

Charge control review for LLU and WLR services

ANALYSIS OF THE DIFFERENTIAL CHARGES FOR LLU AND WLR PRODUCTS

This note considers Ofcom's methodology for deriving the charges for local loop unbundling (LLU) and wholesale line rental (WLR) products and its approach to cross-checking the differences in prices between the services.

Summary

Ofcom has used a current cost accounting fully allocated cost ("CCA FAC") methodology as a basis for setting MPF, SMPF and WLR charges.¹

An appropriate assessment of the relative prices of wholesale inputs which are substitutable is important for productive, allocative and dynamic efficiency reasons. In addition, it is important that wholesale services which are provided by BT and used as inputs by downstream rivals are provided in the most productively efficient way i.e. minimising costs.

To address productive efficiency concerns Ofcom undertakes a cross-check of the differences in the CCA FAC values for the alternative inputs. It calculates the CCA FAC differential between:

1. MPF and WLR as alternatives inputs to provide voice services to a customer; and
2. MPF and WLR+SMPF as alternatives inputs to provide both voice and broadband services to a customer.

These are compared to estimates of long run incremental cost ("LRIC") differentials between the different wholesale services.

We propose that Ofcom should consider using a LRIC plus equi-proportional mark-up ("EPMU") metric for cross-checking the differentials derived from Ofcom's CCA FAC approach. In particular, this is because in practice many truly incremental costs are treated as fixed and common because there is insufficient information to identify them as incremental to specific products. Unless it is possible to establish which costs are truly invariant to the scale of Openreach's business then a LRIC + EPMU approach appears more justifiable.

¹ MPF (Metallic Path Facility) and SMPF (Shared Metallic Path Facilities) are different types of LLU products.

Further, we consider the specific issue of the different jumpering arrangements for MPF and WLR. We conclude that BT may have less incentive to minimise the costs of MPF as this product is only used as an input by BT's rivals. In this case, it is appropriate to consider an efficiency adjustment to FAC estimates based on BT's incurred costs in order to set MPF charges that reflect efficient forward looking costs.

We also consider TAM (test access matrix) costs. Ofcom decided that these costs (as with other LLU set up costs) should be borne by all DSL (digital subscriber line) lines as all DSL customers would benefit from the resulting competition between DSL providers. This rationale remains strong as a reason for allocating TAM costs to both SMPF and MPF lines. However, there are additional considerations about the appropriate treatment of the TAM costs. If BT did not act efficiently when incurring TAM costs initially, because it had less incentive to minimise these costs, then it may not be appropriate for BT to be allowed to recover all of these costs – a proportion of the costs could be excluded. In addition, if there are benefits to maintaining competition for the voice element of voice and broadband services, even as there is increasing take-up of superfast broadband, then it could be efficient to spread TAM costs over all lines that benefit from this competition, not just broadband lines.

The remainder of this note considers:

- Ofcom's methodology for setting LLU and WLR charges;
- why the differentials between the charges for alternative input products are important and may become increasingly so in future;
- the appropriate metric for cross checking efficiency; and
- wiring arrangements and TAM costs as these cost categories account for significant differences between the proposed LLU and WLR charges.

Overview of Ofcom's methodology

Ofcom uses a CCA FAC methodology as the basis for setting the LLU and WLR charge controls. However, Ofcom recognises that the CCA FAC methodology does not necessarily estimate an efficient structure of prices especially when setting relative prices within a group of services.² However, Ofcom argues that such an approach can prevent "excessive" prices and ensure the delivery of services is sustainable.³ Ofcom also stated that CCA FAC has a number of other practical advantages including being well understood and that it "*can be reconciled to*

² Paragraph 8.2 of Ofcom's consultation document.

³ Paragraph 3.17 of Ofcom's consultation document.

*the regulatory financial statements (RFS) which are published by BT and independently audited.*⁴

To address productive efficiency concerns, Ofcom emphasises that it wishes to ensure there is no distortion in communications providers' ("CPs") incentives to choose between alternative inputs that can be used to provide the same downstream products to retail customers i.e. standalone voice services or bundled voice and broadband services.⁵ To do this Ofcom undertakes a "cross check" of the differences in the CCA FAC values for the alternative inputs. It does this by taking estimates of the LRIC cost differential between:

1. MPF and WLR – the alternative inputs to provide a voice-only service on BT's copper network; and
2. MPF and WLR+SMPF – the alternative inputs to provide bundled voice and broadband services on the copper network,

and checking that the differences in the CCA FAC values are at least as large as the LRIC cost differentials. Ofcom argues that this should ensure there are no obvious distortions that would result in productive inefficiencies.⁶

So, the CCA FAC numbers have 'primary' importance because these are used as the basis for setting prices. And, the estimates of the LRIC cost differentials have 'secondary' importance because these are used as a cross check on the CCA FAC differentials, but are not used to determine prices, as long as this test is met. Ofcom has not set out how prices would be determined if the FAC results did not meet the test.

The importance of differentials

There are two main reasons why it is important to ensure that the differentials are at an appropriate level.

First, an appropriate assessment of the relative prices of wholesale inputs that are substitutes is important for efficiency. There are three types of efficiency effects which can have different implications for the differentials:

- **Productive efficiency:** Where CPs can choose between (i) using MPF or WLR to provide a voice-only service to customers, or (ii) MPF or WLR+SMPF to provide voice and broadband services to customers, their incentives should be aligned with minimising the overall cost (incurred by both BT and the CPs) to provide an equivalent service. To assess whether

⁴ Paragraphs 3.16 and 8.1 of Ofcom's consultation document.

⁵ Paragraphs 8.11-8.12 of Ofcom's consultation document.

⁶ Paragraph 8.7 of Ofcom's consultation document.

productive efficiency is promoted requires an understanding of the difference in BT's efficiently incurred costs to provide these services;

- **Allocative efficiency:** Consumer welfare is increased if more of the costs which are fixed and common between different services are recovered from services for which the demand is relatively more inelastic. This means that less of the fixed and common costs are allocated to more price elastic services. For these services demand is more sensitive to price: allowing prices to be lower increases the overall level of demand and thus increases the welfare of consumers; and
- **Dynamic efficiency:** Dynamic efficiency considerations may be relevant if a greater level of investment and innovation may be expected, leading to higher consumer welfare in the long term if the relative prices are altered now. For example, if MPF-based competition was believed to lead to greater levels of innovation, such as in service differentiation, promoting this form of competition could lead to greater consumer welfare.

The different efficiency considerations have different implications. Productive efficiency considerations would tend to favour an absolute differential between prices that reflects the LRIC-based differential between the services.⁷ In contrast, allocative efficiency considerations would favour pricing that takes demand factors into account (for example, Ramsey pricing). Absent detailed/robust information on all the relevant demand elasticities, differentials based on an (actual) LRIC+EPMU standard may approximate a consumer welfare maximising outcome.

Second, to ensure that costs are minimised, it is also important that wholesale services provided by BT and used as inputs by downstream rivals to BT are provided in the most cost effective way. There is a particular concern with the MPF product, to the extent that BT does not use MPF to provide its own retail services, but provides large volumes of it to CPs who compete with BT for retail customers. BT can be expected, therefore, to face different incentives for cost minimisation in relation to MPF, compared to other products that are used both by rivals and BT: in particular, BT can be expected to have less incentive to achieve cost efficiencies in the provision of MPF as this would have the effect of lowering rivals' costs.

Productive efficiency requires that, where BT is able to provide a functionally equivalent product to CPs at lower cost it should do so. However, if the

⁷ Although, as discussed below, this should be the 'true' LRIC differential between the services, rather than an 'estimated' LRIC differential, to the extent that the latter does not fully reflect the true difference in LRIC. We expect that the estimated LRIC differential would tend to underestimate the actual differential and explain this further below.

incentive to ‘inflate’ the costs of its rivals counter-balances any overall incentive to reduce costs, BT may not introduce efficiencies, when in fact it would be productively efficient to do so. In those circumstances, Ofcom should consider how it can provide BT with the appropriate incentive to minimise costs.

The differential between MPF and WLR

Ofcom has argued that the differential between MPF and WLR should be set on a similar basis to BT’s reported CCA costs i.e. reflecting the use of the TDM/PSTN (time division multiplexing/public switched telephone network) technology.⁸ An important element of Ofcom’s reasoning appears to be that, considering the voice market alone, if a new entrant was able to offer voice services using MPF more cheaply than BT using the legacy technology, then its approach would not preclude such entry. However, to send the right efficiency signals, this requires that:

- BT’s wholesale charges for WLR appropriately reflect its forward looking costs of continuing to provide voice services on the copper network, including any costs that it needs to incur in the longer term; and
- the MPF product is supplied in an efficient way that reflects the least cost method for providing an equivalent service.

Only if these two conditions are met will it be clear to communications providers whether they are able to provide the service at lower overall cost and so ensure productively efficient choices are made. However, if BT provides MPF in an inefficient way, i.e. incurs more cost than is necessary, and this is reflected in the charges that are levied on CPs, then CPs may not use MPF to provide services even though this would be the lowest cost method overall of delivering voice services if BT was operating efficiently.

The roll out of NGA emphasises the importance of determining whether the differential between the prices of MPF and WLR in particular properly reflects an assessment of the efficient cost differences between the two services. We explain why below.

In practice, the only viable form of competition for voice-only customers has been through BT’s WLR product – there has not been sufficient margin to date between MPF and WLR for LLU operators to use MPF to serve voice-only customers. In contrast, there is sufficient margin for LLU operators to purchase MPF and use this to provide services to voice-and-broadband customers. This has allowed competition over a large part of the value chain for bundled voice

⁸ Paragraphs 8.26 – 8.39 of Ofcom’s consultation document.

and current generation broadband services. Safeguarding the benefits of this competition in the future, as BT's rolls out NGA, is important.

BT's NGA may alter exchange-based economics for LLU operators. As consumers migrate to next generation broadband, and assuming that an LLU operator is able to offer such services by purchasing Openreach's Generic Ethernet Access ("GEA") product, then that LLU operator could gradually reduce its reliance on its current generation broadband equipment within a BT exchange (MSANs and DSLAMs, multi-service access nodes and digital subscriber line access multiplexers) while using more equipment that interfaces with Openreach's GEA product.⁹

As a result of this shift, the relative attractiveness of the different wholesale copper access products may also change. For example, LLU operators that offer dual play voice and super-fast broadband to their customers will need to choose between MPF or WLR as an input alongside Openreach's wholesale GEA product. To make sure this choice of inputs is efficient it is necessary to consider whether charges for MPF and WLR are a true reflection of the efficient way to provide these products.

In this context, the differential between MPF and WLR takes on greater importance than it has to date. If existing LLU operators switch to purchasing a WLR product to provide voice (to voice and superfast broadband customers) then this could lead to less competition across the value chain for voice services i.e. competition between BT and its rivals will become 'shallower' because CPs will rely on BT's exchange-sited equipment to provide voice services (through the WLR product) rather than their own.

Ofcom states that it considers it "unlikely that MPF would be used for voice-only services".¹⁰ However, if the relative prices of MPF and WLR are set appropriately then the justification for this position is not clear. If CPs have existing equipment in local exchanges with a voice capability, and wish to continue utilising this, then it may be efficient for them to use a form of MPF to provide this.

The appropriate metric for cross checking efficiency

Ofcom argues that "*productive efficiency considerations point to differentials between products that reflect the absolute differences in LRIC*".¹¹ Ofcom provides a simple example at

⁹ Assuming it doesn't instead choose to roll out its own fibre network.

¹⁰ Ofcom consultation document footnote 129.

¹¹ Condoc para 8.7

footnote 132 of the consultation document to illustrate the point. In the simple example both BT and CPs incur costs that are fixed and common and the level of these costs is unaffected by the decision of the CP to (i) buy a cheaper product and do more work themselves or (ii) buy a more expensive product and do less work themselves.¹² Ofcom's argument is that the difference between the two options (as far as BT is concerned) is simply the cost difference between providing the two wholesale products. If the entrant can provide the additional functionality at lower cost, then it would be productively efficient for it to do so i.e. this approach could be expected to lead to a minimisation of the total cost of providing an equivalent retail product.

Ofcom have sought to calculate the LRIC differential by excluding certain cost categories which are deemed to be 'common costs'. If it were practicable to accurately identify the common costs associated with each product then this approach may have more merit. However, even though most categories of costs are carefully considered, not all costs that are labelled or (implicitly) treated as 'fixed and common' are truly fixed and common, in the sense of being completely invariant to the scale of the business. In practice, it is difficult to identify cost drivers and, thus, find the appropriate basis for allocating all such costs to products. Therefore, many costs are treated as 'fixed and common' when simply there is insufficient information to be able to allocate them to end products. However, if the volume of BT's business was to increase then these costs would be expected to increase. For example many services centrally provided by BT Group may be treated as common costs because the exact causal relationship is difficult to determine precisely, and under an FAC approach this classification of costs is not critical. However it is reasonable to expect that the level of expenditure on these services will be positively related to the overall size of BT, which suggests that there are indirect causal relationships between these costs and outputs.

Following from this, it is a reasonable starting assumption to consider that a share of the costs that are currently treated as fixed and common costs, are in reality incremental costs i.e. if a particular increment (such as MPF, or WLR) was no longer provided by BT there would be less of these fixed and common costs. It is a standard cost allocation approach, for incremental costs that are not directly attributable to a particular increment (for example HR management costs), to be 'allocated' indirectly. If a similar methodology was adopted in relation to costs that have been labelled as 'fixed and common' but are in reality incremental, then this would be expected to lead to a relatively greater share of

¹² In this case the cheaper product would be MPF and the "more expensive product" would be WLR or WLR+SMPF depending on whether the end user receives voice or voice and broadband provided on the copper network.

such costs being recovered from the products that have relatively higher (direct) incremental costs.

If all costs that are treated as fixed and common are in fact incremental to the different products (but not treated as such because the information about the cost drivers is incomplete) then this would suggest that the appropriate way to estimate the desirable level of the differential to achieve productive efficiency would be to calculate the LRIC differential using a LRIC+EPMU approach as the mark-up will result in an appropriate allocation of indirect costs. To the extent that some costs are truly fixed and common, then using such an approach could over-estimate the differential. But, if Ofcom is unable to establish that certain costs are truly fixed and common, it seems appropriate that Ofcom should also calculate the differential using a LRIC+EPMU approach when coming to a view on the appropriate level of the differential to achieve productive efficiency. The more likely it is that a significant share of the costs that are currently treated as 'fixed and common' are in fact incremental, the more weight should be given to the estimated differential using a LRIC+EPMU approach.

Exchange wiring

Exchange wiring may be an area where the MPF product is not supplied in the most efficient way. So it is an important element to consider when assessing the appropriate charges for MPF and, therefore, the appropriate differential between the charges for MPF and for WLR.

This section summarises the relevant background to exchange wiring. It then sets out the implications of inefficient exchange wiring for the charges for new MPF lines and, separately, for existing MPF lines. For existing MPF lines we also consider the incentives to switch from double jumpering to single jumpering solutions.

Background

MPF currently makes more use of the main distribution frame (MDF) than WLR: two jumpers are required to provide an MPF line whereas only one jumper is required to provide WLR.

This leads to significantly greater costs to provide MPF compared to WLR in at least two areas:

1. usage of the MDF (the MPF charge is twice that of the WLR charge); and
2. a higher level of exchange faults leading to increased allocation of exchange repair costs (the MPF charge is more than twice that of the WLR charge, see the table below).

Table 1. MDF costs by product

	MPF	WLR	SMPF
MDF use	3.20	1.60	1.60
MDF repair	2.89	1.36	0.96

Source: Frontier Economics analysis of Ofcom's CA model

As indicated in the “importance of differentials” section above, where BT’s wholesale services include elements that are largely used by its rivals only, then we would expect BT to have less of an incentive to minimise costs for these elements.

Sky and TalkTalk Group (“TTG”) have indicated to us that they consider BT’s wiring arrangements for providing MPF appear inefficient and that a lower cost wiring configuration in the exchange would, similarly to WLR, make use of the MDF only once. In the consultation¹³, Ofcom sets out a possible single jumpering wiring arrangement for MPF which would require different testing equipment, but which, in addition to requiring one less jumper, would also require one less tie cable (two versus the three that are used in the current MPF arrangements).

We understand from TTG that a further alternative may be for CPs to provide their own testing equipment and to provide the testing data to BT. Eircom provides similar single jumpered local loop products that demonstrate that the arrangements are feasible, at least in Ireland.¹⁴

Implications of inefficient exchange wiring

If the current arrangements are inefficient there are two further questions to consider:

1. What are the implications for the provision of, and charges for, new MPF lines?
2. What are the implications for the charges for MPF lines which are already provided using the double jumpering arrangement?

New MPF lines

If new MPF lines can be provided at lower overall cost by using single jumpering, then it is desirable from a productive efficiency perspective to ensure that this is achieved. Furthermore, it seems appropriate that any cost reductions from single

¹³ Figure 8.7, Ofcom, *op cit*

¹⁴ Eircom: Product Description - Unbundled Local Metallic Path (ULMP)

jumpering, compared to the current double jumpering arrangements should be passed on to CPs.¹⁵

If the cost of new MPF lines could be lowered by single jumpering then a limit could be placed on the amount that BT is able to charge for the double jumpering solution as long as a single jumpering solution is not in place i.e. BT could only set the charge of the double jumpering solution at the level of the FAC if a single jumpering solution is available for CPs (with the charge set at the appropriate cost). In the extreme, BT could be limited to only charging for double jumpering at the level of the cost of the more efficient single jumpering solution. This would mean that Openreach would be unable to recover all the costs of providing new double-jumpering MPF line. However, this may provide Openreach with strong incentives to introduce the new single jumpering products rapidly.

An alternative would be to decrease the amount that BT is allowed to charge for double jumpering MPF along a glidepath so that it reaches the cost of the single jumpering solution after a set period of time. This would create less strong incentives for BT to introduce the single jumpering rapidly and would thus allow it more time to do so.¹⁶

Existing MPF lines

The appropriate treatment of the charges for existing MPF lines may depend to an extent on the context in which the processes for providing the current double jumpering MPF product, including the technical specification, were originally defined. Ofcom emphasises¹⁷ how these were developed through close industry engagement. However while the CPs were able to participate in this process of defining the LLU products, there was, and continues to be a significant information asymmetry which may not have enabled the CPs to accurately assess whether the LLU products BT proposed were delivered in the most efficient fashion. For example, it is only now, with the information disclosed in the latest consultation document, that CPs understand that more complex jumpering arrangements lead to higher fault rates and costs.

¹⁵ It could be argued that to incentivise BT to introduce new products, it could be permitted to retain some of the cost savings. However, if BT has not had the incentive to introduce these products to date this suggests that this incentive is ineffective.

¹⁶ If a single jumpering product is introduced, or BT is only able to charge for single jumpering, the volume of MDF jumpers that are considered in the FAC calculations would be expected to decrease over time. And, if the costs of purchasing MDF capacity have already been incurred these costs would thus need to be recovered from a lower number of MDF jumpers. Therefore, the average MDF cost per jumper would be expected to increase. This would have an effect on the charges for both the single jumpering MPF product and the WLR.

¹⁷ Paragraph 8.43, Ofcom, *op cit*

This information asymmetry coupled with the lack of incentive, as indicated above, for BT to introduce improved lower-cost products, if it knows that it can recover its costs from the products sold to its downstream rivals, may have resulted in an inefficient outcome. In this case it may be appropriate to apply a downward efficiency adjustment to reduce the MDF related costs allocated to MPF. Whilst this would penalise BT by not allowing it to recover some of the costs that it incurred to provide double-jumpering MPF, it may be appropriate if it would have been clear to an efficient operator, with the information available to it at the time, that it was incurring costs inefficiently. And, if Ofcom signalled that it could do this again, if BT chose not to use the most efficient means to provide products sold solely or primarily to third parties, it may create strong incentives for BT to act efficiently in future. Ofcom notes that reducing the charges to CPs (for ongoing provision of double jumpering MPF) would create a distortion to the incentives¹⁸ of CPs to move to single jumpering – they would benefit from the lower charges anyway. However, if the forward looking costs of providing the line using a single jumpering solution (including the costs of migration) were lower than the double jumpering solution, BT itself would have the incentive to seek to migrate CPs to the single jumpering arrangement. A process that provides the desired incentives may be sufficient to promote the efficient outcome.

Line test equipment - recovery of TAM costs

Ofcom decided in its 2004 review of the wholesale local access market that LLU system set-up costs should be recovered from all those who benefit from the development of LLU. It believed that the benefits from fostering competition in the provision of broadband services would be felt by all ADSL users.

Ofcom has since stated its belief that the gains from competition in broadband have been considerable.¹⁹ Therefore, the rationale for treating efficiently incurred LLU set up costs (including TAMs) as costs that should be borne by all DSL lines still appears to be strong.

However, this may not be the best way to treat the cost of TAMs. First, it may not be appropriate to allow BT to recover all TAM costs. Second, it may be better to spread the cost of TAMs over all lines, including WLR lines that are not combined with SMPF.

If Ofcom has evidence that the way BT has implemented line testing for LLU was inefficient at the time, then it may decide that not all TAM costs should be recoverable. If this is the case, it could imply that CPs should only be charged at

¹⁸ Paragraph 8.47, Ofcom, *op cit*

¹⁹ See for example, Review of the wholesale local access market – Statement, 7 October 2010

the level of costs BT should have incurred in setting up the testing part of the LLU system, if it had been looking to minimise those costs.

If there are also benefits in maintaining competition for the voice element of voice and broadband customers, and extending this to competition for customers who are provided only a voice service on the copper network, this could imply that TAM costs should be spread over all lines – not just broadband lines. This is because all lines could benefit from this increased competition, not just DSL lines.