member States. Their update dated March 2013 provided at Annex 2, shows that only 5 Member States out of 27 have set FTR on the basis of pure LRIC.

11.68) Further, all of these 5 Member States have adopted some form of glide path either in the drop to pure LRIC or in the underlying technology used in the cost modelling (i.e. moving from a TDM based model to a NGN based model) or granted a period of time to implement the new cost threshold (such as 13 months in Bulgaria or 2 years in Denmark).

11.69) The table below provides an extract of the Cullen International update set out on page 97, which provides the relevant summary information.

NRAs Decisions on FTR

NRA has:	No. of Member States	Member States
Decided to move to pure LRIC FTR	5	BG, DK, FR, IE, MT
Not yet decided on pure LRIC FTR	21	AT, BE, CY, CZ, EE, FI, DE*, GR, HU, IT, LV, LT, LU, PL, PT, RO, SK, SI, ES, SE, UK
Decided not to impose pure LRIC FTR	1	NL

*DE: BNetzA proposed FTR based on BU-LRIC but not pure LRIC.

AT - Austria	GR - Greece	PT - Portugal
BE - Belgium	HU - Hungary	RO - Romania
BG - Bulgaria	IE - Ireland	SK - Slovakia
DK - Denmark	IT - Italy	SI - Slovenia
CY - Cyprus	LV - Latvia	ES - Spain
CZ - Czech Republic	LT - Lithuania	SE - Sweden
EE - Estonia	LU - Luxembourg	CH - Switzerland
FI - Finland	NL - Netherlands	UK - United Kingdom
FR - France	NO - Norway	
DE - Germany	PL - Poland	

11.70) Moreover, none of the Member States which have already come up with a decision or a proposal, have planned to impose a one off drop to a pure LRIC model based on NGN with the exception of Austria⁵⁹. Even if some of the decisions could imply some elements of retrospection (as in Italy) there will still be in effect be a glide path.

11.71) We accept that other NRA's experience should not be wholly determinative in shaping Ofcom's proposal⁶⁰. However, the fact that the EC's aspirational target of 31 December 2012 has not been achieved, and the ubiquity of the use of a glide path or implementation period where it has been, should, in our view, be fully reflected in any weight to be given to the original target date included in the Recommendation: the original aim of achieving as much consistency as possible in the single market would not be undermined by the introduction of the glide path proposed by BT.

⁵⁹ We understand that the approach of the Austrian Regulatory authority (TKK) may have something to do with specificities in Austrian law and administrative court precedent but is not specific to the EC Recommendation. Rates are set on an annual basis.

⁶⁰ Ofcom [11.24].

RESPONSE TO OFCOM CRITIQUE OF THE DOTECON SUBMISSION

(Note prepared by DotEcon)

(a) Properties of optimal glide paths

In our previous paper, we presented a simple model illustrating how a trade-off needs to be struck between the speed at which efficiency benefits are reaped in moving a regulated price towards a target and the greater adjustment costs associated with more rapid adjustment. The key point that our model illustrated was that if the adjustment needed to target price might be smaller in absolute magnitude, it does not follow that it can made more rapidly (or indeed a smoothed transition skipped altogether) as there would still be a balance of *relative* costs and benefits to be struck, even if these were smaller in absolute magnitude. As demonstration, we showed that given natural modelling assumptions, a constant rate of adjustment to the target could be optimal.

This way of looking at optimal glide paths provides a clear justification for Ofcom's general policy of applying smooth and progressive adjustment paths unless there are exceptional circumstances requiring a discrete adjustment (i.e. a PO cut). Even in the case that a PO cut is applied, there is typically subsequent smooth and progressive adjustment to the target price.

Ofcom has responded that "DotEcon's analysis would rule out the prospect of ever making changes to regulated charges on anything other than a glide path" (§11.31). To be clear, our analysis does *not* rule the possibility of a PO adjustment and Ofcom seems to have misunderstood our point.

Our analysis provides support for Ofcom's typical approach of applying a glide path, and exceptional a PO cut followed by a glide path. It does not rule out the possibility of a PO cut if circumstances justify this, as we explain below. However, what this analysis does show is that a one-shot adjustment to the target price (i.e. a PO cut without a subsequent glide path) will never be optimal if there are adjustment costs.

The analysis in Annex A of our paper considers a specific example in which there are costs of diverging from the target price that are proportional to the square of the deviation. Although this is a particular assumption, it will always be a reasonable local approximation provided deviations from the target price are not too large and that the target price has been chosen in order to maximise economic welfare. This is a mathematical necessity.

The example then considers a simple case in which adjustment costs are proportional to the square of the speed of change of the regulated price. Again, although this is a particular assumption, it will be a good local approximation to the general case when the absolute adjustment needed to reach the target price is small. Again, this property is a mathematical necessity if adjustment costs arise from lags and delays in being able to adjust other business parameters in response to changes in the regulated price.

The example in Annex A has the property that the optimal adjustment path for the regulated price demonstrates decay of the deviation from the target price at a constant proportionate rate. Whilst other forms of cost and benefit would not have his property, the example nonetheless provides a

local approximation to the general case when deviations from the target price are small. The example demonstrates the generic features of an optimal adjustment path for small deviations from the target price.

Therefore, the example is not special and demonstrates the general conclusion that the optimal adjustment path should be characterised by approximately constant decay of the deviation from the target price once sufficiently close to the target price. The only assumption that is key to this conclusion is that adjustment costs are convex, meaning that the total costs of adjustment are minimised by smooth adjustment rather than a discrete adjustment. However, this necessarily arises whenever adjustment costs are created by lags in adjustment of other variables affecting profits.

Because the analysis only applies in general to the case in which the regulated price is sufficiently close to the target price, none of this rules out the possibility that the global shape of costs and benefits might justify a PO cut. However, under very minimal assumptions, the optimal path for price should still involve smooth adjustment to the target price once already sufficiently close to that target. Therefore, a PO cut should only move part way to the target and then be followed for subsequent smooth and progressive adjustment. Under reasonable assumptions about the nature of costs and benefits it can never be optimal to adjust in one step to the target price.

In summary, it is not the case, as Ofcom claims, that considering the dynamic trade-off between costs of deviation from a target regulated price with adjustment costs related to the speed of price changes leads to the conclusion that there can only be a smooth glide path. It is possible that a discrete adjustment might be optimal in some cases, but this will need to be followed by some smooth adjustment path. This conclusion corresponds precisely to Ofcom's typical approach of using a smooth glide path unless there are exceptional circumstances justifying a PO cut and then using a PO cut as a partial step to the target price.

What follows as a general conclusion from this analysis is that it is incorrect to argue that if the deviation of a current price from its target value is small, then this is reason alone for making an immediate jump to the target value.

(b) Nature of costs and benefits

In our initial report, we also briefly discussed the nature of likely costs and benefits affecting the choice of glide path. We noted that, unlike mobile termination rates, there were not significant concerns about retail competition effects of FTR somewhat above pure LRIC due to the absence of off-net/on-net price differentials for fixed. There is no obvious reason why the benefits of adjusting to pure LRIC should be greater for FTR than MTRs and so justify the lack of glide path for FTR relative to MTRs.

The other side of the trade-off affecting the glide path is the cost of more rapid price adjustments. Ofcom [11.31] argues that BT's analysis of the adjustment costs "is theoretical and would seem to overstate the extent of the adjustment required to get FTR to LRIC". Adjustment costs can arise due to lags and constraints on the adjustment of business parameters that need to be changed in response to a change in regulated price. However, fixed and mobile sectors are in somewhat different situations in this regard due to the different nature of the downstream value chains needing termination services as an input. In the case of MTRs, by far the most important customers of wholesale termination are other mobile operators and fixed operators. However, in the case of FTR there are more diverse downstream users, including providers of NTS services.



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Question 11.2: Do you agree with our proposal to allow a six week implementation period for Fixed Termination Rates to be capped at LRIC? If not please explain why.

11.72) The network charge control runs until 30 September. The control is such that net effect of any price changes during the year is the same as if a single price change had been made on 1 April in each relevant year⁶¹ (insert reference). This year, BT changed prices on 1 April, and all things being equal would not necessarily expect to change prices again until 1 April 2014 in accordance with the next charge control. All Network Charge Controls have been implemented on this basis since their inception in 1997⁶². The NCC modelling in 1997 went out to 2001/02 financial year so that the X could be set. This aligned X with costs in financial year 2001/02.

11.73) For example, the model for the 2009 Charge Control projected costs for 2013/14 and compared these with the revenues that would accrue if the 2009/10 prices were applied to 2013/14 volumes. The value of X is then solved to ensure the revenues and costs are brought into line. Therefore, the cost model seeks to align the prices that would apply with effect from 1 April 2013 with the forecast cost base for financial 2013/14.

11.74) The NCC has always been intended to align prices that would operate for a year from 1 April and ensure these correspond with the forecast costs for that financial year. There is simply a six monthly lag between charge control years and the price path. The next set of price changes would be expected to occur at 1^{st} April 2014 – and not on the first day of any new charge control.

11.75) By proposing to introduce a new price cap effective from 1 October 2013, Ofcom will deprive BT of revenue it would have expected to achieve for the period 1 October 2013 until 31 March 2014. The current charge control allows BT to increase prices, because we were not recovering our costs at the end of the previous charge control. Price increases necessary to cover our costs were set on a glidepath such that we have continued to under recover our costs for the entire period of the current charge control and would only have returned to parity by the end of the final year, 1 April 2014. By bringing forward the effective date for compliance with the new charge control to 1 October 2013, Ofcom is retrospectively truncating the existing charge control and denying BT a reasonable opportunity to recover its efficiently incurred costs as defined by the control.

11.76) Whatever prices Ofcom considers appropriate under the new control it should continue with the established precedent of introducing changes effective from 1st April. This would ensure that BT

⁶¹ NCC Statement 15 September 2009 **AAA4(CO).2** For the purpose of complying with paragraph AAA4(CO).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.

http://stakeholders.ofcom.org.uk/binaries/consultations/review_bt_ncc/statement/nccstatement.pdf ⁶² See Annex A to Ofcom's 1997 Statement para 50 at

http://www.ofcom.org.uk/static/archive/oftel/publications/1995_98/pricing/nccjulap.htm#ANNEX A

has the opportunity to receive the revenue implicit in the calculation of X set in the previous charge control.

11.77) Were Ofcom to proceed with an effective date of 1 October 2013 for the price cap it may be possible for us to implement the new BT rates in six weeks but it will be very tight given the number of Access Charge Change Notices (ACCNs) to be produced and Carrier Price List (CPL) section documents to be revised. We cannot complete the CPL section revisions and ACCN production until Ofcom's final direction is issued. It would be fair and reasonable for a similar obligation to be placed on other CPs to implement their new rates in accordance with the guidance in the same timescale.

11.78) Bearing in mind changes to rates have to be agreed by both parties, our experience of implementing Ofcom's guidance that came into effect on 1 October 2012^{63} was that few CPs actually initiated the change themselves. \gg

11.79) Unless Ofcom proposes to take some responsibility for ensuring CPs implement new rates in accordance with the new cap in a timely fashion, a minimum implementation period of six months will be required.

Question 11.3: Do you agree with our proposals relating to "Charge control design"? If not, please explain why.

Interconnect Returns on Capital Employed (RoCEs)

11.80) Of comproposes that there should be an RPI-RPI charge control and that Interconnect Circuits should be kept constant in nominal terms across the basket with a sub-cap on individual services of RPI - 10%. BT believes that Of com's objectives could be met effectively with an RPI-0% charge control and that there is no need to impose RPI-RPI.

11.81) Figure A12.16 in Ofcom's February Consultation shows costs and revenues of interconnect circuits compared with reported RFS costs and modelled costs using the 2009 NCC costs. This shows that under the 2009 model, costs for Interconnect Circuits would, in fact, be higher than the Interconnect Specific Basket (ISB) market revenues.

11.82) The reason why interconnect circuits costs have declined faster than volumes is explained by the significant reduction in Mean Capital Employed as a result of assets reaching the end of their depreciation lives, as well as declines in the associated depreciation. (see A12.218)

⁶³ "Fair and reasonable charges for fixed geographic call termination: Statement and final guidance" at http://stakeholders.ofcom.org.uk/binaries/consultations/778516/statement/fair-reasonable-statement.pdf

11.83) Ofcom's explanation is consistent with what BT has observed with network assets used in providing Interconnection services. Switch and Transmission assets are the most important asset classes used in providing interconnect circuits (although the distance related costs will also use duct and fibre assets). The ratio of NRC:GRC (Net Replacement Cost:Gross Replacement) for these assets have declined significantly between 2008/9 and 2011/12. This has also been associated with a decline in depreciation as tranches of assets become fully depreciated. Figures for the main classes of work used by interconnect circuits are set out in the table below.

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11.84) This shows Ofcom's explanation of the increase in WACC being attributable to assets becoming fully depreciated is consistent with BT's PSTN assets approaching the end of their accounting lives and becoming fully depreciated.

11.85) It is worth highlighting two further points about Interconnect Circuits:

- a) The reported returns do not take account of the cost sharing arrangements for Customer Sited Interconnect (CSI) circuits whereby the costs of the circuit are shared in line with the volume of traffic in each direction. Adjusting for this would reduce the overall revenue and rate of return earned in the ISB market.
- b) Since the last charge control in 2009 there has been a very significant build-out of LLU to reach nearly all of BT's local switch sites. This means CP's no longer have to use BT infrastructure to reach a local switch but can make alternative arrangements with a CP to link their network to the BT exchange site. This would allow Interconnect Extension Circuits (IEC) and CSI interconnect circuits to be migrated to In-Span Interconnect (ISI). If this were to happen, BT's revenues and returns from the ISB would be very significantly reduced. The existence of competing network infrastructure means that BT is constrained in setting prices for the ISB services.

11.86) The fact that there has been a substantial increase in LLU since the last charge control opens up the possibility that operators could migrate CSI and IEC interconnect circuits to In-Span-Interconnect with use of third party infrastructure to backhaul to their own networks. This acts as a constraint on BT's prices for CSI and IEC circuits. It is reasonable to assume that the cost of operating interconnect circuits will increase in line with underlying inflation. Ofcom should therefore set a control of RPI-0% which would ensure interconnect circuits prices remain unchanged in real terms.

Time of Day

11.87) BT supports the line Ofcom has taken at para 11.96 of the consultation on Time of Day (ToD) to retain the weighted average cap. It remains desirable to reduce peak loads on the voice network. Business users predominantly buy at daytime rates whilst consumers tend to make more calls at evening and weekend rates, and CPs have developed their calls packages to reflect this pattern. The

elimination of different ToD rates would be likely to disrupt their business models, and create significant transition costs, for no good reason, which would ultimately be economically inefficient and therefore bad for end customers. Regarding "flip-flopping", this has not been an issue in relation to Fixed Termination Rates. BT has never flip-flopped fixed termination rates and nor do we think has any other fixed CP. (Notice period requirements and the need to change complex billing systems make frequent price changes impractical in any case.)

Rounding Charges

11.88) In paragraph 11.115 Ofcom of the February Consultation proposes to round charges to three decimal places for call origination, call termination and the NTS retail uplift. This represents a change from the current practice which has been to set these charges to four decimal places and which has been in place since 1997. Ofcom justifies this by reference to the extent of rounding reported in the RFS and also the number of decimal places Ofcom proposes to use for rounding their cost model outputs. For interconnect circuits, Ofcom proposes rounding charges to the nearest penny (since prices are charged to the nearest penny). Ofcom proposes that values of X are specified to 1 decimal place, consistent with the definition of the percentage change in RPI as reported by the Office of National Statistics (ONS).

11.89) BT believes that call origination and termination prices should continue to be rounded to four decimal places on a ppm basis. This is because an additional decimal place is needed to ensure price changes can be made with sufficient precision to closely match the price change required by the charge control.

11.90) It will be difficult to implement with sufficient accuracy the required percentage change to prices if prices are rounded to three decimal places. This is because the minimum price change would become 0.001ppm and this figure is a high percentage of the base price level. For call origination with a price level of 0.25ppm the minimum price change of 0.001ppm is worth 0.4%. From 2013/14 the proposed call termination price of 0.04ppm means the minimum price increment would be worth 2.5%. A four decimal place rounding would make the minimum price change a factor of ten times smaller, giving increments of 0.04% and 0.25%. This will make compliance with the charge control to the nearest 0.1% significantly more practical to implement when setting prices.

11.91) It is also important to note that the ppm prices are multiplied by very large numbers (hundreds of millions of minutes if not billions of minutes), meaning that the value of each 0.0001ppm will be significant in terms of the overall charges. It is therefore reasonable that the rounding of call origination and termination should continue to be to four decimal places.

11.92) BT agrees with Ofcom's proposal that interconnect circuit prices should be rounded to the nearest penny.

Annex 7 – Compliance Formula

Consistency of basket calculations with the derivation of the X-values

11.93) In the February Consultation, Ofcom sets out in Table 11.2 the proposed average prices derived from the NCC modelling together with proposed X-values for use in the charge control.

11.94) BT has concerns that the calculated X-values are not consistent with the price values shown and, furthermore, that the base prices used in 2012/13 to calculate the 2013/14 X value is inconsistent with the detailed operation of the charge control formula and leads to steeper price reductions than anticipated by the outcome of the charge control modelling exercise.

Calculation of X

11.95) As the prices in table 11.2 have already been expressed in real terms, the value of X would be expected to broadly equal the percentage change in the prices shown in the table. However, there are significant differences to what might be expected, meaning that there may be errors in the calculation of X. It is difficult to review Ofcom's calculations as these do not appear anywhere within the charge control modelling

11.96) However, algebra can be used to demonstrate how X can be derived from the changes in the real value of the prices shown and the rate of inflation.

Equation (1): $P_{13/14 \text{ (nominal)}} = P_{13/14 \text{ (real)}} * (1 + RPI_{13/14}) * (1 + RPI_{12/13})$ Equation (2): $P_{12/13 \text{ (nominal)}} = P_{12/13/(real)} * (1 + RPI_{12/13})$ Equation (3): $P_{13/14 \text{ (nominal)}} = P_{12/13 \text{ (nominal)}} * (1 + RPI_{12/13} + X)$

Substituting right hand side of (3) into (1)

 $P_{12/13 \text{ (nominal)}} * (1 + RPI_{12/13} + X) = P_{13/14 \text{ (real)}} * (1 + RPI_{13/14}) * (1 + RPI_{12/13})$

Substituting right hand side of equation (2) into this equation gives

 $P_{12/13/(real)} * (1 + RPI_{12/13}) * (1 + RPI_{12/13} + X) = P_{13/14(real)} * (1 + RPI_{13/14}) * (1 + RPI_{12/13})$

Eliminating the (1+RPI_{12/13}) term gives

 $P_{12/13/(real)} * (1 + RPI_{12/13} + X) = P_{13/14(real)} * (1 + RPI_{13/14})$

Rearranging for X

 $X = P_{13/14 \text{ (real)}} / P_{12/13/(\text{real})} * (1 + RPI_{13/14}) - 1 - RPI_{12/13}$

Expanding this equation gives:

 $X = P_{13/14 \, (real)} / P_{12/13/(real)} - 1 - RPI_{12/13} + P_{13/14 \, (real)} / P_{12/13/(real)} * RPI_{13/14} + RPI_{13/14} - RPI_{13/14}$

Rearranging

 $X = (P_{13/14 \text{ (real)}} / P_{12/13/(\text{real)}} - 1) * (1 + RPI_{13/14}) + (RPI_{13/14} - RPI_{12/13})$

This means X = % change in real prices * (1 + inflation) + change in rate of inflation

The 2014/15 and 2015/16 X-values do not appear to be consistent with the changes in real prices shown.

11.97) The percentage price change is -7.5% and -8.1% respectively for call termination for these two years yet the out-turn X-values are considerably higher than this and appear to be inconsistent with any reasonable inflation forecast.

11.98) If an inflation rate of 3% per annum were to be used, then the X values would be expected to be 7.7% and 8.4% respectively, significantly lower than those shown in table 11.2

11.99) BT is therefore concerned that there may be an error in the formula used by Ofcom to calculate the value of X. It would be helpful if Ofcom could provide a transparent calculation of how the X-value has been derived.

Consistency in calculation of X values and the operation of the charge controls

11.100) The charge control formula requires that the Percentage Change in prices be calculated by reference to the time weighted average charge in the relevant year compared with the time-weighted average charge in the prior year. (This is set out in draft Condition 10 (b) and draft Condition 11(b).)

11.101) This means that X will be applied to the weighted average charge applicable during the period from 1 October 2012 to 30 September 2013 for the first year of the charge control. However, BT increased prices with effect from 1st April 2013 and it is these prices that Ofcom appears to have included in Table 11.2 figures for the 2012/13 actual prices (in real terms).

11.102) This means that the prices from which the 2013/14 X-values have been derived are, in fact, higher than those which will be used in the charge controls that BT is obliged to follow. This is because the Percentage Change formula uses average prices during the entire relevant year, rather than those applicable in the final six months from 1st April. When setting prices for the 2013/14 relevant year BT will therefore be obliged to make deeper price cuts than Ofcom envisaged when setting the value of X.

11.103) BT therefore suggests that Ofcom should use a consistent starting price value when calculating the values of X that corresponds to the average price value used in the charge control formula that calculates the Percentage Change. In this way the operation of the charge control will be consistent with the target prices and X-value calculations that result from Ofcom's cost modelling. Correcting for this inconsistency would lead to smaller negative X-values (or larger positive X-values) than the values shown in the consultation document.

11.104) This issue has the most significant impact on the first year of the charge control.

21CN	21 st Century Network	
BCMR	Business Connectivity Market Review	
СР	Communications Provider	
CPS	Carrier Pre-Select	
CPS SAD	Carrier Pre-Select Same and Adjacent	
	Exchanges	
DLE	Digital Local Exchange	
EC	European Commission	
ED	Economic depreciation	
EOI	Equivalence of Input	
EU	European Union	
EPOS	Electronic Point of Sale	
HMT	Hypothetical Monopolist Test	
IA	Indirect Access	
IN	Intelligent network	
IP	Internet Protocol	
ISDN	Integrated Services Digital Network	
LRIC	Long Run Incremental Cost	
LLU	Local Loop Unbundling	
MEA	Modern Equivalent Asset	
MSAN	Multi-Service Access Node	
NBMR	Narrowband Market Review	
NCC	Network Charge Control	
NGN	Next Generation Network	
NRA	National Regulatory Authority	
NTS	Number Translation Services	
OTN	Optical Transport Network	
POI	Point of Interconnect	
PPP	Product Management, Policy and Planning	
PSTN	Public Switched Telephony Network	
TDM	Time Division Multiplexing	
USO	Universal Service Obligation	
WACC	Weighted average cost of capital	
WBA	Wholesale Broadband Access	

12.) Glossary of terms