



OFCOM

Wholesale Local Access Market Review

Call for Inputs

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1 Introduction

- 1.1 This submission form TalkTalk covers a number of issues relating to the WLA Market Review that were raised by Ofcom at a meeting on 12th March 2013.

2 Market definition

- 2.1 This note considers the appropriate product market definition for BT's VULA product in the context of the WLA Market Review.
- 2.2 The approach we have used is in line with the standard analytical framework which is generally used for competition analyses.
- 2.3 The note particularly concerns itself with the relevant markets which BT's VULA product (which we refer to as VULA) is part of, and offers limited analysis of the relevant markets for Virgin Media's products. Similarly it offers limited analysis on BT's LLU products. As such, we start with VULA as the focal product under consideration, and then look at which products impose competitive constraints on VULA, in order to identify the relevant market(s) of which VULA forms part.
- 2.4 The structure of this section is as follows:
- Section 2.1 sets out the core elements of the analytical framework adopted. This section forms the basis on which the later sections are based, including describing the modified greenfield approach and the amendments to it which are necessary in order to operationalise it for market definition in this context.
 - Section 2.2 reviews the different types of competitive constraints caused by switching to other networks – direct, indirect and supply-side – which may prevent BT from increasing the price of VULA.
 - Section 2.3 then assesses in detail the prospect of direct demand-side constraints, finding that there are none.
 - Section 2.4 then reviews two of the critical elements of indirect demand-side constraints: cost gearing effects and the extent of pass-through of costs into prices. It is found that both of these effects significantly dampen the magnitude of changes in retail prices in response to a wholesale price change.
 - Section 2.5 analyses whether there is an indirect constraint from Virgin Media on BT's wholesale pricing. It finds that cost gearing effects and pass-through rates are sufficiently low that Virgin Media will not impose a constraint. The lack of total national coverage by Virgin only exacerbates this effect.
 - Section 2.6 then looks at whether switching to SBB may be sufficient to constrain SFBB. It finds that the picture is at present unclear, but that before the end of the current review period, the SFBB and SBB customer bases are likely to have changed sufficiently that SFBB is in a separate market, unconstrained by SBB.

- Section 2.7 finds that there are no significant supply-side constraints.
- Section 2.8 briefly outlines the findings of the WIK report, which offers strong corroborating evidence that VULA is not currently subject to any effective constraints on its pricing.
- Finally, Section 2.9 concludes.

2.5 Our approach to market definition is based on first considering constraints from cable, and then from SBB. These could in principle be conducted the other way around. Within the standard analytical framework, there is no clear order in which different potential substitute products should be addressed. However, TalkTalk does not believe that the outcomes of the analysis would be affected if a different order were adopted.

2.1 Analytical framework

2.6 The analytical framework for undertaking market definition for regulatory reviews in the communications sector is a hypothetical monopolist test within a modified greenfield approach.

2.7 In a hypothetical monopolist test based framework, a ‘thought experiment’ is undertaken to define a market. The narrowest possible set of products which are distinct (i.e. the narrowest conceivable product market) is taken as the starting point. This product is referred to as the focal product. It is hypothesized that the market is monopolised by a single ‘hypothetical monopolist’. It is then determined whether it would be more profitable for that hypothetical monopolist to set a price which is a ‘small but significant’ amount higher than the competitive price, than it would be to set the competitive price. If it is not profitable (due to consumers switching to other products, or other producers switching capacity into the market) then the market is expanded to include the closest other product, and the process is repeated until a price rise is profitable. Once this point is reached, the total of products at that point constitutes the relevant market that includes the focal product.

2.8 This test is based on the notion that ‘a market is something worth monopolising’. That is, if a monopolist over a product, or group of products, cannot earn profits which are significantly higher by virtue of holding that monopoly than they would be able to earn if they were in a competitive market, then there must be sufficient competitive constraints from other products and some of those products should be included in the relevant market.

2.9 The hypothetical monopolist test is often implemented (in regulatory contexts) through the use of the ‘SSNIP test’ or ‘critical loss analysis’, which are effectively different names for the same underlying analysis.¹ Under the SSNIP test, it is determined whether a hypothetical monopolist would increase its profits by raising its prices 5-10% above the competitive level by, for a period of at least 1-2 years. The

¹ SSNIP in this context stands for ‘Small but Significant Non-transitory Increase in Price’.

calculation of whether this is profitable (referred to as critical loss analysis) has as its inputs the margins earned on the product before the price increase, and the size of the increase (i.e. whether prices are increased by 5% or 10%). This provides a threshold for a 'critical loss' of customers, in terms of the percentage of all volume which is lost to the hypothetical monopolist due to the price increase: that is, the threshold for the minimum loss of customers which would be required to make a given price increase unprofitable. This critical loss can be compared with data on the proportion of customers expected to be lost for a 5 or 10% price rise. A worked example of this test, in the context of the WLA market review, is provided at paragraphs 2.66 to 2.72 below.

- 2.10 Importantly, the SSNIP test does not involve setting the price of *all* products at a competitive level. Rather, it is only the product(s) in the focal market which are assumed to be priced at the competitive level before the hypothetical 5-10% price increase. All other markets/products are left as they are in reality. If competitive prices and rates of pass-through were assumed in markets downstream of the focal market, this would risk erroneously widening the relevant product market due to an excessively high pass-through rate being assumed. For example, if there is a duopoly downstream of the focal market, then it would generally be expected that there would be significant downstream margins, and that pass-through rates would be well below 100%.
- 2.11 One of the factors that needs to be assumed when carrying out a SSNIP test is the market structure. In regulatory contexts, a modified greenfield approach (MGA) is often used (particularly in the communications sector). It involves assuming that there is no regulation in place in the given market, and in related upstream and downstream markets.² SNIPP tests are carried out, markets are defined, and therefore market power is determined, in the context of markets which have not been subject to regulation designed to address market power.
- 2.12 The MGA will therefore generally involve considering market definition on the basis of quite different market structures and prices to those which prevail in reality (given that there is regulation in many areas). This will evidently necessitate making assumptions about the economic incentives on, and behaviour of, market participants in the absence of SMP-based regulation.

² Competition law obligations, however, continue to apply even under the modified greenfield approach. It is notable that using the MGA approach at all involves a need to distinguish between different types of hypothetical prices and market structures. Under an MGA, firstly there is a need to determine hypothetical prices without regulation. This is likely to imply that market structures in some markets are not fully competitive. Only when this has been done (i.e. the market structure has been amended for the lack of regulation) is the second stage undertaken, of considering whether a hypothetical monopolist over a particular focal market would find it profitable to set prices 5-10% above the competitive price in that market. Therefore, under the MGA the 'in reality' mark-ups in downstream and upstream markets are those which result from the first stage of the MGA, before market definition is attempted.

2.1.1 At what level do markets need to be defined?

- 2.13 In the context of the WLA Market Review, the important issue is whether any company, or companies, hold(s) market power in the WLA Market (i.e. the provision of access to the physical connection between end users' premises and local exchanges). As such, the function of market definition is to define markets which are relevant to market power in the WLA Market. Downstream markets (i.e. retail broadband markets) will be relevant to the extent that competition in them imposes indirect constraints on market power at the upstream level.

2.1.2 What does the modified greenfield approach imply in this context?

- 2.14 There are only two firms which are materially active in the WLA Market: BT and Virgin Media.³
- Virgin Media is not currently subject to any regulatory obligations either with respect to access to its infrastructure; or regarding downstream pricing of its consumer broadband products. As such, its behaviour under the modified greenfield approach should be the same as its behaviour in reality: Virgin Media will be a vertically integrated entity, with its infrastructure solely being utilised by its own retail business, and no third party access being granted.⁴
 - BT is subject to a series of regulatory obligations on its upstream business (BT Openreach). These include being obliged to offer access at regulated prices to the local loop (LLU) which is used to offer standard broadband (SBB); and an obligation to offer VULA (which can be used to offer superfast broadband – SFBB) on fair and reasonable terms, although without any pricing (or margin) obligation. Under a modified greenfield approach, TalkTalk agrees with Ofcom's conclusion in the 2010 WLA Market Review that BT would refuse access to its local loops to all third parties who requested such access.⁵ As with Virgin Media, under a modified greenfield approach BT would be a vertically integrated entity, with bilateral exclusive dealing between BT Retail and BT Openreach⁶ (BT's division that provides LLU products).
- 2.15 As such, under the standard modified greenfield approach, the appropriate market structure within which markets can be defined is one where there are two upstream infrastructure providers (BT Openreach and Virgin Media's infrastructure division) each of which sells solely to its own downstream retail arm.

³ This analysis excludes the Hull market, which is materially different and is outside the scope of this submission.

⁴ Virgin Media's behaviour with respect to off-net customers may be changed due to BT's likely position, but this is of minor importance.

⁵ Ofcom (2010), *Review of the wholesale local access market: Statement on market definition, market power determinations and remedies*, October 7th, at paragraph 3.12.

⁶ In reality BT Openreach provides services to BT Wholesale who then provide services onto BT Retail. For simplicity we refer to BT Retail as the unit that uses inputs from BT Openreach and sells retail products.

- 2.16 At a downstream (retail) level, it is possible within the standard modified greenfield approach simply to apply the Hypothetical Monopolist Test (HMT) directly. The test at this level should be applied on each of BT Retail and Virgin separately, to determine what would happen if each of them increased their price by 5-10%. There are four possible outcomes from this process: two symmetric outcomes (BT and Virgin each constraining one another, or neither constraining the other) and two asymmetric outcomes (BT constraining Virgin, but not vice versa; or Virgin constraining BT, but BT not constraining Virgin).⁷
- 2.17 When considering the HMT for product market definition, it is also important to take into account the geographic market definition which is appropriate in this market. The importance of this follows from the different geographic coverage areas of the two providers who would be left in the market under the MGA. Virgin Media has coverage of around 45% of homes, whereas BT has coverage of 100% of homes.⁸ These coverage differences are an important potential driver of asymmetries under a national geographic market definition.
- 2.18 At the upstream level (which is the level which is the focal market for this analysis), it is not possible to apply the HMT directly with fully vertically integrated firms. When there are no open market transactions in a particular product (because the product is always self-supplied), then there is no well-defined price; the price at which a firm notionally sells to itself is arbitrary and has no effect on end-prices.⁹ Therefore the HMT cannot properly be applied using a standard MGA approach.
- 2.19 In TalkTalk's view, an appropriate approach to resolve this issue is to consider the market (absent regulation) as if there were two separate upstream firms (here referred to as BT Openreach and Virgin Wholesale) each of which has a permanent bilateral exclusive trading agreement with the corresponding (but structurally separate) downstream retail firms (BT Retail and Virgin Retail). In this thought framework, there is an appropriate market structure (two vertical silos, with no possibility of third party entry at either upstream or downstream level), but the wholesale price set has real effects on pricing incentives of the downstream firm, permitting the HMT to be applied without the result being pre-determined in favour of narrow markets. We refer to this model as the *amended* MGA model.

2.2 Types of constraints

- 2.20 In general, there are two main types of constraints which are considered in market definition:

⁷ This means that it is important to use appropriate information when defining the market, as data which is important when considering whether BT constrains Virgin may be of little or no relevance to whether Virgin constrains BT.

⁸ This is for SBB

⁹ This has the important corollary that if the approach set out in this section is rejected, and two fully integrated firms is taken to be the appropriate counterfactual under the MGA, then there will be **no** pass-through from the (notional) wholesale price to retail prices, and each firm will automatically be found to hold market power upstream. For this reason, TalkTalk prefers the approach as set out in this section.

- *Demand-side constraints* derive from consumers switching between products. The more responsive consumers are to small price changes (i.e. the higher the elasticity of demand is), the greater these demand-side constraints will be.
- *Supply-side constraints* derive from producers in other, related, markets switching capacity into the focal market in response to small, non-transitory price changes.

- 2.21 In turn, demand-side constraints can be considered as either direct constraints (switching by the ISP, as the direct customer of the hypothetical monopolist in the upstream market) or as indirect constraints (switching by the retail customers of the ISP, which acts as a constraint by reducing the demand of the hypothetical monopolist's customers).
- 2.22 It is because of indirect demand-side constraints that it is important to define relevant markets at the downstream (retail) level. If there is a sufficiently high level of consumer switching at this level, then wide markets can be defined even if there is no direct switching at the wholesale level.
- 2.23 This section will thus consider, in turn, for the hypothetically monopolised wholesale market:
- Direct demand-side constraints;
 - Indirect demand-side constraints;
 - Supply-side constraints
- 2.24 Market entry is not considered in the market definition stage of the analysis since it cannot provide a constraint within the 1-2 year timeframe that is used in order to assess constraints. Rather entry is considered at the stage of assessing market power.

2.3 Direct demand-side constraints

- 2.25 Direct demand-side constraints would derive from direct switching of demand by the ISP to another wholesale provider. However, under the modified greenfield approach (and indeed in the factual situation) there will be no direct switching to an alternative wholesale provider of local access. The main reason underlying this is the lack of any other provider to switch to: under the MGA (standard or amended), both BT and Virgin Media would be in vertical silos, and neither would be willing to offer wholesale access to other ISPs.
- 2.26 As such, based on direct demand-side constraints alone, each of BT and Virgin Media would be in a separate relevant market.

2.4 Indirect demand-side constraints

- 2.27 As set out above, indirect demand-side constraints are based on downstream consumer switching. The upstream wholesale hypothetical monopolist is being constrained from increasing its prices by losing customers at its associated downstream division. For indirect demand-side switching to widen the relevant wholesale market, a sufficiently large number of retail customers will need to leave to make the wholesale price increase unprofitable.
- 2.28 If the standard MGA is used without being amended in the manner set out in paragraph 2.19, and both BT and Virgin are therefore monolithic, integrated firms, then indirect demand-side constraints cannot widen the relevant market. As stated at paragraph 2.18, internal transfer prices are of no importance in changing downstream pricing incentives, which are solely based on prices paid to third party suppliers. As the internal transfer price does not impact on payments to third parties, then there will be no retail price change, no consumer switching, and therefore no indirect demand-side constraint.
- 2.29 It is for this reason that the amended MGA is used. With an amended MGA (of the type set out at paragraph 2.19 above) is used, there will be genuine payments taking place between retailer and wholesaler, and the wholesale price rise will affect retail price levels. The remainder of this section deals with this amended MGA.
- 2.30 When considering the impact of a wholesale price change on retail pricing, four factors are of central importance since they determine the level of customer loss in response to a wholesale price increase:
- The cost gearing effect, which determines the extent to which a change in wholesale prices translates into a relative (percentage) change in retail costs;
 - The extent of pass-through of retail cost increases into retail price rises; and,
 - Consumer elasticity of demand, which determines the extent to which a percentage change in retail prices translates into changes in levels of demand
 - The proportionate overlap of alternative networks (e.g. cable) which will affect the level of switching that would result from a raise in wholesale charges.
- 2.31 Each of these three factors is considered in turn in the next subsections. Section 2.8 then concludes.

2.4.1 Cost gearing effects

- 2.32 The second important element in determining the extent to which wholesale price increases will translate into retail price increases is the gearing of retail prices to wholesale prices. The greater the proportion wholesale costs are of retail costs, the more effective indirect constraints are likely to be.¹⁰

¹⁰ This can be seen by a simple numerical example. Say that the wholesale costs of a product which costs £10 are £9. In this case, a 10% wholesale price increase (i.e. £0.90) will increase the retail price

- 2.33 It is important to note that, due to the different cost structures of the two products, the cost gearing of standard broadband (SBB) and superfast broadband (SFBB) products is likely to differ. This section therefore considers the two products' cost structures separately.
- 2.34 For SBB, the main wholesale charge relevant for WLA is the charge for MPF rental, of £7.28 per customer month. There is also a further £0.45 per customer month in sundry wholesale charges related to the supply of broadband.¹¹ Total wholesale costs are therefore £7.73 per customer month.
- 2.35 This £7.73 per customer month compares with standard charges as set out in Table 2.1 (excluding VAT) for the major broadband providers:¹²

Table 2.1: Wholesale charges as proportion of retail charges, SBB

	Wholesale charge	Line rental revenue	Broadband revenue	Total fixed revenue (ex VAT)	Wholesale charge/ fixed revenue
TalkTalk Essentials	£7.73	£12.46	£5.42	£17.88	43% ¹³¹⁴
BT Broadband	£7.73	£12.88	£10.83	£23.71	33% ¹⁵
BT Broadband Unlimited	£7.73	£12.88	£13.33	£26.21	29% ¹⁶
Sky Broadband Unlimited	£7.73	£12.08	£8.33	£20.41	38%

Source: Company websites, TalkTalk analysis

- 2.36 Given the broadly competitive downstream market structure, these prices can be seen as representing a competitive benchmark for the proportion of wholesale costs in the total price of SBB. Across all of the providers, it appears that around 40% of the price of SBB to the consumer is comprised of wholesale LLU costs.¹⁷

by 9% (£0.90/£10). On the other hand, if the wholesale costs remain at £9, but the product costs £30, then a 10% wholesale price increase will only increase the retail price by 3% (£0.90/£30).

¹¹ Such as an Ethernet switch, Ethernet power supply, and space within exchanges.

¹² All charges are excluding introductory discounts, which are most appropriately treated as a customer acquisition cost.

¹³ This assumes that the customer does not take TalkTalk's Value Line Rental, which reduces the line rental charge to a monthly equivalent of £7.92. For customers taking Value Line Rental, wholesale charges are 58% of the total product cost. However, fewer than 20% of TalkTalk's customers take this product option.

¹⁴ Note that by not including revenue from calls, TalkTalk increases the proportion of wholesale costs in the overall product price, tending to lead to wider markets.

¹⁵ This assumes that the customer does not take BT's Line Rental Saver, which reduces the line rental charge to a monthly equivalent of £8.96. For customers taking Line Rental Saver, wholesale charges are 39% of the total product cost.

¹⁶ With Line Rental Saver, wholesale charges are 35% of the total product cost.

¹⁷ Arguably, this proportion is excessively high. BT is at present competing in a market with four major providers, whereas in the counterfactual 'modified greenfield' situation, BT would be part of a duopoly. However, to derive a 40% proportion, BT would be required to set a *lower* price in a duopoly than in the current oligopoly, which is intuitively unlikely. However, moving to a 35% or 30% proportion would not change the outcomes of this section.

- 2.37 For SFBB, there is an additional GEA charge over the charges payable for SFBB. This GEA charge depends upon the specifications of the consumer product being sold. TalkTalk's 'Essentials + Fibre Medium' product uses a 40/2 GEA product which costs £6.90 per customer month; while BT's 'Infinity 1' product, and Sky's 'Fibre Unlimited' product both use 40/10 GEA products as their inputs. In addition to these GEA charges on a monthly basis, there are around £0.05 per customer month of additional charges which are pro-rated allocations of fixed GEA cost elements.
- 2.38 When considering wholesale price increases for SFBB, it is appropriate to take into account both LLU and VULA. This is because VULA is not generally sold in the absence of LLU; VULA as a product on its own does not permit customers to be served. Consequently, economically the VULA should be assessed with the LLU product.
- 2.39 TalkTalk's wholesale costs are therefore £14.68 per customer month, while the wholesale costs for BT and Sky are £15.18 per customer month. These costs compare with standard charges (excluding VAT) as set out in Table 2.2:

Table 2.2: Wholesale charges as proportion of retail charges, SFBB

	Wholesale charge	Line rental revenue	Broadband revenue	Total fixed revenue	Wholesale charge/ fixed revenue
TalkTalk Essentials + Fibre Medium	£14.68	£12.46	£13.75	£26.21	56%
BT Broadband	£15.18	£12.88	£15.00	£27.88	54%
Sky Broadband Unlimited	£15.18	£12.08	£16.67	£28.75	53%

Source: Company websites, TalkTalk analysis

- 2.40 Overall, therefore, for SFBB customers, wholesale VULA costs represent around 55% of the total revenue given the current price structure.
- 2.41 However, there is considerable evidence to demonstrate that the current price of GEA is already in excess of competitive levels, and there is therefore a risk of the 'cellophane fallacy' applying, with markets being defined overly widely due to the product starting at supracompetitive prices before the SSNIP is applied.
- 2.42 In particular, TalkTalk has commissioned a report from WIK on the appropriate price for GEA if it covers its costs in full, including a return on capital employed. In its report, WIK found that the appropriate price for GEA is about £4.40 per customer month.
- 2.43 As such, the GEA price should be reduced to a competitive level when determining its cost gearing, or there is a risk of finding an overly wide market. TalkTalk has therefore considered the impact of the GEA price being set at £4.40 rather than its current £6.90/ £7.40, on the basis that there is 100% cost pass-through from costs to

prices.¹⁸ With the GEA price set at this competitive level, the extent of cost gearing is as set out in Table 2.3.

Table 2.3: Wholesale charges as proportion of retail charges, VULA at competitive price

	Wholesale charge	Line rental revenue	Broadband revenue	Total fixed revenue	Wholesale charge/ fixed revenue
TalkTalk Essentials + Fibre Medium	£12.18	£12.46	£11.25	£23.71	51%
BT Broadband	£12.18	£12.88	£12.00	£24.88	49%
Sky Broadband Unlimited	£15.18	£12.08	£13.67	£25.75	47%

Source: Company websites, TalkTalk analysis

- 2.44 Overall, therefore, the appropriate cost gearing for SFBB, adjusting for BT's excessive pricing, should be considered to around 50%.

2.4.2 Extent of pass-through

- 2.45 When defining markets at a wholesale level based on indirect constraints, it is important to consider the extent of pass-through of retail cost increases into retail prices rises. If pass-through is not properly considered – and it is important to note that in almost all markets pass-through will be less than 100% – then wholesale markets can be defined excessively widely, and regulators will fail to spot pockets where upstream market power can exist.
- 2.46 Under the MGA (whether amended or standard), there will only be two firms (BT and Virgin Media) active in the retail market. The relevant market structure in which to consider the extent of pass-through is therefore a duopoly in the retail market. In each case (i.e. for both Virgin and BT), the relevant SSNIP to consider is a wholesale price increase of 5-10% by one of the wholesale providers of WLA, with no price change by the other wholesaler (i.e an asymmetric wholesale price increase).
- 2.47 In assessing the impact of an asymmetric wholesale price increase it is useful to consider the likely extent of pass-through if there were symmetric wholesale price increases. In the case of symmetric price increases the pass through is likely to be considerably less than 100%, although the extent of pass-through will depend on the

¹⁸ This should not be taken to imply that TalkTalk believes that the appropriate pass-through rate is 100%; it is for expositional purposes only. This is a conservative approach, which will tend to inflate the proportion of costs represented by VULA, and so make it more likely that a given wholesale price increase above the competitive level will be unprofitable.

precise form of downstream competition.¹⁹ The standard models which could be applied in this context are:²⁰

- Under a Cournot oligopoly model, the standard pass-through rate for a two-firm retail market structure is two-thirds²¹;
- Under a differentiated good Bertrand model, the pass-through rate in a market with linear demand and constant marginal costs is 50% if a cost shock impacts all firms (i.e. it is symmetric).

2.48 Such findings could be taken to indicate that the pass-through rate in the case of an asymmetric price change (with two downstream competitors) would be in a range of 50-67%. However, this may represent an overestimate of the extent of pass-through. As Oxera (2009) say:²²

... for a cost increase that affects only one, or some, of the competitors in the market, the expected pass-on rate would be 0%, since those competitors that do not face the increase can leave their prices unchanged. This may also be the case if, for example, an entire industry is affected by the overcharge, but that industry competes with another industry that uses a different upstream input not subject to the overcharge and that can therefore leave its prices unchanged. For example, sugar and high-fructose corn syrup compete in many downstream markets but use different inputs...

2.49 The situation in the broadband sector appears similar to this. The two downstream retail arms of BT and Virgin use different input technologies, sold by different suppliers, and in this modified greenfield approach have no ability to switch between the two technologies. If BT Openreach increases its price by 5-10%, then BT Retail may be unable to pass through any meaningful amount of this wholesale price increase to consumers if the downstream market is close to being competitive.²³

2.50 Based on this analysis in the case of an asymmetric price rise, the more competitive the downstream market is, the **lower** the degree of pass-through of a wholesale price increase will be. Where the market is fully competitive, there will be no pass-through at all. There does not appear to be a market model for the downstream market which would permit 100% pass-through of an asymmetric wholesale price increase which only affects some downstream competitors. The highest plausible degree of pass-through appears to be 67%, whereas the most plausible market models (differentiated goods Bertrand, or monopolistic competition) lead to pass-through rates of 50%. Even these pass-through rates are on the basis of symmetric cost shocks; asymmetric increases in wholesale costs will generally lead to lower pass-through rates.

¹⁹ A symmetric cost increase is one which applies to both retailers simultaneously and to the same extent.

²⁰ See Niels, Jenkins and Kavanagh (2011), *Economics for Competition Lawyers*, Oxford University Press, at pages 556-557.

²¹ An asymmetric increase in costs does not affect the predictions of this model

²² Oxera (2009), *Quantifying antitrust damages: towards non-binding guidance for Courts*, Study prepared for the European Commission, at page 117

²³ The same applies to Virgin Wholesale/ Retail.

- 2.51 TalkTalk notes that this finding is in line with the comments of the European Commission in the context of the 2010 WLA Review, where the Commission questioned whether a wholesale price increase would be fully passed to retail prices.²⁴
- 2.52 This finding is, however, in contrast to Ofcom's position in the 2010 WLA Review that *"an increase in the price of the wholesale local access input would be passed on in full. This is because the product in question must be assumed to be supplied at a competitive price prior to the hypothetical increase. In this context, we would expect to see a full pass through of the wholesale price increase."*
- 2.53 In making this statement, Ofcom has failed to appreciate three critical factors.
- Firstly, the market for the supply of retail broadband is a differentiated goods market, rather than a homogeneous goods market. Even if Bertrand competition is taken to apply, pass-through will only be 50%, rather than 100%.²⁵
 - Secondly, because the price increase is asymmetric, full pass-through is not predicted under any standard economic model .
 - Finally, as set out at paragraph 2.10 above, assuming that there is a competitive price in the focal market prior to a SSNIP says nothing about the rate of pass-through or state of competition in markets downstream or upstream of the focal market.
- 2.54 Therefore, we do not think that Ofcom's conclusion from 2010 stands today.
- 2.55 Overall, therefore, the range of potential pass-through rates lies between 0% and 67%; an estimate of the extent of pass-through which is in line with the projections of several models, and which is not an outlier within this range, is 50%. Despite the asymmetric nature of the cost increases within this model, TalkTalk considers this a reasonable, if conservative, estimate to use.

2.4.3 Consumer elasticity of demand for loop/ cable substitution

- 2.56 Unfortunately, there appears to be little recent evidence available regarding the customer elasticity of demand for SBB and SFBB products. The last work undertaken by Ofcom which considered customer elasticity was many years ago, in 2007.²⁶ That work was in the context of consumer switching between cable and PSTN based broadband, so although outdated, it is otherwise relevant.

²⁴ Ofcom (2010), *Review of the Wholesale Local Access Market: Statement on market definition, market power determinations and remedies*, October 7th, at para 3.26

²⁵ Bertrand competition is the form of competition which is generally taken to lead to prices being set at competitive levels.

²⁶ Ofcom, *Review of the wholesale broadband access markets 2006/2007 - Identification of relevant markets, assessment of market power and proposed remedies - Explanatory Statement and Notification*, at paragraphs 3.154 to 3.184. The central issues were addressed at paragraphs 3.172 to 3.180.

- 2.57 In its 2007 work, Ofcom found that the consumer elasticity of demand was -1.9, and although it is not made explicit, this appears to be an elasticity based on switching of BT customers to Virgin Media. As such, it would not necessarily say much about the potential for Virgin Media customers to switch to BT when faced with price increases, as there may be asymmetric elasticities of demand.²⁷

2.4.4 Geographic concerns for loop/ cable substitution

- 2.58 Virgin Media's network covers only around 45% of UK homes, whereas BT's SBB network covers 100% of UK homes, and BT's SFBB network will cover about 65% of UK homes by the start of the next review period (April 2014) and 90% by the end (March 2017).
- 2.59 Consequently it may appear that, for SBB, only 45% of BT customers could be lost to Virgin; for SFBB (once the network is rolled out) up to 50% of BT customers could be lost.
- 2.60 However, in reality, the proportion of BT customers that could be lost to cable is likely to be considerably lower than this. Consider the (hypothetical) situation in which, prior to a SSNIP, BT and Virgin each had a 50% market share in competed areas, while BT had a 100% market share in uncompetes areas. In this case, BT would have a 100% market share in SFBB in half the area covered by SFBB, and a 50% market share in SFBB in the half of the on-net area which is competed by Virgin. BT's market share would therefore be 75%, and two thirds of BT's customers would be in uncompetes areas, with one third subject to competition from Virgin.²⁸
- 2.61 As such, if Ofcom continued to define the relevant geographic market as the UK (excluding Hull), then elasticities of demand would need to be adjusted to reflect the lack of choice of most customers in the market. The overall elasticity of demand facing BT would reflect both non-cable areas (which would have no substitution to Virgin, and so would likely have very low elasticities of demand) and cable areas, in weighted proportions. With a national geographic market, and national pricing, the propensity of consumers to switch in cable areas would need to be much higher to place cable within the relevant market than would be required if there were local or regional markets, where there was 100% overlap between BT and cable.

²⁷ It is also not clear whether this work was specifically undertaken in the context of a modified greenfield approach to regulation, where the only alternative option to BT would be Virgin Media, as there would be no on-net competition. This could significantly influence the elasticity of demand for the product; moreover, it makes estimating elasticities of demand considerably more complex and uncertain, as the market structure being considered is one which has little grounding in reality.

²⁸ In SBB (if it is in the same market as SFBB), BT would have a monopoly over 55% of customers, and take a 50% market share of the remaining 45% of customers. BT's market share would therefore be $55\% + 45\%/2 = 77.5\%$. Of this share, $22.5/77.5 = 29\%$ of customers would be in overlap areas, with the remaining 71% in monopoly areas.

2.5 Indirect constraint from Virgin Media

2.62 This section considers the extent of the constraint from Virgin Media in the context of the cost gearing and pass-through considerations outlined in section 2.4. Any constraint from Virgin Media will be indirect, via retail consumer switching leading to reductions in demand at the wholesale level; there will be no direct constraint, which would be placed by demand switching at the wholesale level, regardless of consumer behaviour.

2.5.1 Outcomes of the analysis

2.63 Based on all of the above, some indicative outcomes can be derived:

- The gearing effect would be about 40% to 50%. For SBB, the gearing of prices to wholesale costs would be expected to be around 40%; for SFBB, the gearing of prices to wholesale costs would be expected to be around 50%.
- The extent of pass-through of a asymmetric wholesale price increase into retail prices would be expected to be no more than 50%. This is based on an analysis of the likely forms of competition which operate in the downstream market.
- For BT, at most 33% of customers would be expected to be in overlap areas (and so could switch).
- In line with Ofcom's most recent published estimates, the elasticity of demand is taken (on an indicative basis) to be -1.9 .

2.64 As such, a 10% increase in the wholesale price of SFBB would be expected to have the following effects:

- Retail costs increase by about 5% ($= 10\% \times 50\%$);
- 50% of this cost increase is passed through into increased retail prices implying a 2.5% increase in retail prices
- For 67% of BT's customers (who have no choice to switch to cable) there will be little or no reduction in demand.
- Some of the other 33% will consider switching in response to the price increase. Assuming an elasticity of demand of -1.9 this means that 4.8% of BT's customers in overlap areas will leave ($= 2.5\% \times 1.9$)
- The overall loss of customers is therefore around 1.6% ($67\% \times 0 + 33\% \times 4.8\%$)

2.65 As such, a 10% price increase in the price of GEA, over the competitive price, will lead to a 1.6% loss of volume due to customer switching. Therefore, it is clearly highly profitable for BT to raise prices above the competitive level.²⁹

²⁹ The profitability of the price increase to BT is independent of the upstream margins which are earned on each customer. The incremental profitability of a price rise will be greater (other things equal) for products which are sold at low margins, as each lost customer 'costs' less in profits foregone. However, in this analysis it is so profitable for BT to increase prices that even at 100%

2.5.2 Worked example of profitability of switching to cable

- 2.66 That an application of the critical loss test leads to a narrow market for SFBB over loop-based access being defined can be seen based on the following worked analysis.
- 2.67 For SFBB, the upstream inputs for BT Group's product cost £15.18. A 10% increase in the upstream price is therefore £1.52 (i.e. wholesale inputs would now cost £16.70). Based on the analysis above, 50% of this wholesale price increase would be passed on into retail prices (i.e. £0.76). BT's retail price of £27.88 would therefore increase to £28.64, an increase of 2.7%. The most recent elasticity of demand found by Ofcom is -1.9, so a 2.7% price increase would lead to a reduction in demand of 5.2%.
- 2.68 However, only 33% of BT customers could switch and therefore the reduction in demand would be 1.7%.
- 2.69 The critical loss test can then be considered in terms of the profitability of a price rise to the upstream level of the business. Assume the upstream business to have 100% margins (i.e. there are no customer-level marginal costs). Further, assume that demand is normalised to 100 units.³⁰ The profitability of the BT before the price increase is:
- $$100 \times £15.18 = £1,518$$
- 2.70 After the price increase, demand falls from 100 units to 98.3 units (i.e. a 1.7% drop). Profits are now:
- $$98.3 \times £16.70 = £1,641$$
- 2.71 Overall, a 10% price increase therefore raises profitability substantially (by over 8%). The hypothetical monopolist can therefore profitably raise prices above the competitive level, and BT Group's upstream business is not subject to competitive constraints. It is therefore in a separate economic market from Virgin Media's upstream business.
- 2.72 It should further be noted that none of the above analysis is contingent on there being limited overlap between BT and Virgin Media. To the extent that some consumers do not have a choice of provider at all, this would tend to increase the profits which BT Wholesale can earn by raising its wholesale prices above the competitive level.

2.5.3 Conclusions regarding indirect constraint from Virgin

- 2.73 As such, Virgin Media will not place an effective constraint on BT's wholesale pricing due to consumer switching at the retail level. BT's VULA product is therefore in a separate market from Virgin's products.

margins, the results of the analysis do not change. Hence, BT's margins can safely be disregarded in this analysis.

³⁰ This is not a critical assumption, and is merely for ease of exposition.

- 2.74 It should be noted that this conclusion does not rely on a finding of a national geographic market, or whether there are separate markets in overlap and non-overlap areas. Even if there were a sub-national market that was Virgin areas (and therefore 100% of BT customers could switch to Virgin), a 4.8% loss of customers would be too low to make a 10% wholesale price rise unprofitable.³¹
- 2.75 TalkTalk considers that this approach – of considering pass-through, cost gearing effects, and overlaps in order to determine the likely extent of market power – is appropriate and in line with precedent.
- 2.76 It could be argued that if the analysis moves sufficiently far upstream, there will always be some form of market power found using a critical loss analysis based on the MGA, as the cost gearing effect will be such that the price of a particular input will be a very small proportion of the end cost meaning that a narrow market will be found, consisting of the upstream input for each operator separately. For example, say there were 10 vertically integrated operators and market definition was assessed for an upstream input that only accounted for (say) 5% of the total retail costs then because of the gearing effect indirect constraints due to switching in the retail market will be weak rendering a SNIPP by one operator of the upstream input profitable. This would mean that each operator's upstream product would be in a market by itself, and each operator would therefore hold a dominant position within a relevant market.
- 2.77 This is indeed the case. However, it is of no meaningful relevance as it misses two essential points:
- there is only a purpose in regulating a product which would be demanded by third parties if supplied at a regulated price. For example, Ofcom might determine that under the MGA, BT has market power in the supply of cleaning services to exchanges. Such a finding would, however, be meaningless, as even if a regulated price were charged, BT would only supply itself (as it owns all the exchanges) and internal transfer prices are irrelevant. For a product to be regulated, it must therefore be meaningfully likely to be demanded by a third party.
 - when you move far upstream, there are likely to be very strong complementarities between products, to the extent that they are usually supplied in fixed proportions to one another. Where this is the case, it is best practice to consider the products as a bundle. This will tend to lead to very small upstream products being bundled together with other small markets, creating much larger product groups which have a larger impact on pricing (as they represent a greater proportion of costs). For example, in a merger of shoe companies, a competition authority could in theory look at the supply of left shoes and right shoes separately, as these are different products, which can in theory be supplied separately from one another. However, in practice they are

³¹ This is regardless of the upstream margin over incremental costs, which is a core input into critical loss analysis.

always supplied in fixed proportions (one left shoe for one right shoe) and so it makes no sense to assess them individually.

2.78 Moreover, when looking at upstream intermediate products under the MGA, Ofcom should assess only until it finds a market which is a separate market in which one of the operators has market power. There is no need to assess further upstream than this level, and doing so will offer no additional insight.

2.79 Furthermore, undertaking the HMT under an MGA is essentially an approach required by the *ex ante* framework which sets relevant markets that should be analysed.³² Therefore, it might be considered that this ‘problem’ is one for the European Commission to grapple with when it defines relevant markets, rather than one which should be of primary interest to Ofcom.

2.80 It could also be argued that if there were a large number of vertically integrated operators competing in a final market under the MGA, there could be market power found due to the cost gearing effect. However, this would be less likely to happen in practice for two reasons:

- *Lower margins*– the greater the number of firms at the downstream level, the lower margins will be.³³ These lower margins will tend to imply that wholesale costs represent a higher proportion of the price to end consumers, increasing the cost gearing effect.
- *Higher elasticities of demand*– the analysis in paragraphs 2.66 to 2.72 above is based on the elasticity of demand estimate derived in 2007 by Ofcom. If the downstream market has more firms in it, it will by its nature be more competitive, and firm-specific elasticities of demand will be higher. This implies that there will be a greater actual loss, and the critical loss is more likely to be exceeded, resulting in wider markets being found.³⁴

2.81 The effects on the degree of pass-through are complex, and depend upon assumptions regarding the form of competition in the retail market, and firms’ bankruptcy constraints. If the form of competition is Cournot, then there will be greater pass-through of wholesale price increases; if the form of competition is differentiated goods Bertrand, monopolistic competition, or undifferentiated Bertrand with an asymmetric wholesale price increase, pass-through rates will be the same.

³² See the Annex to European Commission (2007), *Commission Recommendation of 17 December 2007 on relevant product and service markets within the electronic communications sector susceptible to ex ante regulation in accordance with Directive 2002/21/EC of the European Parliament and of the Council on a common regulatory framework for electronic communications networks and services*. Market 4 in this Recommendation is ‘Wholesale (physical) network infrastructure access (including shared or fully unbundled access) at a fixed location’.

³³ Note that under an appropriate MGA, prices at the *wholesale* level would be set to a competitive level prior to the SSNIP (as this is the focal market), but prices at the *retail* level would reflect the degree of competition in that market.

³⁴ These two effects are, of course, linked via the Lerner condition. For the original treatment, see Lerner (1934), *The concept of monopoly and measurement of monopoly power*, Review of Economic Studies 1, pp. 157-175

- 2.82 As such, neither of these potential objections prevents the approach which TalkTalk has outlined above being used in practice.

2.6 Indirect constraint from standard broadband

- 2.83 A second important and relevant issue is the extent to which switching to standard broadband acts as a constraint on VULA prices (and consequently whether there are separate markets for standard broadband (SBB) and superfast broadband (SFBB)). In principle, there can be one market including all broadband, single markets for SBB and SFBB; or a combination of the two, based on asymmetric patterns of substitution.
- 2.84 Market definition in this area is a particularly difficult issue as the market for SFBB is still developing, but by the end of the current review period in 2017, will likely represent the majority of broadband demand in the UK. This provides the potential for market definitions also to shift substantially during the review period.
- 2.85 Overall, TalkTalk believes that by the end of the period, the appropriate retail market definitions will be:
- a stand-alone SFBB market, with services in this market not subject to constraints from SBB products, narrowband products, or mobile products.
 - a market for all broadband, with SBB products being constrained by SFBB products.
- 2.86 TalkTalk therefore believes that in 2017 the appropriate retail product market definition will be an asymmetric one, as SBB services will be perceived by many consumers to be inferior, 'low price, low quality' options, which would not be able to bear any price rise above the competitive level without promoting switching to SFBB. This mirrors the manner in which the relationship between narrowband and broadband services developed, with little customer willingness to trade down from broadband to narrowband by established broadband customers.
- 2.87 This lack of willingness to switch down from SFBB to SBB will be driven by two main factors. Firstly, a virtuous circle will be created over time, whereby increasing SFBB uptake leads to applications and services (e.g. HD IPTV) being developed which are based on users having access to SFBB, which in turn drives greater numbers of users to switch to SFBB. Once this virtuous circle has developed, a user switching down from SFBB to SBB will find themselves effectively locked out of certain services which they may previously have used. This will lower consumer willingness to trade down even in the event of a SSNIP.
- 2.88 TalkTalk believes that the situation with regard to switching from SBB to SFBB is similar to that found by Ofcom in the 2006/2007 WBA Review with regard to switching from narrowband to broadband internet access:
- "As broadband take-up has increased applications and content available on the internet have been increasingly geared towards broadband users and this is likely to continue... broadband users will also have access to certain applications and content which is not*

'realistically' available to narrowband users. There is, thus, an argument that broadband is an "experience" good and once end-users have tried broadband products they would be unlikely to switch back to narrowband. Ofcom considers that this is likely.

*Ofcom considers that it is unlikely that broadband will become any less differentiated from narrowband over the period of this review. If anything, the difference is likely to increase as the availability and take up of broadband services means that internet applications and content are likely to continue to be increasingly geared towards broadband users."*³⁵

2.89 In line with this analysis of the switch from narrowband to broadband, TalkTalk believes that as the market further matures, SFBB will increasingly be seen as the new standard product which customers subscribing to fixed-line broadband will demand (providing there is effective competition in the retail market).³⁶ Over the longer-term, this is likely to lead to an asymmetric market definition, with SFBB acting as an effective constraint on SBB, but SBB failing to constrain SFBB, as TalkTalk believes that customers will be increasingly unwilling to 'trade down', particularly due to content which is specifically tailored to be delivered over SFBB and customers' experience of the superior quality of service offered by SFBB.

2.90 Secondly, what is referred to as the 'endowment effect' will come into play. As Thaler (1980) states:

*a certain degree of inertia is introduced into the consumer choice process since goods that are included in the individual endowment will be more highly valued than those not held in the endowment, ceteris paribus. This follows because removing a good from the endowment creates a loss while adding the same good (to an endowment without it) creates a gain.*³⁷

2.91 In this context, SFBB can be considered an additional good to SBB (as indeed it is, as SBB involves MPF alone, whereas SFBB involves MPF plus GEA in addition). As such, customers would be willing to pay more to retain access to SFBB than they would to acquire it in the first place. The endowment effect therefore places a wedge between the price at which customers 'trade up' and those at which they would be willing to trade down. In order to generate little switching back from SFBB to SBB (even in the absence of other effects), this endowment effect would need to be small, adding only 5-10% to consumers' valuations of SFBB. If there were an endowment effect of 15%, for example, then once a consumer has switched from SBB to SFBB (at competitive prices), then a hypothetical monopolist over SFBB could increase its prices by 10% without provoking any switching back down to SBB.³⁸ As

³⁵ Ofcom (2007), *Review of the Wholesale Broadband Access Markets 2006/07: Identification of relevant markets, assessment of market power and proposed remedies*, November, at paragraphs 3.58 and 3.59.

³⁶ See Enders Analysis (2013), who state that "we continue to believe that the current high speed standard (30Mbps+) will become the new normal over the next few years". Enders Analysis (2013), *BT Q3 2012/13 Results: Fibre take-up accelerates, but sports costs loom*, 5 February, page 3.

³⁷ Thaler (1980), *Toward a positive theory of consumer choice*, Journal of Economic Behaviour and Organisation 1, pp. 39-60.

³⁸ It is notable that empirical tests of the endowment effect generally indicate uplifts considerably greater than 10%. For example, Kahneman et al. (1990) present eleven different estimates of the scale of the endowment effect. In general, the willingness to accept payment for a good was more

long as the endowment effect is greater than 10%, it will tend to generate separate markets.

- 2.92 A simple illustrative example of the manner in which the endowment effect works is as follows. A particular customer is considering trading up from SBB to SFBB, and decides that he values SFBB at £8 per month more than SBB. He finds an available product where the price of SFBB is £6 more than SBB, and therefore decides to trade up and take SFBB. SFBB therefore enters the consumer's 'endowment' of products which he owns or has access to. As the endowment effect kicks in, the consumer's valuation of SFBB doubles. Subsequently, the price of SFBB increases, so that SFBB is now £10 more than SBB, and the consumer has to pay the new, increased, price. As the consumer now values SFBB at £16 more than SBB, the consumer does not switch back down, despite the price rise. This is the case even though if that price change had occurred before the consumer switched up, *he would never have switched in the first place*. The endowment effect therefore ensures that once customers have changed from SBB to SFBB, they are unlikely to change back even in the event of price increases for SFBB.
- 2.93 The reverse factors will evidently not apply. There is no endowment effect associated with taking SBB rather than SFBB, and there will be no applications or services which will be less usable or effective on SFBB than on SBB.
- 2.94 The present situation is less clear. At the moment, SFBB is still a relatively new product in many areas, with a low installed user base, limiting the scale of the endowment effect. Applications and services are generally still being developed for SBB levels of speed. As such, there may be some constraint from SBB on SFBB.
- 2.95 TalkTalk notes that in line with WIK's evidence, BT's current pricing of GEA does not appear to be constrained by the prospect of switching from SFBB to SBB given BT prices VULA substantially above the competitive level.
- 2.96 Overall, TalkTalk believes that it would be appropriate for Ofcom to define wholesale markets as set out in paragraph 2.104 of this note, with two markets, one of which solely contains SFBB. This would properly reflect the forward-looking nature of Ofcom's review, and reflect that by 2017 it will be too late to consider SFBB as a stand-alone product, at a time when over half of UK broadband connections are likely to be on the higher-speed technology.
- 2.97 That these products are in a separate market is reinforced by a critical loss analysis which shows that elasticities of demand would have to be implausibly high for SBB to impose a competitive constraint on SFBB.
- 2.98 Even with 100% wholesale margins, the elasticity of demand would have to be -3.7 or greater (in absolute magnitude) to result in a wider market than SFBB alone. The critical loss for a 10% price rise with 100% margins is 9.1% of demand being lost. A

than twice the willingness to pay for the same good, with a range of valuation uplifts from 40% to 1550%. See Kahneman, Knetsch and Thaler (1990), *Experimental Tests of the Endowment Effect and the Coase Theorem*, Journal of Political Economy 98 (61), pp. 1325-1348.

10% increase in the wholesale price of SFBB would lead to approximately a 2.5% retail price increase, on the basis of 50% cost gearing and 50% pass-through.³⁹ In the presence of a meaningful endowment effect, and given that SFBB is likely to be an experience good, TalkTalk does not expect that there would be such a high elasticity of demand across SFBB users as a whole.

2.7 Supply-side constraints

- 2.99 Supply-side constraints can arise from suppliers switching capacity in from other, related, markets in the event that a prices increase above the competitive level in the focal market. For example, if a monopolist over toy shops in a given area chose to increase the retail margins on toys, supermarkets in that area might choose to dedicate a portion of their floorspace to stocking toys, attracted by the higher margins on that product.
- 2.100 For such switching to represent supply-side substitution, rather than new entry, it would need to be able to occur within a short time period, generally around one year, and would need there to be no significant sunk costs of entry.^{40 41}
- 2.101 In the case of wholesale broadband, switching would have to come from firms operating in other related markets switching their resources to supplying local broadband access. However, there do not appear to be any suitable alternative resources which could be switched into the broadband market.
- 2.102 As such, there are no viable supply-side substitutes for wholesale supply of loop-based access products. Supply-side substitution therefore does not widen the relevant market.

2.8 Conclusions

- 2.103 The core conclusions of this analysis are as follows:
- There are no direct constraints on BT's pricing of MPF or of VULA.
 - Cable does not impose an indirect competitive constraint on BT's wholesale pricing. This conclusion is based both on an application of the hypothetical monopolist test under an amended modified greenfield approach, and by consideration of the WIK report on BT's excessive pricing of GEA.

³⁹ This is even ignoring that LLU is a common input to both SBB and SFBB, and that the cost gearing effect is calculated across LLU and VULA taken together. If the price of LLU and VULA both increased by 10% (leading to a 10% rise in total costs across the two taken together), then this would cause the price of SBB to increase at the same time as the price of SFBB, reducing switching.

⁴⁰ Niels, Jenkins and Kavanagh (2011), *Economics for Competition Lawyers*, Oxford University Press, at page 70.

⁴¹ New entry is not considered at the market definition stage, but rather when the assessment of dominance is being analysed. Providing that the correct forms of constraints are considered, it should not be determinative whether the prospect of new firms coming into the market is assessed as part of market definition or of dominance.

- SFBB may or may not currently be subject to competitive constraints from SBB. Notwithstanding this, SFBB will not be constrained by SBB at the end of the next review period, in 2017.
- There are no supply-side constraints on BT's wholesale pricing, as there is unlikely to be any scale entry within a year, even for price rises considerably in excess of 10%.

2.104 By 2017, which TalkTalk considers to be the relevant period for this review, the relevant markets will be as follows:

- A wholesale market for loop-based SFBB; and,
- A wholesale market for loop-based broadband (i.e., SBB and SFBB together).

2.105 TalkTalk has not found it necessary to reach a conclusion on whether there might be a separate market for cable-based SFBB, but notes that there is a substantial possibility of asymmetric market definitions in this sector.

3 Barriers to entry

3.1 Section 2 has provided a comprehensive review of TalkTalk's views on market definition. The necessary outcome of this analysis is that BT holds a monopoly position over both the wholesale supply of loop-based SFBB and over the wholesale supply of loop based broadband.

3.2 However, merely holding a monopoly (that is, a 100% market share) is not a sufficient condition for finding a particular firm to possess SMP. If barriers to entry and exit are sufficiently low, then the market may be considered to be contestable, and market shares do not provide a relevant indication of market power.

3.3 For a market to be contestable, barriers to entry and exit must be small. That is:

- There should be no economies of scale or scope in the market which would give incumbents a cost advantage over a new entrant;
- Entry should be quick, and not provide incumbents with the chance to react by amending their pricing;
- There should be no sunk costs of entry (costs which could not be recovered if the entrant chose to exit the market);
- There should be no costs of exit (such as environmental clean-up costs, redundancy costs); and,
- Incumbents should not have any branding or customer loyalty advantages over entrants.

3.4 These conditions do not hold in the wholesale local access market as we explain below.

- 3.5 First, there are significant scale economies and first mover advantages in deploying NGA networks (and a high minimum efficient scale). Ofcom noted this in its 2010 WLA Review (see §7.5⁴² and §8.38). Nothing material has changed to alter this conclusion. The high scale economies mean that (with the exception of cable⁴³) in any one area there is only potential for one fixed-line SFBB operator. Therefore, in areas where BT has rolled out, or is rolling-out, in the next few years, an additional network provider will be at an insuperable disadvantage due to BT's first mover advantage⁴⁴. In practice, BT's roll-out means that it will have first mover in 90%⁴⁵ of the UK. The remaining 10% is unviable without significant subsidy.
- 3.6 This factor alone means that the prospect of significant additional deployments in the next 5 years anywhere in the UK is highly unlikely.
- 3.7 Second, to be able to offer FTTC/VDSL competitors need access to BT's sub loops. FTTC is particularly relevant since it appears to be the most viable technology given customer demand for higher speeds and the cost of providing them. Competitors to BT could in theory offer FTTC/VDSL by using BT's sub loop unbundling (SLU) wholesale product⁴⁶. However, this product is currently far from fit for purpose given its high price⁴⁷ and lack of automated processes. This is important since without improvement it will never be viable – LLU was not used by alternative providers in any material volume until it was made fit for purpose through substantial improvements in pricing and processes (the process improvements being driven in large part by the imposition of Equivalence of Inputs⁴⁸).

⁴² For example at §7.5 “*Cost of competition - The economic assessment also examined the static cost of competition (i.e., the overall additional costs collectively incurred by CPs from duplicative investment in network infrastructure) for more than one supplier to provide NGA services. Whilst physical infrastructure sharing would avoid duplicative investment in ducts and poles, CPs would still continue to duplicate investments in the fibre and active elements of their networks which drives up the cost of competition. The modelling demonstrated that the cost of this duplicative investment is significant. In the scenario modelled, having four competing networks instead of one would result in the cost per end user doubling.*”

⁴³ Cable networks already exist (so are sunk) though no material expansion is expected. The lack of expansion from Virgin Media is consistent with TalkTalk's view that it is uneconomic to invest in additional local network infrastructure in the foreseeable future.

⁴⁴ In §1.6 of the 2010 WLA Review Ofcom was clear that it did not expect competitor NGA networks in areas where BT had already built: “*We expect the new regulatory remedies (VULA and PIA) to be used in different circumstances: VULA is likely to be the most attractive for communications providers (“CPs”) where BT has already upgraded its local access network; PIA will be attractive to companies wishing to address market opportunities in advance of BT and may also be of particular interest to companies wishing to provide service in locations which may be in receipt of public funding support.*”

⁴⁵ The 90% reflects BT's commercial roll-out to ~66% of the UK and its 100% success in winning BDUK subsidy which should take it to about 90%. There are no remaining bidders other than BT for BDUK funding.

⁴⁶ Note that under the MGA it should be assumed that neither BT nor Virgin Media would provide access to their ducts.

⁴⁷ SMPF SLU has a £115 connection charge (which is substantially more than the GEA connection charge) and a £11.47 per annum rental charge, even though the additional on-going costs are close to zero. MPF SLU rental is £93.96 per annum, which is more than the rental charge for the whole loop.

⁴⁸ Equivalence of Inputs significantly reduces BT's incentive to degrade the wholesale product since they have to use it themselves, and so Openreach's actions harm BT Retail as well as other CPs.

- 3.8 However, the prospects for early improvement in the SLU product are very small. Equivalence of Inputs does not apply to SLU, meaning that BT have the incentive and ability not to improve the product. Further, BT have indicated that they are unwilling to improve the SLU product further due to lack of demand⁴⁹ and Ofcom have not indicated any inclination to require BT to do so.
- 3.9 Therefore, it will (for the foreseeable future) remain infeasible to use SLU, making a competitive FTTC/VDSL roll-out unachievable meaning that alternative operators can only deploy FTTH which is far more expensive than FTTC. Notably BT agree that SLU has a very limited role⁵⁰.
- 3.10 In any case, under the MGA, it is arguable that SLU should be ignored, as it is a regulatory remedy imposed to combat BT's SMP in WLA markets. As such, SLU would not exist in the absence of regulatory intervention, and cannot be considered to lessen BT's market power for the purposes of this assessment.
- 3.11 Third, BT enjoys a substantial cost advantage due to its legacy network. A large proportion of the costs of rolling out an alternative NGA network is duct – although NGA is a 'new' network, in practice it uses to a large degree many of the same legacy assets as the current generation network. BT has a significant competitive advantage over other operators since it can in many circumstances use its existing legacy duct network for little incremental cost. WIK estimate that BT can avoid about 70% of duct costs by re-using existing ducts (based on various evidence). This means that a competitor who does not use BT's duct (and digs new ducts instead) would face an overall cost about twice that of BT⁵¹.
- 3.12 Though in theory, competitors can use BT's existing ducts (and poles) by using the PIA wholesale product to reduce its cost disadvantage, in practice this product is not fit for purpose as demonstrated by the fact that it has not been, as far as we are aware, used in any non-trivial way. BT agree that PIA is unlikely to be used in any material way⁵². Moreover, as with SLU, PIA is a regulatory imposed product which would not be offered by an unregulated BT; it should therefore be ignored when determining BT's market power in this review.
- 3.13 Fourth, entry would be a time-consuming process, particularly if undertaken on a national basis, which would likely take several years and provide BT and Virgin Media

⁴⁹ For Instance, Digital Region (DRL) rolled out an VDSL/FTTC network in South Yorkshire and pressed BT Openreach for various improvements in the SLU product including a simple modification that would allow SLU to be used with MPF (as it could be used with WLR). However, this simple improvement was rejected for lack of demand (SOR 8199 submitted 4/2/2011, rejected by BTOR in September 2011)

⁵⁰ For example, *"Our view, along with many other stakeholders (and supported by research carried out for Ofcom) is that business cases for SLU based projects can be made to work only in certain very specific circumstances and the economics for using it in larger infrastructure cases especially in less populated areas will again remain challenging"*

⁵¹ based on WIK's analysis

⁵² For example, from BT's response to the WLA Market Review: *"The reality is that the availability of PIA in itself does not radically transform business cases for less populated rural areas. Infrastructure business cases are challenging for all operators including Openreach."*

ample opportunity to amend their pricing if needed. There would be substantial incumbent advantages in the market, particularly deriving from customer loyalty and the low rates of switching in fixed line telephony markets, together with powerful brands held by the incumbents. We expand on these issues below.

3.14 Overall, therefore, barriers to entry into fixed line telephony are likely to be extremely high, and fulfil the ‘blockaded entry’ conditions described by Bain (1949).⁵³ That is, under the MGA there would never be any meaningful entry into the market, even if BT chose to price at the full monopoly price level. Such high barriers to entry will tend to enhance, rather than diminish, the market power held by BT. BT is therefore in effect a full monopolist in a relevant economic market, with no prospect of entry. It therefore clearly holds SMP. The chance that non-BT operators would provide VULA like services in material volumes is, we think, extremely unlikely in the next 5 years. Our reasoning of the insuperable barriers that a competitor would face. We think that this reasoning is reinforced by empirical evidence of what has happened, and is happening, in the market.

3.15 The conclusion that additional material competitive NGA deployment is extremely unlikely is supported by empirical evidence on the ground:

- Though there were initially several potential bidders for BDUK subsidies there is now only BT left in the process following Fujitsu’s recent withdrawal. BT has won all existing subsidies and will now win all remaining subsidies
- The only material non-BT FTTC roll-out, Digital Region in South Yorkshire, has been an unmitigated failure. Around £110million has been spent covering about 500,000 homes but take-up and use has been we understand less than 10,000 (i.e. the cost is over £11,000 per customer). The failure was due to the inadequacy of SLU, combined with a small footprint being unattractive to wholesale customers such as Sky and TalkTalk. In the absence of regulation, even this small, failed roll-out would have been more difficult and expensive, as SLU would not have been available.
- Though there are micro scale projects (e.g. B4RN, Gigaclear/Rutland) these are small and are likely to remain so; and in many cases rely on self-build by small communities in rural areas where BT has not rolled out (which is not a widely replicable model).
- There are slightly larger players (e.g. Hyperoptic, City Fibre Holdings) assessing the possibility of competitive networks covering up to a few million homes (typically using FTTH). [38]

⁵³ Bain, J. (1949), *A note on pricing in monopoly and oligopoly*, American Economic Review 39, pp. 448-464.

4 Role of a margin squeeze test

- 4.1 In the call for inputs Ofcom asked: “*What should be the purpose of any ex ante margin squeeze safeguards in relation to VULA (for example, actively promoting expansion by non-BT retailers or simply protecting reasonably efficient retailers) where such safeguards are required?*”. We understand this to be asking about the objective of the test and thus how it might be designed/calibrated.
- 4.2 We consider that a margin squeeze test should be calibrated and tailored to meet Ofcom’s particular objective and the particular circumstances of SFBB. In this case, Ofcom’s objective is to ‘promote competition’ in situations where BT could leverage its dominance to restrict competition. This is distinct from an *ex post* Chapter 2 / Article 102 type objective⁵⁴ which is to prevent abuse.
- 4.3 We make several points below regarding the design / calibration of the test in order to ensure that in practice and in reality it will achieve Ofcom’s objective of promoting competition.
- 4.4 First, given that Ofcom’s objective is to promote competition it follows that the margin must be sufficient to allow entry/expansion by competitors. It therefore follows that the appropriate test is one based on a ‘reasonably efficient operator’ (REO) rather than an ‘equally efficient operator’ (EEO). An REO model is aimed at allowing sufficient margin for an efficient competitor to enter/expand. An EEO model typically allows a lesser margin and is designed to ensure that the dominant operator’s price/margin reflects the dominant operator’s costs. Obviously if the aim is to allow competitive entry then it is appropriate to base margins on a competitor’s costs – using EEO may well be insufficient to promote competition.
- 4.5 We consider that this is well accepted. For example:
- Ofcom proposed that in the case it was required to assess a margin squeeze complaint of a breach of FAA11.2 it would base it on the “*long-run incremental cost of the downstream activities of a reasonably efficient operator*” (§8.132)
 - The recent BEREC opinion on the European Commission draft Recommendation⁵⁵ said that REO should be able to be used as a cost standard
- 4.6 Second, in terms of cost/cost standard used to assess costs in a margin squeeze test it should include both long run costs (e.g. costs that are sunk) and also an allocation of common costs⁵⁶ (rather than say avoidable costs which will tend to include only short run incremental costs).
- 4.7 Long run costs must be used, or else the margin would be insufficient to incentivise entry, since competitors looking to enter/expand would not be able to recover costs

⁵⁴ See for example, Direction Setting the Margin between IPStream and ATM Interconnection prices, 26 August 2004 §§1.23-1.29

⁵⁵ http://berec.europa.eu/eng/document_register/subject_matter/berec/opinions/?doc=1244

⁵⁶ Both fixed costs that are shared between SFBB and other products e.g. CEO as well as costs that are shared between different SFBB products/customers e.g. CableLink interconnection

they incur that might then be considered sunk. Excluding sunk costs would also reward BT for previous margin squeezing whereby it has invested heavily in sunk costs, for instance, advertising expenditure that others would not be able to match. Ofcom in 2010 proposed that long run costs should be used (see §8.132)

4.8 Given Ofcom's objective of promoting competition it would only be correct to exclude common costs if competitors were likely to find it efficient to recover all common costs from other products. This is highly unlikely since (a) entrants are likely to enjoy fewer economies of scope as BT (and so will have less ability to recover common costs elsewhere) and (b) it would only be efficient to recover no common costs from SFBB if SFBB had a much higher elasticity of demand than other products offered by entrants.

4.9 This approach to costs would be consistent with using a LRIC+ costs standard (i.e. long run incremental cost plus an allocation of common costs).

4.10 The recent BEREK opinion concurs that using LRIC+ is appropriate. For example:

Using only avoidable costs may not be appropriate given the high level of sunk and common costs in the fixed telecoms sector. The recovery of avoidable costs only may not be sustainable for competing alternative operators or incentivise entry by others. Where the goal is to promote effective retail competition, it may be necessary to allow for the recovery of joint and common costs. (§171)

BEREK recommends that NRAs have the option of using LRIC+ as an appropriate cost standard given that these are the likely costs faced by entrants deciding to enter or expand in the long run and therefore promotes sustainable competition. Costs which are sunk for the incumbent will need to be recoverable by entrants if there is to be a realistic prospect of entry. (§171)

4.11 Third, the test must reflect the particular starting circumstances. BT Retail has built up a 91% share of GEA connections and also benefits from a strong brand in SFBB.⁵⁷ A reasonably efficient competitor attempting to enter (or expand) would both lack scale economies⁵⁸ and face asymmetries in branding and other sunk costs (which would require the entrant to undertake higher marketing expenditures and/or discounts/promotions than BT might require).⁵⁹ The entrants would therefore incur additional costs to be able to build to a scale which would be consistent with a market structure that is broadly competitive.⁶⁰ Moreover, new entrants would have

⁵⁷ That is, BT has sunk its marketing costs for this product. See Sutton (1991), *Sunk costs and market structure*, MIT Press for a lengthy treatise on the influence which advertising expenditures can have on barriers to entry and the resulting market structure.

⁵⁸ There are scale economies in, say, the cablelink interconnection

⁵⁹ See Dixit (1980), *The role of investment in entry deterrence*, Economic Journal 90, pp. 95-106, for the manner in which sunk costs can be used by incumbents such as BT to strategically deter entry.

⁶⁰ In the ATM direction Ofcom used a share/volume which was "derived so as to allow a modest number of scale entrants in the market" (§2.68). In this case, Ofcom might use a share of 15% of SFBB subscribers after, say, 3 years (which is equivalent to about 20-25% of GEA subscribers). TalkTalk believes that another relevant benchmark is an HHI level of 1800, which is described by the OFT in its Substantive Merger Guidelines as representing the boundary of a 'highly concentrated' market (§4.3). Such a level would be consistent with an appropriate scale in the range of 10-15% for the non-incumbent players.

higher risk and thus a higher cost of capital than BT since they face the risk that BT might act anti-competitively. It is essential that the margin squeeze test is calibrated to reflect these realities/objectives.

- 4.12 A fourth and related issue is whether to 'aim-up' or 'aim-down'. In setting a cost of capital some regulators intentionally aim-up (and set a cost of capital within the plausible range but above the expected level). They do this since they consider that the harm from setting the cost of capital (and, therefore, wholesale prices) too low is greater than the that the harm from setting wholesale prices too high⁶¹. In other words they are reflecting a view that there is an asymmetry in harm – the harm from under-estimating costs is greater than the harm from over-estimating costs. We consider that in this case there is asymmetry of harm that would imply that Ofcom should aim-up on the margin.
- 4.13 The key harm that results from setting the margin too high is the static efficiency impact of encouraging inefficient entry (in that competitors who are less efficient than BT may be able to enter/expand⁶²). However, contrary to this impact is that if the margin is set too low then efficient operators will be excluded (in that competitors who are more efficient than BT will not be able to enter/expand). Thus the harm from inefficient entry/exclusion will be symmetric.⁶³
- 4.14 However, there will an asymmetric effect in terms of dynamic efficiency and particular encouraging effective competition. By actively promoting the entry of competitors into the retail market, innovative product offerings will be stimulated, as competitors seek points of differentiation from one another. A greater array of product offerings in the market will provide for an increased chance that consumers' diverse tastes are met, compared to a market with few providers, which will tend to generate fewer product options.⁶⁴ This asymmetry in harm would imply the need to aim up.
- 4.15 Therefore, we think overall there is a case for aiming-up on the margin.
- 4.16 Fifth, we consider that the margin squeeze test should be applied to each main product to lessen the possibility for BT to game the regime and to target particular competitors when setting their price structure. For example, BT might not engage in

⁶¹ For the record, TalkTalk disagree that this is the case

⁶² We consider that it is unlikely that there will be a significant impact from this since the margin will only be set for 3 years and thereafter there is no guarantee of regulation. Moreover, competition between firms other than BT (such as Sky and TalkTalk) should ensure that any inefficient entrants do not gain significant market share.

⁶³ Furthermore, unlike in the DataStream/IPStream margin case where Ofcom wanted to avoid inefficiency since it considered DataStream a temporary platform prior to the development of LLU, there is no such worry in this case. Direction Setting the Margin between IPStream and ATM Interconnection prices, 26 August 2004 §2.6

⁶⁴ With very few firms in the market, this effect may be reinforced by the desire of market participants to aid tacit collusion by offering undifferentiated products.

a margin squeeze on their premium products, but may price below cost on entry level products in order to target TalkTalk and other value telecoms providers.⁶⁵

- 4.17 A pragmatic approach to which products to apply the test to might (for example) require BT to pass the margin squeeze test for its most significant 5 products, or products that account for 90% of total volume. This will allow BT the flexibility to experiment and innovate. If one of these experiments becomes successful and large volumes of customers take it then it will automatically come within the scope of the test.

5 Implications of WIK report

- 5.1 As part of the market review TalkTalk commissioned an independent report by WIK on the cost of GEA. This produced a result that the cost of GEA rental is about £4.40 per month. Thus BT's average GEA price (which is about £8⁶⁶) is substantially more / almost twice the cost. Ofcom asked what implications we draw from this.
- 5.2 There are several implications which we outline below:
- That the price is so far above competitive level is strongly indicative that BT has dominance in the supply of VULA. This implies that either BT's VULA product is in its own market or, if BT's VULA product is in a larger market with other products, those other products do not act as sufficient pricing constraint on VULA. GEA is provided not by a hypothetical monopolist, but by an actual monopolist in the shape of BT. Hence, if GEA is subject to effective competitive constraints, it would be expected to be priced at a competitive level.
 - More generally that the price is so far above competitive level demonstrates that BT's VULA prices are not in practice constrained by indirect constraints (switching at the retail level to cable or standard broadband) or by the threat of entry into VULA; Ofcom's view in its 2010 review that BT's VULA prices would be constrained (e.g. \$8.27) is therefore empirically not correct. We accept that BT's retail SFBB prices might be constrained but evidently BT's wholesale VULA prices are not
 - TalkTalk considers that this is very relevant and important evidence in market definition. Rather than use a hypothetical monopolist and consider whether it would impose a SSNIP, Ofcom has the ability to use a real-life monopolist and directly assess its pricing to find that prices are above the competitive level. As such, this evidence offers strong support for TalkTalk's position that Virgin Media and SBB do not present a valid competitive constraint on BT at the wholesale level.
 - BT appears to have (contrary to BT's own claims) little incentive to price GEA to maximise overall market penetration - if they were pricing to maximise overall

⁶⁵ TalkTalk notes that BT often uses its Plusnet division as a fighting brand to attack the low cost providers, while at the same time maintaining high margins on its captive legacy telecoms base.

⁶⁶ BT's GEA rental prices are 40/2 £6.40 (though is little used), 40/10 £7.40, 80/20 £9.95 (with volume discounts available)

penetration, then they would set a GEA price at or possibly below cost so as to encourage uptake by non-BT ISPs' customers (indeed for retail customers they are in effect selling GEA below cost)

- Much of the ongoing margin squeeze in SFBB could be alleviated through reduced wholesale prices (i.e. not through reduced downstream costs or increased retail prices) ⁶⁷
- if GEA prices were regulated in future, Ofcom might take into account current over-recovery in setting future prices (meaning that prices will need to be below cost in future)

5.3 We would also note that TalkTalk considers that the £4.40 figure is on the high side for several reasons:

- WIK's volume estimates are lower than other forecasters (e.g. those of Enders Analysis)
- The GEA volume estimates are based on a shift in BT's roll-out to focus more on cable areas which results in a lower share. If a more realistic roll-out was used then GEA volumes would be higher and GEA costs lower
- The GEA volume estimates are based on the current volumes which are depressed due to BT's abusive margin squeeze. Arguably, in assessing the volumes to set the GEA price the abusive behaviour should not reflect the abusive behaviour else BT would, by being abusive, be able to charge a higher GEA price which would weaken competition. Thus BT would, in effect, be rewarded for its abuse.
- The costs used by WIK are probably at the upper end of reasonable estimates. For the £2.5bn expenditure figure to be true would imply that other Openreach capex was declining substantially which is unlikely. [X]
- It is possible that some of the NGA duct capex is recovered elsewhere (and thus should not be recovered in GEA). When we met with the LLU charge control team there was a question of whether duct capex for fibre might in some situations be appropriate to include in the duct cost that is recovered in MPF/WLR. Though MPF/WLR charges should exclude fibre capex (consistent with the 'anchor pricing' approach) it may be that some capex that was incurred to roll out fibre would have (absent fibre) been incurred at some point in the future to continue to provide MPF/WLR⁶⁸
- There is a large amount of excess margin made on the GEA connection activity (e.g. connection at £80) which is not taken into account in these estimates

⁶⁷ In TalkTalk's Competition Act complaint we considered that on the BT Infinity 1 product the margin squeeze was £7.80 (this was the ex VAT increase in margin required to pass which could be achieved through a reduction in wholesale prices, decrease in downstream costs and/or increase in retail prices). If the GEA 40/10 price was reduced from its current price of £7.40 to the average GEA cost of £4.40 then it would alleviate £3.00 of the squeeze

⁶⁸ For example, some duct capex may be incurred to deploy fibre in the case where a duct is collapsed. However, absent fibre it might have been that at some point in the future a repair to the copper network would have necessitated this expenditure to have been made

