Ofcom fibre costing model

Introduction

As part of the Wholesale Fixed Telecoms Market Review (WFTMR) process, Ofcom developed a costing model known as the fibre costing model (FCM). The model was intended to calculate the costs for Openreach to deploy fibre in Area 3, in case a formal Regulated Asset base (RAB) costing approach was required for the regulation of Openreach's Area 3 wholesale pricing, and as a point of reference for Ofcom's proposed pricing approach for Area 2, where a strict cost-oriented pricing was not proposed.

As Ofcom's stated objective was to encourage fibre infrastructure competition in Area 2, Ofcom created a version of the FCM for Area 2, in which it made a number of modifications to modelling assumptions, most notably a number of cases were constructed where the level of penetration was set at between 30% and 40% as Ofcom assumed that there would be two or three competing fibre networks in all or most of Area 2 (the "Reasonably Efficient Operator (REO)" model).

In its Statement, "Openreach Proposed Fibre to the Premise (FTTP) Offer starting 1 October 2021", Ofcom referenced the outcome of the of the FCM as "our estimate of the price that an entrant would need to charge in order to cover its efficiently incurred costs"[1] and stated that
"*Under the Equinox Offer, the price for the FTTP 40/10 anchor product is set at the regulated price ceiling, i.e. it is not discounted. Further, all other FTTP rental prices under the Equinox Offer are set at a level above this, including when ARPU-related discounts are taken into account*." And "*we consider that the Equinox Offer prices are set at a level above our estimate of the price that an altnet would need to charge in order to recover its efficiently incurred costs in Area 2*."[2]

In light of those statements and of the fact that the proposed Equinox 2 proposals set prices below the (indexed) 40/10 anchor product price, altnets[3] have undertaken a review of the REO model assumptions and the extent to which they could be reasonably be considered to result in what Ofcom refers to as "efficiently incurred costs of an entrant".

The analysis is summarised below and we would welcome the opportunity to discuss it in detail with Ofcom. We would also be pleased to provide any additional analysis Ofcom may consider necessary for it to consider the points raised in the analysis below.

The points below are described assuming that the reader is familiar with the REO model and with other regulatory instruments applied by Ofcom including the Duct and Pole Access (DPA) obligation and others. Further details can be provided if required.

Scorched earth/node

Ofcom's REO model assumes that the operator's network is designed according to the scorched earth principle. That is, independently of the existing network architecture. The REO model,

[1] See paragraphs 3.43 and 3.44.
[2] Stet.
[3] The work was commissioned by INCA and Zzoomm Ltd.

however, also assumes that the operator uses Passive Infrastructure Access (PIA) for between 40 and 50% of its network.

These two assumptions would appear to be incompatible as the use of PIA, by definition, means that the operator's network follows the cable and duct routes of the Openreach network.

When switching from scorched earth to scorched node in the Area 2 REO scenarios, the network costs increase by 52%. As far as we can tell, this is a result of longer routes due to Openreach's existing network configuration; we note that the quantities of duct, poles and fibre used in segment 2 are considerably higher in the scorched node case compared to scorched earth. It is possible that Ofcom has more detailed insight into the underlying cause of this significant cost uplift and we would welcome clarification on this matter.

Whilst a REO may be able to design its network to be more efficient by combining self-build and PIA usage, it would seem highly unlikely that the REO could achieve 100% scorched earth cost levels. Given that Ofcom estimates that REOs use between 40 and 50% PIA, we would estimate that at least 40% of the REO's network costs would be at the scorched node level. Using that assumption, **the REO network costs should be increased by approximately 4/10 of the 52% = 20.8%**.

It is possible that the above assessment is not sufficiently accurate, and Ofcom may wish to carry out a more detailed assessment. But we consider it essential that Ofcom reflects the impact of both PIA usage (which reduce construction costs) and the need to follow Openreach cable routes (which increase costs). It is inequitable to apply only the cost reductions from PIA usage without also applying the corresponding cost increases.

Deployment assumptions

The REO model assumes that the FTTP network is rolled out according to exchange areas, in order of rising cost[4], using infrastructure length as a proxy for deployment cost. This is an improvement on Ofcom's original assumption that roll-out would happen in individual post code sectors, again in order of rising cost. Even so, such a simplistic approach is unlikely to reflect the actual build programmes of altnets and it is likely that unit costs resulting from the model are understated as a result.

Altnets tend to build networks in discrete towns or cities, each of which may encompass several exchange areas (or parts thereof). In order to achieve economies of scale, it is rational to cover the entire settlement rather than just the parts of the access network with the shortest infrastructure length[5]. This means that the average access costs would be higher than indicated in the REO model (due to higher average infrastructure length).

Altnets make decisions on where to deploy based on a wide range of parameters and Ofcom's use of infrastructure length only is not just wrong but misleading and unnecessary. It would be more appropriate for the model to assume a straight average infrastructure length of locations in Area 2. As Area 2 should not include areas that are uneconomic to serve commercially, and Ofcom is assuming that all of Area 2 has the potential of sustaining up to three competing fibre networks, it is reasonable that **the model should reflect costs of the entirety of locations in Area 2**.

[4] Lowest cost exchange areas being covered first.

[5] Covering entire communities is also necessary for the altnet to be able to undertake meaningful sales and marketing activities. A Swiss cheese approach to coverage makes it very hard to market the FTTP broadband services effectively.

Time to reach maximum penetration

The REO model has three scenarios, where the REO reaches 30%, 33% or 40% market share and the model assumes that this level of market share is achieved in a 3-year period[6].

It is our view that **this assumption is both unreasonable and realistic**. We set out below our analysis of this parameter and explain why we believe that Ofcom must adjust this assumption.

Openreach FTTP take-up

We have looked at the FTTP take-up levels achieved on the Openreach network since 2019.

	FTTP (million)	FTTP % take up	FTTP (m) take up
Sep-22	8.8	27%	2.4
Mar-22	7.2	25%	1.8
Sep-21	6.0		
Mar-21	4.6	20%	0.9
Sep-20			
Mar-20	2.6		
Sep-19			
Mar-19	1.3		

Source: https://newsroom.bt.com/?h=1&t=Corporate

Using this data, we have created a simple model to estimate the level of take-up Openreach is achieving. However, there are some important observations to make before we look at the outputs from that model:

1. In the vast majority of locations where Openreach is building there are no other FTTP networks present or being built. That means that the accessible market is 100%, rather than Ofcom's assumption of between 30% and 40%. Given that there is typically a not insignificant group of consumers who will take new services as soon as they are available, it can be assumed that all of those 'early adopters' have moved on to FTTP as soon as it was available, therefore boosting the Openreach take-up in a manner that could not be expected in a market where two or more FTTP providers are present.
2. The Openreach FTTP network is being marketed by all the largest telecoms provider brands in the country, representing around 70-75% of the total broadband market in the UK today, regardless of network technology.
3. Openreach has introduced significant discount schemes that require its wholesale customers to commit to a minimum percentage new of connections being FTTP, thus ensuring that the retail ISPs focus all their marketing efforts on FTTP sales.
4. Openreach is offering in-contract conversion to FTTP without early termination penalties to the customer for exiting contracts before they expire.

When comparing those conditions with the conditions faced by altnets (the REO) it is clear that only point 1 applies to the REO case, and even that is to a more limited extent than for Openreach, as

[6] We note that the WFTMR (A15.83) states that Ofcom assumes a 5-year period for REOs to achieve the maximum penetration, but the model uses 3 years. This was confirmed by Ofcom by email on December 12 2022.

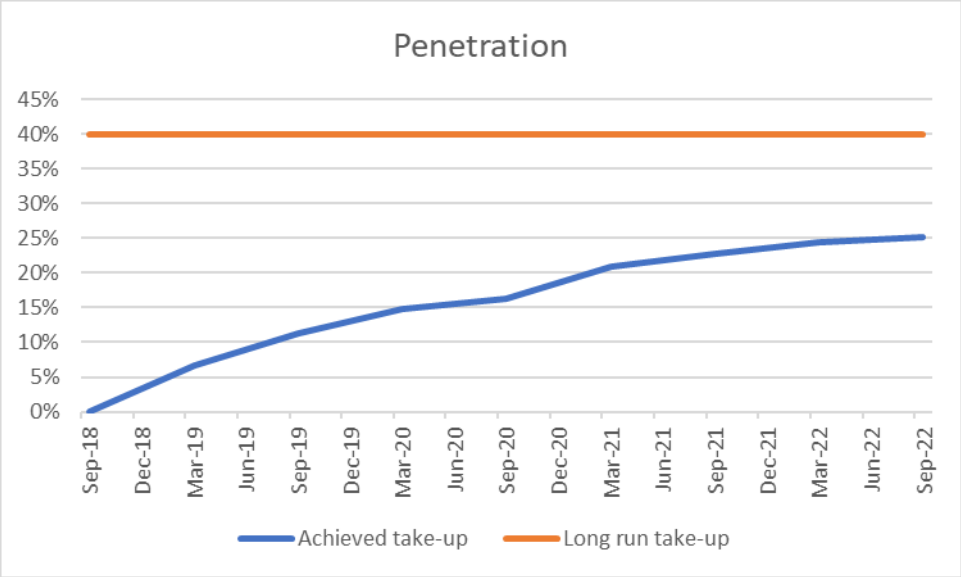
Openreach is increasingly targeting altnet deployment areas to spoil the first-mover advantage for altnets.

In fact, contrary to Openreach, altnets who offer retail services have little-known brands and often cannot replicate the multi-service offerings offered by the large retail ISPs using the Openreach network (including TV, exclusive content and mobile, for example).

Altnets who offer wholesale struggle to attract retail ISPs as wholesale customers. This is due to a mixture of parameters including the loyalty-inducing elements of the Openreach discount schemes. The fact that the thresholds in Equinox 1 are difficult to meet is confirmed by Openreach having waived the application of those thresholds for connection discounts until June 2023. This is contrary to Ofcom's expectations and assumptions in its rationale for allowing Equinox 1 to be implemented[7].

Also contrary to ISPs that use the Openreach network, altnets cannot offer end consumers the possibility to migrate to the FTTP service without contractual repercussions (early termination charges). This creates a significant lag-effect for altnets in achieving take-up.

Below is our representation of the Openreach take-up:

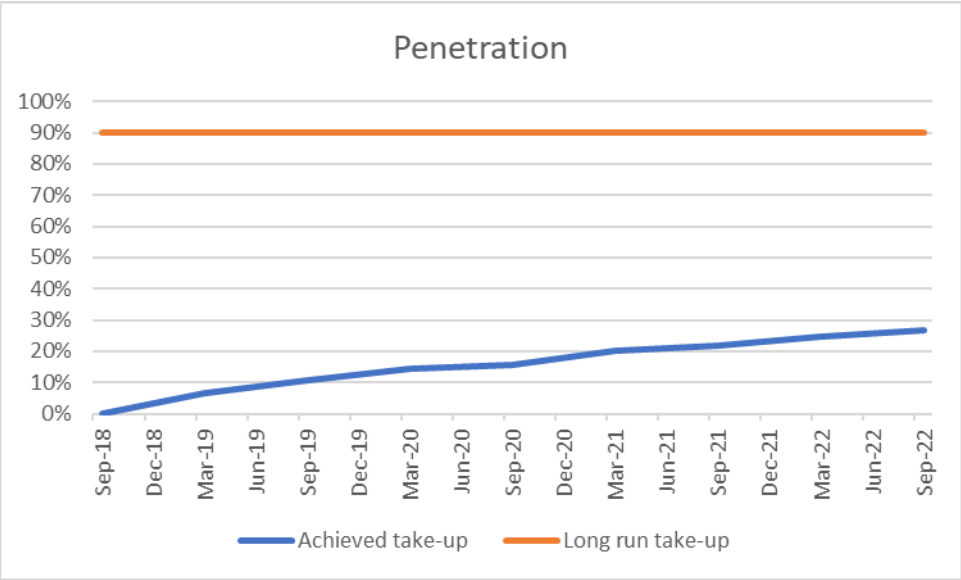


This analysis is made by applying a take-up curve to Openreach's reported FTTP deployments (see table above), with the curve applied from the year in which each deployment started. Openreach has achieved an actual take-up of 27% in aggregate across its FTTP footprint; in this example, a profile with a long run take-up of 40% has been assumed, and in order to match the actual achieved aggregate take-up of 27%, the time to reach 40% in each deployment would be just under three years.[8]

[7] In its decision to not take action in relation to the introduction of Equinox 1, Ofcom stated that some ISPs might struggle initially, but that some would likely exceed the thresholds without difficulty. The fact that Openreach has had to waive the thresholds entirely for connection discounts suggests that the majority of ISPs are struggling.

[8] Note that the graph shows the overall level of take-up across a number of different deployments, so the three years cannot be read directly from the graph.

However, we note that Openreach's deployments to date are typically with zero FTTP competition in the relevant locations and with customers able to move to FTTP without contractual penalties. If, therefore, the long run take-up were to be set at 90% (which is a reasonable assumption given that Openreach is the only FTTP provider in the area), Openreach's performance to date suggests that it would take seven years to achieve that level of take-up in each deployment. This is illustrated in the chart below.



So, it would seem that Ofcom's assumption that an REO can achieve the maximum penetration level available (given the number of players in the market) in three years is not even achievable by Openreach despite the significant advantages of Openreach over altnets as set out above.

REO FTTP take-up

Returning then to whether it is reasonable to assume that an REO can achieve its maximum penetration level in three years, the evidence suggests that this is extremely unlikely. If Openreach cannot achieve the maximum available penetration level in three years, given its significant market advantages as described above, it is clear that an REO would not be able to do so either.

It is our view that a 7-year period is more appropriate for Openreach to achieve its maximum penetration level[9]. This change would address the disparity between the current model assumption and Openreach's actual achieved time to achieve maximum take-up, but there will also be a need to consider the factors that would lead to a REO taking longer to acquire customers than Openreach; for example, Openreach's large established customer base which can be migrated quickly to FTTP. As a result, **the time period for a REO to achieve maximum take-up is likely to be longer than seven years**.

We further note that in its WFTMR decision, Ofcom considered it appropriate to assume that the long-run take-up of FTTP is reached within ten years for a given deployment, based on an examination of business plans.[10] It is unclear why, in the light of this, Ofcom chose to use a period of

[9] This is based on it taking Openreach 7 years to reach the 90% take-up in areas where it is the only FTTP provider.

[10] WFTMR Annex 15 paragraph A15.34

three years in its REO modelling, but we suggest that the evidence points to a period of ten years as being more appropriate.

We have looked at the impact of **adjusting the time to maximum penetration in the model from three years to ten years and this results in a 13% increase in the unit price from £19.40 to £21.92 for the REO high scenario**[11].

Weighted Average Cost of Capital (WACC)

The model is based on the micro- and macro-economic conditions in 2020/21 and assumes that the REO FTTP WACC is the same as the Openreach FTTP WACC. We consider that those assumptions are flawed or unsuitable for today's circumstances, we explain below why that is the case.

Openreach FTTP versus OUKT WACC

The Openreach legacy network elements that form part of the OUKT (Other UK Telecoms) asset group have been subject to very limited competition. The vast majority of competition in the UK telecoms market has, until recent years, been at the service level - with only Virgin Media challenging Openreach at the network infrastructure level.

For FTTP, however, Openreach is facing significant infrastructure competition from a large number of altnets and VM02, resulting in a risk profile that likely differs significantly from that of the 'safe' legacy network investment. The increased risk to Openreach's viability by the altnets is demonstrated by the very fact that Openreach introduced Equinox 1 and has recently notified Equinox 2.

We note that, in the FTMR decision, Ofcom accepts that the possibility the systematic risk for FTTP is higher than for other services covered by the OUKT WACC, and that this would lead to a higher asset beta for FTTP services. But Ofcom then states that it would be difficult to separate out this increased risk for FTTP, and therefore decides to not do so.[12]

We suggest that it is not merely possible but highly probable that FTTP services have higher risk than the other OUKT services. We therefore propose that Ofcom should analyse this aspect further and make appropriate adjustments to the asset beta to reflect this increased risk. If a detailed analytical approach is too difficult, then we suggest it would be better to include an estimate of the impact rather than completely failing to address the issue. We consider that failing to address the issue results in a WACC decision that is unsound for both Openreach and altnets.

Corporation tax

We also note that Ofcom has assumed a 19% corporation tax rate for BT and does not allow for the increased tax rates that will apply from 2023 onwards. Given that the capital allowance super-deduction of 130% is due to finish in March 2023, at the same time as the tax rate increase, we consider it highly inappropriate to use a model with the 19% corporation tax assumption.

REO WACC

Ofcom has not demonstrated why it considers that the cost of capital for an altnet could or should be the same as that for Openreach (whether for the Openreach FTTP or legacy network).

Annex 15 of the WFTMR states that Ofcom considers that it has compensated for the non-systematic risk differences between Openreach and the REO by shortening asset lives, resulting in a 50bn uplift on the REO WACC relative to the Openreach WACC. As already submitted as part of the WFTMR

[11] Note that the actual numbers should not be used due to the randomisation of inputs in Ofcom's model.
[12] WFTMR Annex 21 paragraphs A21.9, A21.107, A21.108

responses from a number of parties, we do not consider that the adjustment of asset lives is an appropriate manner to compensate for what is clearly a different risk profile between incumbent and new market entrant. Ofcom's approach appears to be an unnecessary 'fudge' when Ofcom could instead have applied a much more systematic and transparent approach to the setting of an appropriate REO WACC.

Ofcom's decision to shorten asset lives appears to be appropriate in its own right, but not as part of a WACC adjustment. With the advent of new technologies such as XGS-PON, we understand the rationale for reduced asset lives, but this is a separate issue from the systematic market risks faced by altnets. It is clear that a new entrant investing in FTTP networks, without a legacy customer base, will face higher risks than Openreach with its established base of ISPs as anchor tenants to underwrite the FTTP deployment; this view is supported by the WFTMR decision, which shows increased asset beta ranges for alternative operators compared to incumbents[13].

We therefore believe that **Ofcom should provide a separate WACC estimate for the REO scenarios in its analysis**, with the asset beta adjusted to reflect increased risk. We also suggest that **the cost of debt is likely to be higher for an altnet than for BT, and this parameter should also be specifically addressed**. In the current global economic climate. The cost of debt is rising and this also needs to be considered.

Micro- and macro-economic changes since the WFTMR was issued

In addition to the analyses set out above relating to the calculation of the Openreach FTTP and REO cost of capital, it is important to understand the changes in national and global economic circumstances in the last two years.

In 2020/21 inflation and interest rates were extremely low, in some countries negative interest was applied to bank balances. Today, however, we face soaring inflation and increasing cost of capital.

Cost of labour has also changed considerably since the 2020/21 model was completed.

We do not consider that the inputs used by Ofcom for the 2021 WFTMR Fibre Costing Model, such as for example the risk-free rate, the CPI inflation forecast and the cost of labour, are suitable for today's economic conditions. We therefore **request that Ofcom reassess the WACC calculation overall** as well as review the specific concerns outlined above.

Area 3 costing

In the WFTMR, Ofcom stated that it had not designed the regulatory framework to actively encourage infrastructure competition in Area 3. It did, however, apply the geographic discounting prohibition and the restriction on other commercial terms (OCTs) in both Areas 2 and 3.

Ofcom specifically stated:

"*While in Area 3 there is unlikely to be potential for material and sustainable competition to BT in the commercial deployment of competing networks, we expect some new alternative network build in Area 3. Consequently, our concerns also apply here in that Openreach could use commercial terms which applied in Area 3 alone to deter such build, potentially depriving consumers of greater choice and competition. "*[14]

[13] WFTMR Annex 21, Table A21.6

[14] WFTMR V3 para 7.31.

And

"In Area 3 there is unlikely to be potential for material and sustainable competition to Openreach in the commercial deployment of competing networks, but there is likely to be some rollout. Discounting prices in local areas where alternative networks are starting or planning to deploy could be a very effective way for Openreach to undermine this rollout, particularly given that some VULA services e.g. FTTC are already available at most premises. We believe that Openreach would still have an incentive to do this to deter any alternative network roll out, even if it is not expected to result in material and sustainable competition." [15]

These references to Area 3 in the context of the harm that Openreach could cause to competition through geographic discounts or OCTs clearly recognise that, despite Ofcom not expecting material and sustainable competition in Area 3, there are real consumer benefits to such competition and Openreach should not be allowed to engage in pricing (and other) behaviour that would harm competition and reduce consumer benefits.

Since the publication of the WFTMR, Ofcom has on several occasions stated that the level of competitive fibre deployment in Area 3 is significantly higher than Ofcom had expected. The corollary of that is that the potential harm to competition and reduction in consumer benefits in Area 3 is also higher than Ofcom had originally anticipated.

The REO model only calculates costs for Area 2 and it would seem that Ofcom is using this as a proxy for nationally averaged costs across Areas 2 and 3. Given the higher-than-expected level of infrastructure competition in Area 3, we believe that that assumption is no longer defensible.

It is now a reality that Openreach will not be able to achieve the 90% penetration in Area 3, as assumed in the RAB model. The level of competitive deployment in Area 3 is simply too extensive for that to be the case and Openreach will be the 2nd FTTP entrant in many locations where altnets are already building today or have nearly completed building (such as the Isle of Wight).

The difference between Openreach's Area 2 and Area 3 unit costs are therefore going to be much higher than was assumed in the Area 3 RAB model with the 90% penetration assumption. This consequently gives rise to a serious question of whether Ofcom can legitimately use the Area 2 REO model unit cost as a valid "price floor" for Openreach prices and discounts in Area 3[16]. Given the substantial level of Area 3 competitive FTTP deployment, Ofcom should now seriously consider whether a separate REO unit cost for Area 3 is the most appropriate manner to protect consumer interests in Area 3.

The single most important adjustment that needs to be made to the Area 3 costing model to estimate REO unit costs (and Openreach's costs), would be to change the assumption of the FTTP take-up level on the relevant FTTP network (whether REO or Openreach). Considering what would be an appropriate market share to assume for Openreach in Area 3 is, however, not straight-forward. This is because competition in Area 3 is likely to be less homogenous than in Area 2 and, therefore, it would be inappropriate to simply apply the average Openreach FTTP penetration for Area 3. For example, if Openreach faces competition by one network in 50% of Area 3 and we assume it achieves a 50% market share in those locations, the average Openreach penetration across Area 3 would be 75%. But that would not be a true picture anywhere. If the model is to

[15] WFTMR V3 para 7.94.

[16] We understand that Ofcom has not set a formal price floor but note that Ofcom's Equinox 1 decision refers to Ofcom being comfortable with the discounted price levels due to them all being above the REO unit costs from Ofcom's fibre costing model.

produce an outcome that could be used by Ofcom to set an effective 'floor' for Openreach prices in Area 3, which would not actively deter competition, then the unit cost needs to be based on conditions where Openreach faces competition.

In the parts of Area 3 in which Openreach faces competition it is reasonable to assume that, absent factors to distort competition, the parties offering FTTP connectivity will take equal shares of the market. This is the assumption Ofcom has applied for areas 2. In Area 3, however, there are unlikely to be more than two infrastructure provides in all but perhaps a few exceptions, so a market share assumption for Openreach where it faces competition of 50% would seem equitable.

Remembering that we do not have a model that applies other REO parameters to Area 3, we can only adjust the market share. **Having adjusted Openreach's FTTP penetration in Area 3 from 90% to 50% we find that Openreach's unit cost in Area 3 increases by 55% - from £17.71 to £27.51** (remembering that the absolute level is not meaningful due to randomisation in the model).

The very significant unit cost increase from adjusting the FTTP take-up assumption alone (without introducing additional changes that would be appropriate for a REO model) shows very clearly that **Ofcom cannot safely rely on the Area 2 REO unit costing as a national average 'floor' above which Ofcom can state it would not consider it likely that the absolute levels of Openreach's prices and discounts could have an anticompetitive effect.**