Ofcom Consultation - Proposals for WBA Charge Control – Published 20 January 2011

BT Response 31 March 2011

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Executive summary

1.1 With the right economic and regulatory framework, BT and other providers can continue to invest in broadband across the UK, including in rural areas (Market 1) where the case for investment is most challenging. In setting the charge control Ofcom need to strike the right balance between protecting consumers in Market 1 whilst ensuring that the framework for wholesale pricing supports this investment and innovation. The use of the Anchor Product and the Hypothetical Ongoing Network in Ofcom's modelling approach broadly support these aims. However BT believes that there are a number of improvements that could be made in Ofcom's approach. In summary these are:

- A fixed anchor product approach has more appropriate incentive properties than Ofcom's proposed moving anchor approach;
- The 2½ years duration of the price control is too short to fully encourage efficiency gains;
- Some adjustments are needed to the values in Ofcom's model to better reflect the costs of providing broadband access in Market 1.

For these reasons, an X no higher than 10% can be justified

Anchor Product Approach

1.2 Ofcom's emphasis on the need to maintain investment incentives in Market 1 is right. BT generally supports Ofcom's adoption of the Anchor Product Approach. Given the potential step changes on the horizon in technology to improve speed, capacity and functionality such as multicast ADSL2+ and NGA, accompanied by uncertainty about the extent and timing of growth in demand for bandwidth, this approach can protect the interests of existing consumers in Market 1 whilst maintaining investment incentives. The Government has recently underlined the importance of such incentives in its consultation to establish a set of principles for economic regulation, where it said that *"economic regulation is a critical enabler of infrastructure investment."*

1.3 BT disagrees with Ofcom's use of a moving anchor with compound growth of 23% per annum whereby BT takes a disproportionate amount of the risk on future bandwidth growth. A static anchor approach would provide the appropriate incentive to invest efficiently to meet consumer demand for growth, while still protecting the interests of existing users.

Duration of Control

1.4 To be truly effective, the Anchor Product Approach needs to be applied over a number of years to allow time for investments to be made and achieve payback in an environment of regulatory certainty. Yet this control will only be effective over not much more than two and a half years, whereas three years should be the minimum – longer if efficient investment is to be properly incentivised. Ofcom should reassure industry that a control of less than three years will not become the norm. The control should run until 31st December 2014 in line with the period of the Wholesale Broadband Market Review.

Adjustments to Ofcom's model

1.5 Efficiency - The range for efficiency is too wide, and Ofcom give no indication how improvement of up to 5% might reasonably be achieved. Our response includes evidence in a report by Deloittes that a range of 0.6-2.8% is more realistic with a central estimate of 1.7%.

1.6 Adjustments to base year costs – We agree in principle to the adjustments made to BT's base year costs in Market 1. However, for assets to be reflective of a "steady state", higher uplifts to depreciation and Net Replacement Costs (NRC) for DSLAMs and Backhaul and a larger adjustment to the NRC of the ATM assets are needed.

1.7 Asset Volume Elasticities/Cost Volume Elasticities (AVE/CVE) – Ofcom's model significantly under-estimates the volume of additional DSLAMs, Backhaul links and ATM transmission capacity needed to accommodate bandwidth growth.

1.8 Pension deficit repair contributions. Ofcom has made no allowance in its cost model for any of the annual pensions deficit repair payments that BT is currently required to make over the duration of the proposed charge control. These are a cost of BT doing business going forward and, in so far as they result from pensions costs that were efficiently incurred, it is reasonable and consistent with Ofcom's regulatory duties and stated objectives for this charge control that they be included when calculating the cost base for regulated charges for Market 1. Confidential Annex [3] [Annex redacted] provides further detail on why BT considers that pensions deficit repair payments should be taken into account when setting this charge control.

1.9 WACC. Ofcom's proposals risk significantly understating BT's forward-looking cost of capital. Given that the issues affecting the WACC are relevant not just to this charge control, but to other significant controls to be set by Ofcom this year – particularly WLR and LLU – BT will be separately submitting evidence and analysis in support of our position on these issues.

Introduction

2.1 This section sets out the macro economic environment in which the proposed charge control will operate in Market 1, and how the Anchor Product Approach could work. It reviews Ofcom's objectives for their Anchor Product Approach, the main alternative based on Modern Equivalent Assets and Ofcom's proposal to use a 'Hypothetical Ongoing Network' approach to costs.

Macroeconomic environment

2.2 There is still a high level of uncertainty in the Wholesale Broadband Access Market. Whilst it is clear that consumer demand for bandwidth growth and higher download speeds will continue, the pace and timing of this demand is uncertain. It is also far from clear what consumers' willingness to pay for these improvements will be. Much of the future growth in demand for bandwidth and speed will be driven by video downloads and TV, but it is not clear how quickly these applications will take off. These factors are key determinants of investors' decisions to invest in the technology and infrastructure which can meet this potential growth in demand for bandwidth, speed and other enabling functionality such as caching and multicast. Thus there is a considerable risk associated with such investment, and in a free market investors would seek higher returns to compensate for the higher degree of risk. In advance of such deployments, it is essential that an appropriate regulatory regime is in place to ensure that the incentives for investments are not distorted by regulation such that investments are not made, or made inefficiently late in Market 1.[1]

Anchor Product Approach

2.3 When determining the Regulatory Framework for a market, Ofcom has an obligation to have regard to the desirability of encouraging investment and innovation. BT generally supports the Anchor Product Approach proposed by Ofcom as a good way of providing appropriate incentives for investment. Ofcom first proposed this approach in 2007 in their NGA Consultation for situations where there was a major shift in technology and considerable uncertainty and risk associated with volumes. This is clearly applicable in WBA Market 1 where there are major potential shifts in technology, and considerable uncertainty and risk associated with bandwidth volumes.

2.4 The Anchor Product Approach is intended to be based on the costs of existing technology. This gives BT and other operators the incentive to invest in new technology

- By minimising costs
- Rewarding efficiency
- Through pricing flexibility.

Cost Minimisation

2.5 The incentive is to make a rational decision to invest where the costs of new technology are less than those of the old. Of course, an overall return on any investment will only be achieved over a number of years – certainly more than the 2.5-3 years proposed for the charge control. It will also be dependent on demand for bandwidth and speed growing to achieve the economies of scale

[1] BT agrees with Ofcom that no charge control should be applied in Market 2 for the reasons set out in WBA Market Review Statement of December '10 paragraphs 1.25, and 5.41 to 5.55.

which reduce overall costs and the willingness of customers to pay for it. There is substantial risk for BT and other operators when making such investment decisions.

Rewarding Efficiency

2.6 The Anchor Product Approach is set in relation to legacy technology, therefore BT would be able to retain the benefits of any efficiency gains in excess of those anticipated in the Ofcom model. These benefits are unlikely to materialise during a charge control lasting less than three years and therefore Ofcom should consider a longer control to provide the appropriate incentives to improve effriciency.

Pricing Flexibility

2.7 Imposing a charge control on legacy products and costs directly constrains the prices of existing products provided over new technology, and indirectly constrains the prices of new products provided over new technology that are close substitutes. This protects the interests of the consumer in relation to both existing and new products, whilst leaving BT some freedom in relation to the pricing of new products.

Modern Equivalent Assets

2.8 The main alternative to using the Anchor Product Approach to constrain indirectly the pricing of new products provided over new technology would be a charge control based on Modern Equivalent Assets. This would require Ofcom to second guess the market in relation to speed, bandwidth requirement and willingness to pay, and what it would cost BT to roll out ADSL2+ in Market 1. This would be almost impossible to achieve and the resulting uncertainty and regulatory risk would be unacceptable to investors. Ofcom outlines these factors explicitly in the Consultation document at paragraph 3.43. In contrast, the Anchor Product Approach puts the onus on BT and other operators to make efficient investment decisions. This leaves the industry scope to adapt to the market as it develops and optimise pricing and investment decisions.

Hypothetical Ongoing Network (HON) Costs

2.9 A charge control based on the costs of legacy products could result in prices based on assets that are largely fully depreciated and therefore very low. These in turn would constrain BT's ability to charge for products provided over new networks and therefore constrain BT's propensity to invest, if not preclude it entirely. Therefore BT supports Ofcom's proposal to use HON costs as a proxy because they are the costs which would apply if there was no technological change and the legacy technology was going to be used indefinitely. The decision to invest in new technology can then be taken efficiently in relation to legacy network costs without distortion.

2.10 Ofcom outlines a number of objectives that might be met by adopting Anchor Product Pricing in its 2007 NGA consultation. These can also be applied to WBA Market 1:

1. no customers are made worse off today as a result of the introduction of new technology

2. no customers are made worse off in the future, relative to the position they would have found themselves in with respect to current technology, as a result of investment in new technology; or

3. absent competition, there is an effective constraint on the pricing of products provided over new technology by an operator with significant market power.

Objective 1 - The proposed Anchor Product Approach protects the interests of existing consumers. In Market 1 these are predominantly IPStream Connect customers, with Datastream volumes dwindling away and as yet very little ADSL2+ (Wholesale Broadband Connect - WBC). It is entirely appropriate that the price control in Market 1 should only apply to the IPStream Connect product. This ensures that customers in Market 1 do not pay higher prices in order to subsidise migration to a new technology which provides speeds, bandwidth and functionality they do not want.

Objective 2 - The proposed moving anchor approach takes account of forecast growth in demand for bandwidth. This means no customers are made worse off in the future, relative to the position they would have found themselves in with respect to current technology, as a result of investment in new technology. However the moving anchor does transfer back to BT a disproportionate amount of the risk that growth does not materialise. This is the very growth that will drive the decision to invest in new technology, and it is the uncertainty about the scale and timing of this growth that the Anchor Product Approach is intended to mitigate for potential investors. In principle, BT favours the static anchor approach to give Operators maximum flexibility to price in relation to demand as it materialises to drive investment. If Ofcom decides to use a moving anchor, then the growth forecast should be conservative taking account of the growth drivers discussed below in our reply to Question 3.1 in relation to the capability of existing technology.

Objective 3 – The Anchor Product Approach constrains the price of both existing products provided over new technology, and the prices of new products which are close substitutes. It thereby delivers Ofcom's third objective that there should be an effective constraint on the pricing of products provided over new technology by an operator with significant market power. The use of the HON cost model ensures that there is still an appropriate incentive for BT and other operators to invest.

2.11 In summary, BT supports the thrust of the Anchor Product Approach as it can help support investment in new technology via cost minimisation, rewarding efficiency and pricing flexibility. In the case of WBA in Market 1, it meets the objectives for an Anchor Product Approach that Ofcom outlined in its 2007 NGA consultation. However, the way in which Ofcom intends to implement this approach could be improved in some important ways. The following section responding to Ofcom's consultation questions sets these amendments out along with the underlying evidence, with greater detail provided on a number of points in the annexes.

Responses to Questions

Question 3.1: Do respondents agree with our proposals on the allocated bandwidth growth? If not, explain why.

3.1 No. Ofcom has used a figure of 48kbit/s from September 2010 as a mid-point of the 2010/11 year and projected this forwards assuming a 23% per annum average growth rate to derive the total bandwidth consumed. In the Ofcom model exponential bandwidth growth is assumed i.e. each year the bandwidth increases by 23% from the base that year. This forecast is too aggressive.

3.2 Typically growth in usage depends upon the same factors as those which drive current levels of usage. An example might be the growth in Facebook usage. The value of the application to an individual and the amount of data they download from it depends upon the number of other users using the same application and its functionality. In its early years, therefore, the bandwidth growth driven by Facebook might be expected to be exponential although obviously this will slow and turn over into a s-shape or sigmoid curve as saturation point is reached. In the broadband market, we are now at the stage where video downloads to individuals rather than applications such as Facebook are likely to be the main drivers of future increases in the bandwidth use per end user. In this case the growth is not directly dependent upon the current level of downloads, rather it is likely to be driven by external factors such as migration from traditional video media such as TV and DVD's.

3.3 In Market 1, if Ofcom is determined to adopt a moving Anchor approach, a conservative view of the residual potential for growth on existing legacy 20C technology should be taken. Growth will not be exponential. More likely it will drop off until the market indicates that it is worth Operators taking the risk and investing in new technology to meet demand for the higher speeds and caching facilities that video downloads require. The costs, and therefore the risks of making this investment in Market 1 are necessarily higher in view of the distances involved and the lower density of population. The maximum Ofcom should provide for is linear growth. This would result in a September 2013 bandwidth of 75Kps not 89Kps assuming a 48kps start point (=48+9+9+9).

Question 3.2: Do respondents agree with our proposal to charge control IPS Connect only?

3.4 IPStream Connect is the main product in Market 1. Its availability from 10 points of interconnect or via WBMC means that it is readily available to all Operators and is used as the EOI component for IPStream. As Ofcom outlines in the paragraphs preceding its conclusion at paragraph 3.99 "*IPStream users are likely to have economically viable alternatives to which they can switch in the event of a price rise (by BT)*."

3.5 Datastream volumes are dwindling away to the point of insignificance which leaves just the IPStream Connect Product. WBC is only present in a handful of Market 1 Exchanges, and one of the principal objectives of the Anchor Product Approach is to ensure the regulatory climate allows timely and efficient investment in new technology and functionality and to meet growth in demand. If Ofcom believes that regulatory intervention is required in Market 1 to protect the interests of end users, then BT agrees IPStream Connect is the appropriate product to regulate to protect existing users leaving BT and other Operators able to take efficient investment decisions in relation to new technology.

Question 3.3: Do respondents agree with the proposed anchor product characteristics? If not, explain why.

3.6 BT supports the Anchor Product Approach, but not the proposal to incorporate exponential bandwidth growth because this threatens to undermine the very incentives to invest that Ofcom is seeking to preserve.[2] The development of the broadband market is both dynamic and uncertain. Demand for bandwidth will be driven by :

- the availability of new applications, and in particular video,
- the propensity of end users to use them,
- the download speeds and bandwidth available to end users,
- the willingness of end users to pay for more services.

None of these drivers are certain.

3.7 Bandwidth demand is not currently significantly constrained by the size of the retail packages offered. BT's customer base shows that the average peak usage of more than half its customers is less than 12Kb/s – around 25% of the 48kb/s committed bandwidth per end user in Ofcom's model. This illustrates the extent to which demand is being driven by a relatively small proportion of high users – there is a very long tail to very high bandwidth in the user profile. Similarly, most end users use less than half of the bandwidth available to them in their packages. This illustrates that overwhelmingly demand is not being constrained by the size of the retail packages offered.

3.8 A charge control based on legacy technology that assumes substantial bandwidth growth significantly changes the commercial risks/rewards for the industry when evaluating moving to new technologies to accommodate large and uncertain bandwidth. In the case of Market 1, the ubiquity of 20C legacy technology limits the scope for growth with lower speeds, and there is an absence of caching capability in the network. This is the commercial environment in which BT and other Operators are expected to invest.

3.9 The introduction of 21C technology, represents a step change with all the attendant risks. Substantial increases in demand are required to justify such investments, combined with the willingness of end users to pay for the enhanced service. Whilst BT can understand Ofcom's concern that existing customers should not pay for service improvements they do not require, BT does not support the moving anchor concept whereby growth in demand for bandwidth is also incorporated where there is considerable uncertainty that the increase in demand will materialise. BT and other Operators need an environment in which they can evaluate the risk associated with investing in new technology and functionality without the constraint of a charge control based on legacy technology that assumes substantial growth already.

[2] Preserving incentives to invest is a clear public policy goal of Government, as noted earlier in this response. Ofcom risks being out of step with this goal through its floating anchor approach. In its first report to Government, Infrastructure UK, a discrete unit within HM Treasury, stated that, "The capacity, quality and resilience of national infrastructure affects economic growth, competitiveness in the global economy, national security, and the ability to meet climate change objectives, and the quality of life for everyone in the UK. It can be an important source of competitive advantage." Infrastructure UK, "Strategy for National Infrastructure," March 2010,

Question 4.1: Do respondents agree that an RPI-X control is the appropriate form of charge control for the regulation of wholesale broadband in Market 1?

3.10 If charge controls are to be imposed in addition to cost orientation obligations,[3] for WBA in Market 1, BT agrees that RPI-X is the most effective form of control with many positive incentive properties.

3.11 The incentive properties (in terms of cost minimisation and volume growth) are generally good although it is vital that the duration of the control is sufficiently long to allow these incentives to become effective (see response to question 4.3) and that the baskets are sufficiently flexible to allow for relative price changes (see responses to questions 5.4 and 5.5). The incentives flow from the controlled operator bearing the risks of cost increases reducing profitability below that assumed in the control, or conversely gaining the benefits if realised cost savings are greater than those assumed. It is particularly important to preserve incentives where there are major shifts in technology and substantial investment decisions have to be made with a significant degree of risk. All these factors apply in the case of this charge control.

3.12 RPI-X charge controls also provide a high degree of certainty in terms of overall price levels, such that other Operators know their input prices for the charge controlled products in advance. The use of RPI-X limits the administrative burden involved in annual price determinations. It is also a well established form of control that is familiar to market players in the UK telecoms market.

3.13 RPI is the most appropriate measure of inflation. To the best of our knowledge, all UK price caps to date have used the RPI as the price control index. This reflects the basic idea behind RPI-X that prices are controlled against all other prices in the economy, and that these are appropriately measured by the RPI. There is no objective reason to shift from using the RPI to another index. Such a shift would lead to increased regulatory uncertainty for all market players.

Question 4.2: Do stakeholder agree with the adoption Option 2 upstream input approach as our preferred option?

3.14 Yes. LLU is already subject to a charge control, and to include this Openreach input in the WBA charge control as well would be imposing a charge control on a charge control. As Ofcom point out, LLU is offered on a national basis and the cost analysis associated with the LLU charge control has already taken account of Market 1 costs. The End to End approach would require the disaggregation of these costs and have a knock on effect on LLU prices in Markets 2 and 3. This would be cumbersome and disproportionate. Therefore the upstream input approach is the most practical way to implement a charge control in Market 1.

Question 4.3: Do respondents agree that a charge control duration of three years would be appropriate for WBA Market 1?

3.15 Ofcom is not proposing a three year control. Ofcom asks if respondents agree that the charge control should last for 3 years, but as the control will only be determined from August 2011 at the

[3] BT does not agree that charge controls are warranted alongside cost orientation obligations. See section 4 of BT's Response to Ofcom's consultation document "Review of wholesale broadband access markets at http://www.btplc.com/Thegroup/RegulatoryandPublicaffairs/Consultativeresponses/Ofcom/2010/Wholesalebroadbandaccessmarkets/index.htm

earliest (paragraphs 1.8 and 4.34) and will end in March 2014 (paragraph 1.8), the control will only be in place for a little over 2½ years.

3.16 BT has serious concerns with Ofcom's proposal and urges Ofcom to set the charge control for a longer period. BT notes that Ofcom has recently announced a 4 year control for mobile termination rates[4]. Ofcom has the flexibility to do this and remain aligned with the market review given, as it says in paragraph 4.36 *"This [WBA Market] review considered a period of up to four years as its forward look, i.e. up to December 2014 at the latest."* Therefore BT proposes that the WBA charge control should run until 31 December 2014.

3.17 BT's concerns with a shorter control period centre around:

- The time required for the Anchor Product Approach to provide the appropriate incentives for investment
- Undermining the incentive properties of the control to improve efficiency.
- Synchronising the WBA charge controls with other charge controls, and
- Practicality and precedent.

Anchor Product Approach

3.18 One of the main reasons Ofcom has proposed the Anchor Product Approach is as a way of providing appropriate incentives for investment in Market 1 where there is potentially a major shift in technology and considerable uncertainty and risk associated with volumes. By putting the onus for taking investment decisions firmly with BT and other Operators, uncertainty and regulatory risk are reduced. However, where risk is higher, investors expect there to be realisable potential to make higher returns. The shorter the control, the less scope there is for these returns to be realised during the period of the control.

3.19 Being realistic, the decision to invest in new technology in Market 1 is likely to be based on an Internal Rate of Return (IRR) over 5 years or more. These circumstances mean that BT is likely to under recover its costs in the early years, and only make higher returns to compensate in the latter part of the product life cycle when demand for bandwidth commensurate with the investment materialises. It will be important for investors that there is some reassurance from Ofcom that returns over the life of any investment will be taken into account in any charge control beyond that proposed for 2011-14, and not just the rate of return at any one point in time.

Undermining incentive properties

3.20 There are strong economic arguments for having a control period of sufficient duration to give operators incentives to reduce costs and perform more efficiently than the control. Time is required for operators to make the investments and for them to take effect. The duration of the control has already been cut back from the usual 4 to 3 years to align more closely with the requirements of the amended European Directives on market reviews. An additional reduction in duration to 2½ years would undermine these incentives further. A longer duration also gives greater certainty and stability for other market players buying wholesale broadband products. Elsewhere in the document (paragraph A8.17) Ofcom underlines the resulting risks, *"By contrast, shorter control periods....would*

[4] *"The MTR [Mobile Termination Rate] cap [to] be set on a four-year glide path*", paragraph 1.14.5 in Ofcom Statement "Wholesale mobile voice call termination", 15th March 2011.

seriously weaken incentives on BT to minimise costs and make efficient investments and could in some circumstances encourage inefficient investments."

3.21 The Government has recently underlined the importance of these investment incentives, and Ofcom has the opportunity to address this head on by using the full period provided for in the Market Review to set the charge control. The Government consulted In January to establish a set of principles for economic regulation to ensure that companies face sufficient incentives to invest, given the substantial sums that need to be invested in the nation's infrastructure in the next few years and the Government's view that *"economic regulation is a critical enabler of infrastructure investment."*[5] The stimulus for the Government's review of underlying incentive structures is precisely concerns over consistency and certainty and how charge controls by regulators are set. The document says, *"However, given the scale of the challenges for the UK's infrastructure, it is important to revisit the regime, reinforce its key foundations and ensure it provides the right degree of clarity, certainty and consistency"* (paragraph 8), with the Government's National Infrastructure Plan identifying a *"lack of clarity around how long-term business planning is being taken into account in regulatory decisions including on price setting."* Charge controls of a sufficient duration underpin investment incentives and regulatory certainty.

Practicality and precedent

3.22 A longer control avoids practical implementation problems around prior year weights (e.g. having to predict revenues in February and March requiring the need for a true-up later in the year) See the response to Question 5.3.

3.23 The proposed approach may provide a precedent for all future price controls to be less than 3 years. Indeed, if a market review is to be undertaken every 3 years and the market review takes immediate effect, but there is a lag in the charge control taking effect, this means there will never be 3 year controls in future. That is, Ofcom is proposing that charge control is subsumed within the market review period. This is highly undesirable for the reasons set out above and Ofcom should be providing reassurance that this will not be the case.

Question 5.1: Do respondents agree that ancillary service charges should be included in the main basket?

3.24 Yes. The fewer the number of baskets, the more flexibility there is for charges to be structured efficiently. The rate of change of costs associated with the various products in the basket will differ, especially as volumes change at widely differing rates. A single basket will mean that the charging structure can be developed to reflect these relative changes, and meet the cost orientation requirements and any other restrictions Ofcom determine to impose.

[5] Department for Business, Innovation & Skills (BIS),"Principles for Economic Regulation: Call for Evidence", January 2011, http://www.bis.gov.uk/Consultations/principles-for-economic-regulation-call-for-evidence?cat=open

Question 5.2: Do respondents agree with our proposal for the BT end user cease charge?

3.25 No. BT does not agree with Ofcom's proposal as real costs are incurred due to ceases and these need to be recovered from those who cause them to be incurred. Ofcom suggests at Annex 7 (table A7.20, on page 173), that such costs may be recovered through the connection charge. This would result in customers leaving the company being subsidised by those who are joining. If Wholesale cease charges are reduced to zero, BT would expect to recover the costs from other charges made to customers. If Ofcom insists on making this change then BT should be free to recover costs through other charges within the basket as Ofcom suggest at paragraph 5.32 of the document. Soft ceases are a pass through charge from Openreach, but BT Wholesale also incurs jumpering costs in order to make efficient use of capacity and these would be appropriate to the rental cost stack. BT would still expect Cease Charges to be included in the basket and any reduction to zero to be included as one element of the price reduction required for the overall basket.

Question 5.3: Do respondents agree with the use of prior year revenue weights for the WBA charge control basket?

3.26 Yes. BT agrees with the principle of prior year weights, but there is a practical problem with the way the weights will work in this case. This can be avoided if Ofcom opts for a longer price control through to 31st December 2014.

- Under the current proposals, the data to calculate the prior year weights ends at 31st March each year. Apart from in the first year of the control, price changes are required as if effected on 1st April each year.
- If the prior year weights end on 31st March, a forecast will be needed for February and March's data in order to calculate a price change for April. Once February and March's data is available (so the prior year weights can be re-calculated based on actuals), a true up of prices will be needed later in the year.
- Not only will this be messy and add administrative complexity, it will mean less certainty for customers where there has to be an additional price change later in the year.
- This can be avoided with a full control which runs until 31st December 2014. The prior year weights would end on 31st March, as proposed, with price changes taking effect on the anniversary of the implementation of the control each year. There are precedents for this, e.g. the prior year weights used in the LLCC and NCC are based on "relevant financial years" which end on 31 March in the year prior to the basket control year. Because the NCC and PPC Charge control years are from October to September, the charge control year for, say October 2010 to September 2011 can use the revenues in the year to 31st March 2010 as "prior year weights". This means that there is also a six month gap between the end of the prior year used for revenue weights and the charge control year. Therefore the revenue weights are already known when the prices must be set for the charge control year.

Question 5.4: Do respondents agree that safeguard caps of RPI-0% should apply to ancillary service charges?

3.27 No. Safeguard caps are an unnecessary addition to the charge control. If the underlying regulatory concern is a risk of excessively high (or even low) charges, this is addressed via the cost

orientation remedy (which has both floors and ceilings). BT should be free to develop the charging structure within the basket to reflect differing rates of change in costs and volumes.

Question 5.5: Do respondents agree that a safeguard cap of RPI-0% should apply to the contracted bandwidth charge?

3.28 No. See response to Q 5.4.

Question 5.6: Do respondents agree with our approach to discounts under the charge control in WBA Market 1 area?

3.29 BT has no objection to Ofcom's approach to discounts

Cost Modelling

Summary of key points
CCA/FAC is the most appropriate costing approach for setting regulated prices
Adjustments to base year costs – BT agrees in principle to the adjustments made to BT's base year costs in Market 1. However, higher uplifts to both depreciation and NRC for DSLAMs and Backhaul should apply and a larger adjustment to the NRC of the ATM asset should be made.
AVE/CVE – Ofcom has seriously under-estimated the volume of additional DSLAMs, Backhaul links and ATM transmission capacity needed to accommodate bandwidth growth. This impacts the physical volume of the components to which the AVEs and CVEs are applied. BT supports the use of AVEs of 1 when applied to components based on physical asset volumes. However, an upwards adjustment to the CVEs is needed because economies of scale are already incorporated into the physical network asset forecast. To use a CVE as low as 0.25 means the economies of scale are double-counted. Customer migration costs relating to traffic balancing activity between DSLAMs also need to be considered.
Efficiency - The efficiency estimate of 2.5% is too high for a central estimate, based on the available evidence. Using a wide range of different methods, Deloitte has found the frontier shift to be in the range 0.6% to 2.8% per annum which gives a central estimate of 1.7%
WACC - Ofcom's proposals risk significantly understating BT's forward-looking cost of capital. Given that the issues affecting the WACC are relevant not just to this charge control, but to other significant controls to be set by Ofcom this year – particularly WLR and LLU – BT will be separately submitting evidence and analysis in support of our position on these issues.
Value of X - Taking account of the various points made above about the cost model and treatment of efficiency an X no higher than 10% can be justified.

Question 5.7: Do respondents agree that CCA FAC is the appropriate cost basis to use in setting the charge control for WBA services in Market 1?

3.30 Yes. CCA FAC is the most appropriate costing approach for setting regulated prices. This approach has the advantage of being consistent with BT's regulatory accounts, and is clearly superior to an HCA basis, where asset values could be significantly out of line with the replacement

cost of assets. A LRIC + EPMU basis for setting charges is very data intensive, some of which is not currently available and so is not a practical option at this stage.

3.31 On a point of detail, BT believes that Ofcom has used an asset price change for the DSLAM assets that is inappropriate as this suggests that the price of DSLAM equipment is increasing in nominal terms, whereas the experience over the past four years is for a small decline in nominal prices. This is caused by the use of the Cable asset price trend, which is dominated by the price of copper cable. A more disaggregated approach should be adopted in this case.

Question 5.8: Do respondents agree that our adjustments to BT's base year costs in Market 1 are appropriate?

3.32 BT agrees in principle to the adjustments made to BT's base year costs in Market 1. However, BT believes that higher uplifts to both depreciation and NRC for DSLAMs and Backhaul should apply and that a larger adjustment to the NRC of the ATM asset should be made. The NRC:GRC ratio for ATM, DSLAM and Backhaul assets should be increased to a figure between 40% and 50%. The depreciation charge should be adjusted so that the GRC : Depreciation ratio is around 10 years, ensuring that an appropriate depreciation charge is included for those assets which are fully depreciated but which continue to be in use.

3.33 Ofcom's adjustments fall into the following categories:

a) The allocation of "non-geographic" costs in the 2009/10 RFS into geographic markets and the alignment of costs with the new market definitions. (See section 5.64 and 5.65)
b) Conversion of costs to be consistent with an EOI view, removing upstream Openreach costs and replacing these with LLU charges. (See 5.60 and 5.61 of the Consultation.)
c) The correction of errors in the base year data. (See 5.66 iii)
d) Removal of costs that relate to the adoption of new technology (see 5.66 ii) *and*
e) Including costs so that the total costs are consistent with a "steady-state" or Hypothetical Ongoing Network (HON) approach (see 5.66 i).

3.34 The adjustments falling in categories a), b) and c) are straightforward and not controversial. Costs clearly need to be identified with Market 1 as it is only charges within this market that are to be subject to a price control. The charge control is to be based on a pass-through of Openreach charges meaning that the cost base must be consistent with this approach. It is also clear that any errors in the costs should be corrected to ensure that prices are set at an appropriate level.

3.35 Ofcom's approach to categories d) and e) is more complex. It is important that costs are determined on a consistent basis. Therefore, if costs are going to be adjusted to be consistent with a Hypothetical Ongoing Network then charges should be based on an assumption that the older technology will be enduring. This means that two sets of adjustments are needed – the removal of costs that have been incurred that relate to the new technology, and the adjustment to the older technology costs so that these are consistent with an ongoing network.

3.36 BT suggests that there are aspects of the HON adjustments that do not go far enough to adjust costs so that they are genuinely consistent with an ongoing "steady state" approach. A steady state approach would require:

- the NRC : GRC ratio to be uplifted to at least 40% requiring a further uplift to NRC values by around one-third,
- depreciation to be adjusted to be consistent with an implicit asset life of around 10 years.

This would be consistent with Ofcom's view that costs should reflect such an ongoing environment, "*we assume that capital costs (i.e. depreciation and return on capital employed) and operating costs of the network are at the efficient levels that would be expected if the network were in an ongoing environment i.e. not heavily depreciated 20CN assets due to running down of the BT access equipment and scarcely depreciated 21CN assets*" (paragraph 3.59 of consultation).

3.37 It is also the case that the implicit asset lives for the WBA components are excessively long, especially for the Backhaul component[6]. This means that the depreciation costs are too low leading to an under-estimation of the appropriate cost base. BT suggests that the Backhaul and DSLAM assets should be treated consistently with the ATM assets. This would indicate depreciation costs are adjusted to be consistent with the 10 year implicit life adopted for the ATM assets. The NRC values for the DSLAM and Backhaul and ATM components should also be uplifted to be consistent with a Hypothetical Ongoing Network, using an NRC:GRC ratio of between 40% and 50%.

i) A number of the older DSLAMs are still in use but are fully depreciated. These DSLAMs therefore have no cost or capital employed included within the costs. BT believes that this is wrong, and an adjustment is needed to ensure the costs reflect all of the assets that are deployed to provide the WBA service. An uplift to both depreciation and capital employed is therefore necessary and appropriate for the DSLAM assets.

ii) The Backhaul component includes SDH transmission assets, some of which are approaching the end of their depreciation lives. It is inappropriate to use an implicit asset life of 22 years for transmission assets (as implied by table A7.18 in the consultation document.) An uplift to the depreciation charge for the Backhaul component is therefore needed.

3.38 BT also believes that Ofcom has not made a sufficient adjustment to the NRC values for the WBA components to be consistent with a HON costing approach. In principle, a "steady state" approach would have assets with an average NRC:GRC ratio of around 50%. However, Ofcom restricts its adjustments to uplift the NRC:GRC ratio of the ATM network to around 30%. BT believes that the 30% ratio is not objectively justified and results in an under-estimate of capital costs.

3.39 The migration towards 21CN (as indicated by both the exclusion of 21CN migration costs and the exclusion of 21CN spend from the backhaul components) shows that 20CN assets are being replaced. Other evidence shows that DSLAM, ATM and SDH transmission assets are approaching the end of their economic life. For example, there are a number of DSLAMs in market 2 and 3 which are

[6] Table A7.18 of the consultation document shows the Backhaul and DSLAM components having an asset life of 22.8 years and 12.9 years respectively.

fully depreciated, and in these markets 21CN assets are being rolled out. The allocation of DSLAM costs does not reflect this variation in the proportion of DSLAMs still being depreciated, nor is there any uplift to either the NRC or the depreciation cost for DSLAMs. This means that the DSLAM costs within Market 1 have been underestimated.

3.40 As an alternative Ofcom could adopt a similar approach to the one used in the most recent NCC charge control[7]. Here adjustments were made to the NRC:GRC ratios to align these with the most recent period prior to the investment in the new technology. In the case of the NCC, NRC:GRC ratios were taken from a period four years prior to the base year. This ensured consistency with a period when there was minimal migration or spend on 21CN assets and therefore the network was more representative of an ongoing network. If the same approach were adopted for this charge control, using the 2005/6 NRC:GRC ratios for the DSLAM, ATM and SDH assets, it would give figures of 56%, 35% and 49% respectively. This compares with a figure (after adjustments) of around 30% used in Ofcom's model[8].

3.41 The Mean Capital Employed NRC:GRC ratio for the DSLAM and SDH *assets* at 31 March 2010 were 20.5% and 19.7% respectively, similar to the value for the ATM component that was adjusted, yet no HON adjustment has been made for these assets. (There are other assets within the backhaul and DSLAM components that lead to a higher average ratio within the component.) Nevertheless, the NRC:GRC ratio of these components at around 30%, *after Ofcom's HON adjustments,* remains significantly below the ratio that would be expected in a steady-state scenario. BT believes that the treatment of the DSLAM and SDH transmission assets is inconsistent with the approach taken for ATM, and underestimates the true cost of the HON within WBA Market 1.

3.42 Pension deficit repair contributions. Ofcom has made no allowance in its costs model for any of the annual pensions deficit repair payments that BT is currently required to make over the duration of the proposed charge control. These are a cost of BT doing business going forward and, in so far as they result from pensions costs that were efficiently incurred, it is reasonable and consistent with Ofcom's regulatory duties and stated objectives for this charge control that they be included when calculating the cost base for regulated charges for Market 1. Confidential Annex [3] [Annex redacted] provides further detail on why BT considers that pensions deficit repair payments should be taken into account when setting this charge control.

Question 5.9: Do respondents agree with our approach to AVEs and CVEs? If not, please explain why.

3.43 No. BT does not agree entirely with the Ofcom approach to AVEs and CVEs. The approach adopted for forecasting costs is dependent not only on the AVEs and CVEs but also on the underlying network infrastructure, particularly additional DSLAMs, Backhaul Links and ATM assets needed to deliver the growing volumes. Ofcom set out in table 5.10 estimates of the number of additional

[7] Ofcom, Review of BT's Network Charge Controls, September 2009 ,Table A2.2 http://stakeholders.ofcom.org.uk/binaries/consultations/review_bt_ncc/statement/nccstatement.pdf

[8] The figures in Table A7.15 shows a NRC:GRC ratio of 17.0%, 33.1% and 30.6% for the ATM, Backhaul and DSLAM components. A7.95 explains that the ATM ratio was uplifted to 31.3% and a 10 year asset life adopted for ATM assets.

DSLAMs, backhaul links and ATM transmission links necessary to accommodate volume growth under a number of different scenarios. The Base Case volumes shown in Table 5.10 indicate that investment in 680 additional DSLAMs and 2448 additional ATM links is needed to accommodate growth in bandwidth volumes. The physical network is forecast by Ofcom to grow by around 15% between the 2009/10 base year and 2013/14. This contrasts with a growth in total bandwidth growing by more than 100% over the same period. It is also necessary to migrate customers from the "old" DSLAMs to the "new" to manage bandwidth demand between the DSLAMs in each exchange. Additional jumpering and migration costs should be included to reflect this activity.

3.44 Ofcom's model approach under-estimates the total volume of DSLAMs that will need to be replaced as it assumes an idealised network infrastructure without constraints, in terms of traffic that can be delivered using existing infrastructure. In practice, BT has some practical constraints that mean some investment needs to be brought forwards as not all existing DSLAMs will be able to carry up to 145Mbit/s of bandwidth payload assumed by Ofcom. Examples of these constraints are the use of Edge Switch Extenders[9], and limited port capacity on some DSLAMs which prevent traffic being optimised across DSLAMs within the same exchange[10].

3.45 The bandwidth forecast at September in each year has been used to estimate the investment in DSLAMs, ATM and Backhaul, whereas the forecast bandwidth at the following March must be accommodated within the network during the relevant year for there to be sufficient assets to deliver the necessary capacity. This has the following impacts:

a) The capital expenditure profile is "shifted" six months further out. In other words, capital expenditure required to deliver capacity between October and March is not recognised until the following year.
b) The Capital Employed at both the beginning of the year (the opening balance sheet) and at the end of the year (the closing balance sheet) are under-stated by six months worth of capital expenditure. This impacts on Mean Capital Employed.

The depreciation charge is similarly impacted as no depreciation is included for the six months worth of capital expenditure which is "shifted" into the following year.

3.46 Ofcom's model seriously under-estimates the volume of transmission required across the ATM network. Whilst the ATM network has some spare port and switching capacity, the transmission between ATM nodes is driven by bandwidth that needs to be conveyed between nodes. Although there is spare capacity on the backhaul links between the DSLAMs and the ATM network, the ATM is only dimensioned to carry the Virtual Paths (VPs) that have been set up across the backhaul links. As the backhaul links carry more traffic and further VPs are added, additional provision of transmission across the ATM network is needed. Ofcom does not appear to have included this factor within their estimate of the additional ATM transmission circuits required.

[9] An Edge Switch Extender is where BT has mapped several DSLAMs onto a ATM single port to optimise past investment in backhaul and ATM ports. This means that these DSLAMs will exhaust capacity earlier than assumed in Ofcom's model.

[10] Each customer has different bandwidth demand. If customers with high bandwidth demands are focussed on a single DSLAM, a lack of spare port capacity may prevent migration of high bandwidth customers to a DSLAM with spare backhaul capacity, again bringing forward the need for investment. BT has provided separate evidence modelling the volume of DSLAMs required that takes into account the network constraints.

3.47 Ofcom set out two tables of AVEs and CVEs. The first (table A7.4) uses the values from the 2004 PPC Charge Control. These values indicate very substantial economies of scale, which may be appropriate when an existing platform can be used more intensively as volumes grow. These AVEs and CVEs are based on the "volume" element being the volume of services delivered over the physical infrastructure. The values are relatively low to reflect the economies of scale achievable when additional services are delivered over the same duct and fibre infrastructure (for example the Cable and Duct values are low reflecting the high level of fixed cost in these asset types).

3.48 Some components have been given an AVE of 1, as shown in Table A7.5 in the consultation. This reflects the fact that the "volume" driver in Ofcom's model is the physical infrastructure required to deliver the service volumes forecast. (For example, Ofcom models the number of DSLAMs and backhaul circuits and uses this as the volume driver). In effect, Ofcom's off-line model estimates the physical volume of assets required to deliver the service volumes, reflecting the effect of economies of scale within the asset volume forecast. BT therefore agrees it is appropriate to use an AVE of 1 for these components.

3.49 However, BT believes that the CVEs applicable to the operating costs of these assets also need to be adjusted upwards to reflect the extent that the economies of scale are already reflected in the physical volume forecast. This can be achieved by multiplying the CVEs of 0.24 in table A7.4 by the ratio of the new AVE to the old AVE shown in table A7.5. The adjusted values for the CVEs (for both pay and non-pay) are set out in the table below.

		Calculated AVE	New AVE	ratio	New CVE
CO312	ATM customer interface	0.63	1	1.59	0.38
CO313	ATM network interface	0.64	1	1.56	0.38
CO314	ATM network switching	0.64	1	1.56	0.38
CO315	Inter ATM transmissions	0.36	1	2.78	0.67
CO681	Broadband backhaul circuits	0.41	1	2.44	0.59
CR188	DSLAM	0.26	1	3.85	0.92

Question 5.10: Do you agree with our central estimate of 2.5% for efficiency improvements? If not, please explain why.

3.50 No. Based on the available evidence, Ofcom's efficiency estimate of 2.5% is too high for a central estimate. Using a wide range of different methods, Deloitte has found the frontier shift to be in the range 0.6% to 2.8% per annum which gives a central estimate of 1.7%.

3.51 Annex [1] shows an update to Deloitte's efficiency report, specifically focusing on the range of the frontier shift. Deloitte summarise all the recent econometric evidence on the rate of frontier shift, including adjustments to reflect an alternative specification of the Tornqvist Index suggested by Ofcom. Deloitte conclude that frontier shift is in the range 0.6% to 2.8% per annum. Ofcom's estimate of 2.5% is towards the top end of this range.

3.52 BT agrees with Ofcom's assessment that there is no need to include a "catch-up" efficiency component as BT has been shown to have an efficiency in excess of the benchmark level. However, it is also the case that BT has been given no credit for its superior efficiency performance. This could be incorporated by including a "negative" catch-up factor to ensure that BT is properly rewarded and so maintain incentives for further efficiency gains.

Question 5.11: Do you agree with our proposal not to make one off adjustments to WBA prices at the start of the control? If not, please explain why.

3.53 BT agrees with Ofcom as there are strong arguments not to make a one-off price cut. These include:

- Undermining the incentive properties of a glide path approach.
- Censoring upside returns. There's a significant issue of ex post returns compared with ex ante returns
- Ofcom's proposed test for making one-off price cut is not met
- Regulatory uncertainty. Ofcom has rejected this approach in the past where there has been a case for making one-off price increases.

Incentive properties of a glide path approach

3.54 Under a glide path approach, the control is set so that the expected rate of return approximates the cost of capital by the end of the control period. As Ofcom says, this is in part to reflect how other markets work where any high returns are eroded over time. It also leads to a more stable and predictable background against which investment and other commercial decisions can be made. Ofcom concludes its discussion in paragraph 5.112 by saying *"This is particularly important for telecoms as there are now many players besides BT."* The incentive properties of RPI-X are undermined when there is no lag between the operator receiving the benefits of improved efficiency and having to make price reductions (see response to question 4.1). Ensuring regulatory remedies are "incentive compatible" is one of the principles that Ofcom says it is taking into account in this review (paragraph 2.24 and 2.26).

Censoring upside returns

3.55 Regulation is contingent, in the sense that only successful products and services get charge controlled. Regulation caps upside gains from any investment, but does not limit the downside exposure if the investment is unsuccessful. Hence the problem of hindsight bias where regulated firms may not be compensated for the risks faced at the time of investment decisions. Ofcom is now evaluating ex post returns for a successful project, where we would expect - as a matter of fact - that the rate of return would be higher than the cost of capital. This needs to endure for a number of years to be consistent with the ex-ante assessment of the project and to compensate for the

downside exposure of investments that are unsuccessful. A one-off price cut would censor these returns at a crucial time when investment in new services or upgrades of existing ones is being considered.

Ofcom's proposed test is not met

3.56 Ofcom sets out a test for making a one-off price cut of prices (paragraph 5.121) i.e. where a charge is out of line with costs to an extent which would cause a material distortion, with DSAC and DLRIC being used as reasonable benchmarks to judge those charges giving rise to the greatest risks of distortion. Based on the latest available information (see confidential Annex 2 [Annex redacted]), the prices for the IP Stream Connect products that are proposed to be subject to the charge control are within these benchmarks and therefore no one off price cuts are justified.

Regulatory uncertainty

3.57 Ofcom has rejected the use of one-off price *increases* in the past, e.g. in the Network Charge Control (NCC), partly because Ofcom's legal duties require it to have regard to the principle of consistency. It would create regulatory uncertainty to apply an asymmetric approach to one-off price falls compared with price increases, given Ofcom has previously rejected this approach.

3.58 In the NCC, Ofcom's reasons for rejecting a one-off adjustment were:

"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."

And

"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), required to have regard to the principle of consistency in performing our duties."[11]

3.59 Similarly, in this consultation, Ofcom states that one of its specific policy objectives for WBA services in Market 1 is "*to provide regulatory certainty for BT and its customers and to avoid undue disruption*" (paragraph 2.27).

Value of X

3.60 Taking account of the various points made above about the cost model and treatment of efficiency an X no higher than 10% can be justified.

[11] Paragraph 4.107 "Review of BT's Network Charge Controls: Statement", Ofcom, 15 September 2009

4 WACC

Question 6.1: We welcome stakeholders' views on Ofcom's approach to estimating two different costs of capital for Openreach and Rest of BT.

Question 6.2: We welcome stakeholders' views on Ofcom's approach to ERP estimates.

Question 6.3: We would welcome stakeholders' views on Ofcom's approach to BT's Beta calculation.

Question 6.4: Do respondents agree with the proposal that the 'rest of BT' rate should be used for the WBA charge control in Market 1

4.1 Ofcom's proposals risk significantly understating BT's forward-looking cost of capital. Ofcom is proposing to use a "rest of BT" WACC within a range of 8.5-10% in setting this charge control. It is relevant to note that – taking the midpoint of the proposed range for the BT Group WACC - Ofcom's proposals suggest there has been a reduction of 170bp (from 10.6% to 8.9%) in the two years since the WACC was last reviewed in setting 2009 charge controls (WLR, LLU, PPCs and Ethernet). Our view is that a change of this magnitude is excessive and disproportionate when assessed against the full range of available factual evidence. Ofcom's objective is to forecast a cost of capital for BT which is likely to prevail in the last year of the price control, i.e. 2013/14 in the case of this control. Among other things, Ofcom must be extremely cautious in relying on historic data in making judgements about the likely future level of the key cost of capital parameters, particularly when observed data on many of those parameters continues to be extremely volatile and recent trends and historic averages over the last 2-3 years are still heavily affected by the credit crisis and the economic downturn of the last couple of years. In practical terms, this means Ofcom should fully assess the factors impacting the recent data and consider their relevance for making judgements about the future and should take full account of the available alternative sources of forecast data.

4.2 Significant reductions in WACC from one control to another are dangerous and – unless clearly supported by a range of factual evidence – risk sending the wrong signals to the market, especially at a time when BT is embarking on a significant investment programme to deploy fibre to two thirds of the UK and we continue to face competitive pressure from large and well-financed players in the various markets in which we operate. As the CC recently stated in the context of the LLU appeals, *"in industries with long-lived assets regulators should take a long-term view of the cost of capital and adjust components only when they believe there has been a permanent shift in the pricing of risk. [emphasis added]"*[1] BT does not believe that since May 2009 there has been a permanent shift in the pricing of risk for the various components that contribute to BT's WACC – certainly not to the extent that Ofcom's proposals seem to imply.

4.3 Given that the issues affecting the WACC are relevant not just to this charge control, but to other significant controls to be set by Ofcom this year – particularly WLR and LLU – BT will be separately submitting evidence and analysis in support of our position on these issues.

[1] Paragraph 2.368 CC Final Determination, CPW vs Ofcom, Case 1111/3/3/09

Response to Ofcom's Annex 8 on Dotecon report

Profitability Measures

5.1 BT welcomes Ofcom's agreement that it would be wrong to put too much weight on RoCE calculated for a single year, and that the Internal Rate of Return (IRR) is in general the preferred measure of true profitability of a product. BT also recognises the points made by Ofcom at:

- *A8.31 that BT charges have been only subject to a ceiling to date which has allowed BT to enjoy some of the upside risk ;*
- *A8.32 that BT was able to test the water by making initially quite modest investments;*
- *and A8.33 that Market 1 were generally the last exchanges to be broadband enabled……..By this time BT had a clear understanding of demand……..*

These points are all part of the balance that needs to be struck when considering what rate of return is reasonable when. As a point of principle, BT maintains that there should always be scope to make allowance for specific risk when striking this balance.

Specific Risk

5.2 We would draw a distinction between

(a) Issues of principle looking backward, i.e. has the regulator fairly assessed a project's risk and returns looking backwards, and
(b) Issues of principle looking forward, i.e. what does Ofcom's framework mean for assessing risks and returns for projects that are at their early stages or still being evaluated.

5.3 Ofcom is right that, ex ante, the specific risk does not get reflected in the cost of capital. Contrary to paragraph A8.3 of Annex 8, Dotecon was not suggesting that the CAPM model is wrong to exclude specific risk. Rather, the question is what is the correct rate at which to regulate returns if investment incentives are to be efficient. There are strong arguments that a regulated return should take account of specific risks, just as commercial companies do in fully competitive markets when making similar irreversible investment decisions. Specific risks should be reflected through a risk weighting of future cash-flows. Specific risk cannot be ignored and it is not the case that somehow there is an allowance within the cost of capital. The cost of capital deals with systematic risk only. For this reason, the expected returns of the project ex ante, once the distribution of possible returns and their riskiness are taken into account, will equal the cost of capital (assuming efficient markets etc.) However, a 'bad' outcome is equally likely as a 'good' outcome for an individual investment.

5.4 Ofcom is now evaluating ex-post returns. Here, although the specific risk has diminished (as we now have better information about demand, as Ofcom points out) *we would expect as a matter of fact* that the rate of return should still be higher than the cost of capital. This is because the project on an ex-ante return needs to earn a sufficient return in a "good outcome" scenario to offset the lower returns in "bad outcome" scenarios. This return clearly needs to endure for a number of years to be consistent with the ex-ante assessment of the project.

5.5 Whilst Ofcom is right to point to various actions that have reduced the level of demand side risk, [12] it does, however, remain the case that there was a specific project risk, and that a successful project outcome will inevitably earn a rate of return in excess of WACC. This is to be expected and is consistent with the theory.

5.6 For example, suppose there's a project with an investment cost of £100 which requires a return on capital of 11%, and the project has a one year time horizon. Suppose there are two scenarios, one with a loss of 10% (such that the project only returns £90). The other outcome needs to be in excess of the WACC in order for the ex ante returns to equal the cost of capital. If both outcomes are equally likely, then the good outcome must earn a return of £132 for the risk-weighted average return to be £111. (Expected returns = £90 * 0.50 + £132 * 0.5 = £111). If Ofcom is then to examine the outcome earned in the "good outcome" scenario, it will observe an ex-post return of £132, significantly in excess of the 11% WACC, but nevertheless consistent with the ex-ante expected returns equalling the cost of capital. Even where the probability of a good outcome increases significantly to 90%, and the return in the good outcome falls to £113.33, it continues to be in excess of the WACC of 11% at 13.33% (i.e. expected returns = £90 * 0.10 + £113.33 * 0.90 = £111).

5.7 Whilst in the case of this charge control, BT is generally satisfied that the Anchor Product Approach provides appropriate incentives for investment by BT and other Operators, this will not necessarily always be the case. Whilst BT's portfolio is diversified, substantial parts of it are price controlled, which means there is potentially insufficient allowance for the downside risk of making investments across the whole portfolio. Whilst BT does not wish to make a case for the further disaggregation of the cost of capital at this time, it remains important to ensure the balance of risk across the BT portfolio is fair and reasonable.

[12] And Ofcom only focuses on demand side risk in its ex post evaluation. A number of other risks exist ex ante such as supply side risk.