Fibre regulation emerging views

A report for Spark

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Project Team

Hayden Green

Axiom Economics

Australia
PO Box 334
Petersham NSW 2049
T: +61 420 278 101
www.axiomeconomics.com.au

New Zealand
PO Box 5405 Wellesley St
Auckland 1141
T: +64 212 664 884
www.axiomeconomics.co.nz

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1. Introduction

Part 6 of the *Telecommunications Act 2001* (the Act) sets out a new regulatory regime for fibre. The legislation requires the Commerce Commission (Commission) to design and implement input methodologies (IMs) and price-quality paths for fibre fixed line access services (FFLAS). The Commission commenced this process in November 2018 by releasing a paper containing its initial thoughts.[1] I provided an independent economic review of certain aspects of the Commission's proposed approach in an expert report prepared for Spark.[2]

The Commission's 'emerging views' paper[3] represents the next step in the development of IMs. It sets out its current – albeit still only preliminary – positions on these upfront rules, requirements and processes. I have been asked by Spark to provide an independent economic assessment of certain aspects of those emerging views. Specifically, I have been requested to provide my opinion on the preliminary positions taken on cost allocation and pricing methodologies. The remainder of my report is structured as follows:

- in **section two** I explore the Commission's emerging views on cost allocation, highlighting some potential gaps and weaknesses in its proposed approaches and suggesting what I consider to be some material improvements; and
- in **section three** I assess the Commission's preliminary position on pricing and explain the difference between 'principles' and 'methodologies' – a crucial distinction that appears to have been widely misunderstood hitherto.

In the interests of parsimony, I have tried not to repeat the analysis set out in my first report. Where that earlier material is relevant, I seek to provide only a brief recap and page reference. For the avoidance of doubt, the conclusions set out in that previous piece remain equally germane unless I indicate otherwise. For the avoidance of doubt, the opinions expressed throughout this report are our own and do not necessarily reflect the views of Spark. Finally, I have read the High Court's code of conduct for expert witnesses and confirm that I have complied with those requirements when preparing this report.

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1 Commerce Commission, *New regulatory framework for fibre, Invitation to comment on our proposed approach*, 9 November 2018 (hereafter: 'New Framework Paper').

2 Axiom Economics, *New regulatory framework for fibre*, A report for Spark, December 2018 (hereafter: 'Axiom First Report').

3 Commerce Commission, *Fibre regulation emerging views, Technical Paper*, 21 May 2019 (hereafter: 'Technical Paper').

2. Cost allocation

The Commission is required to prepare an IM that covers the allocation of common costs, including between activities, businesses, access seekers, regulated services and geographic areas. In broad terms, the Commission's emerging view encapsulates two key elements:

- the allocation of costs between **FFLAS and other (non-FFLAS) services**; and
- the allocation of costs between **different types of FFLAS**.

In the remainder of this section I provide a broad overview of the Commission's preliminary views on these two matters. I then provide my assessment of its proposed approaches, identifying some key gaps and weaknesses. I then recommend some potential improvements.

2.1 Overview of emerging view

For allocations between FFLAS and other services, the Commission proposes to build on the approach applied to energy businesses and airports.

When it comes to the allocation of costs between FFLAS and other services, the Commission's current proposal is to use an approach analogous to that contained in its IMs for energy businesses and airports. Specifically, it suggests that costs that are directly attributable to FFAS should first be allocated fully to those services. Then, any costs that are common (or 'shared') across FFLAS and other services should be allocated using an accounting-based allocation approach (ABAA); namely:

- common costs should be allocated based on a 'causal relationship' whenever that is possible; but
- when a causal relationship is not available a proxy allocator may be used.

The Commission has indicated that the avoidable cost allocation methodology (ACAM) and optional variance accounting-based allocation approach (OVABAA) would not be permitted. It has stated also that, when a supplier uses a proxy allocator, it must explain why a causal relationship (the preferred option) could not be established and the rationale for the proxy selected. The Commission does not currently believe that the allocation approach needs to be any more prescriptive.

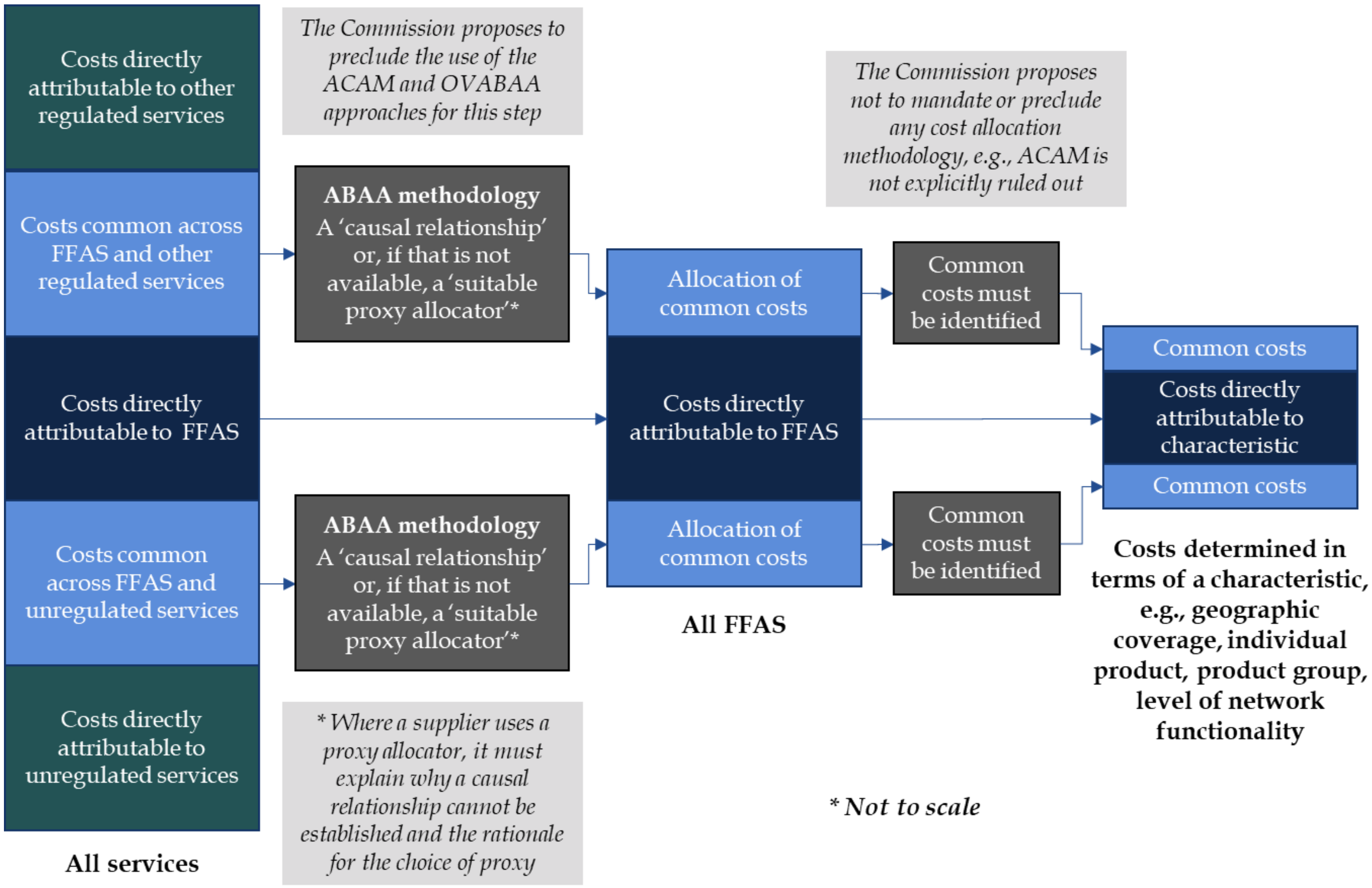
The proposed approach for allocating costs between FFLAS is even less prescriptive.

The Commission's preliminary position regarding the allocation of costs between FFLAS is much simpler. Its emerging view is that, when suppliers are required to allocate costs based on a particular characteristic (e.g., geographic location, a specific product, etc.), those costs that are directly attributable to those factors should be allocated in full. Then, any shared costs that relate to that characteristic must simply be identified. No other requirements are specified.

ACAM would be precluded in the first step of the allocation methodology, but potentially not the second.

Importantly, the Commission neither proposes nor precludes any methodology for allocating costs that are common between FFLAS. In theory, therefore, ACAM could be employed, which seems incongruous, given the Commission's obvious aversion to the approach when it comes to the apportionment of costs between FFLAS and other services (i.e., the prior allocation step). However, it has indicated that it is open to more prescriptive approaches if circumstances require them. Figure 2.1 below summarises the Commission's emerging view on cost allocation.

Figure 2.1: Emerging view of allocation of common costs



The Commission has also proposed to use the same approach to apportion *assets* between FFLAS and other services when determining the initial fibre RABs – including for the purposes of assessing past losses.[4] To that end, one specific aspect upon which the Commission has sought further input is how it should allocate costs/assets when an investment has been 'triggered' by the UFB build (e.g., a pole replacement), but the assets in question are currently being (and will continue to be) used to supply both FFLAS and other services (e.g., copper services).[5]

2.2 Assessment of emerging view

Chorus will have strong – and perfectly rational – commercial incentives to allocate common costs in ways that reduce competition.

As I stressed in my first report, the cost allocation IM is vital. Many of the costs of providing FFLAS will be 'shared' across multiple services (i.e., the 'light blue boxes' in Figure 2.1 are likely to be large). Even more importantly, Chorus will have strong – and perfectly rational – commercial incentives to allocate those common costs in ways that assuage existing and/or potential competitive threats. For example, I noted in my first report that it may be inclined to:[6]

- allocate a disproportionate share of the costs (and assets) that are common across its fibre and copper networks to the former, thereby potentially enabling it to recover those imposts from both sets of customers (i.e., to 'double-dip');
- assign an undue quantum of common costs to fibre services that serve as key inputs into mobile broadband and voice services, thereby reducing the attractiveness of those potential substitutes to its own FFLAS; and
- allocate a disproportionate slice of the costs common to layer 1 and layer 2 services to the former, thereby reducing the incentives of potential access-based competitors to procure unbundled dark fibre services.

The IM needs to be prescriptive enough to stop Chorus from acting upon those incentives.

I consequently concluded that the cost allocation IM would need to contain sufficient prescription to prevent Chorus from acting upon any such inclinations, i.e., I did not think that high-level principles could suffice.[7] The Commission has heeded that advice to some degree, e.g., its preliminary decision to rule out ACAM in the first step of the allocation process is appropriate. However, I believe that the proposed methodology would benefit from more constraints.

2.2.1 Greater scope for competition

Before I examine the specifics of the Commission's preliminary proposal, I think it is worth reflecting briefly upon perhaps the single most significant contextual difference between the Part 6 and Part 4 arrangements. As I explained at length in my previous report,[8] there is substantially more scope for the Commission's Part 6

4 Technical Paper, p.61.

5 Technical Paper, p.86.

6 Axiom First Report, p.25.

7 Axiom First Report, p.26.

8 Axiom First Report, pp.2-4.

IMs – and especially its cost allocation IM – to impact upon *actual* competition in *real* markets.[9] That was not the case under Part 4, where the primary question was how to promote outcomes *consistent with* those produced in workably competitive markets – a largely *hypothetical* exercise.

There is far more scope for the Commission's Part 6 IMs – and especially the cost allocation IM – to impact upon actual competition in real markets.

This is a highly consequential distinction. At the time, introducing a relatively non-prescriptive cost allocation IM for, say, regulated electricity lines businesses might not have been expected to provide those parties with strong incentives to allocate costs in ways that foreclosed potential competitors. But the same cannot be said for fibre providers. There is greater potential for *infrastructure*-based rivalry to emerge in telecommunications markets and, accordingly, for that competition to be hindered if the Commission gets its IM decisions wrong. For example:

- while Chorus clearly possesses substantial and enduring market power in those areas in which it is the provider of FFLAS, there is nevertheless the potential for 'fixed-line' competition to occur between copper and fibre services in those areas in which it is *not* the LFC;[10]
- there is the prospect of some rivalry between Vodafone's HFC[11] network and Chorus' and Enable's fibre networks in Wellington and Christchurch, respectively; and
- there is the potential for the boundaries of infrastructure-based competition to shift in the future, e.g., deployments of 5G mobile infrastructure may improve significantly the quality of wireless services (both FWA[12] and mobile), since the technology can support much faster data speeds and higher levels of demand.[13]

There is also a greater likelihood of *access*-based competition emerging under Part 6 than Part 4.[14] From 1 January 2020,[15] Chorus will be required to supply 'unbundled

9 This is undoubtedly why s.166(2)(b) directs the Commission explicitly to promote *actual* workable competition in telecommunications markets – a vital legislative difference.

10 Indeed, the existence of that rivalry is the very reason why Chorus' copper services have been deregulated in those geographic locations.

11 Hybrid fibre coaxial is a broadband network based on a hybrid of fibre and coaxial cable technologies. Vodafone acquired the HFC network in Wellington when it merged with TelstraClear in 2012.

12 FWA refers to the use of a wireless technology to provide an end-user with access that is restricted to one premise (or location). The service can be provided over a mobile or other wireless technology. For example, FWA can be used to provide broadband access to homes using wireless mobile network technology rather than fixed lines. It therefore enables the provision of broadband services in areas beyond the reach of existing fixed line networks, e.g., in remote locations.

13 Spark, Vodafone and 2degrees have all signalled their intentions to deploy 5G networks.

14 Note that infrastructure- and access-based competition do not exist in 'water-tight' compartments. There can be some overlap. For example, competition from wireless broadband is contingent upon those suppliers procuring access to Chorus' 'Direct Fibre Access Service (DFAS)', which is part of its suite of FFLAS. In other words, access to certain bespoke parts of Chorus' fibre network is currently required to deliver wireless voice and broadband services – which are substitutes for FFLAS for at least some market segments.

15 And from 1 January 2026 in the network funded as part of the second phase of the ultra-fast broadband (UFB) deployment.

layer 1 services' on all parts of its fibre networks on an 'equivalence'[16] and 'non-discriminatory'[17] basis (i.e., to offer a 'dark fibre' service). The availability of an unbundled 'dark fibre' product will create another avenue of potential rivalry – at both the retail[18] and wholesale level.[19]

Applying an IM taken largely from the Part 4 regime could result in significant consumer detriment in the very different context of Part 6.

Chorus would have a natural commercial incentive to reduce or extinguish those competitive threats if the IMs allow it. For example, if the IM provides Chorus with flexibility to allocate common costs in ways that compromise competition in the wireless market or for access to layer 1 infrastructure, then end-users could be deprived of the substantial benefits those services might otherwise deliver. It follows that even if a relatively non-prescriptive approach might have sufficed under Part 4, replicating it under Part 6 could result in considerable detriment to consumers given the very different context.

In my opinion, the Commission should be acutely mindful of this crucial distinction between Parts 4 and 6 when designing its cost allocation IM. Chorus' ability to act on its clear incentives to assuage or foreclose actual competitive threats will depend crucially on the constraint provided by the IMs – and the cost allocation in particular. To that end, as I explain in more detail below, I do not think that the Commission's preliminary proposal entails sufficient specificity. In my opinion, a significantly more prescriptive IM would represent a materially better approach.

2.2.2 Definition of 'causal relationship'

The Commission has proposed the same definition of 'causal relationship' as under Part 4.

The Commission has proposed to apply the same definition of 'causal relationship' as it adopted under Part 4 for electricity distribution businesses. There, a causal relationship was specified in the following way:[20]

- in relation to operating costs, it was defined to include a circumstance in which a cost drive leads to an operating cost being incurred during the 18-month period terminating on the last day of the disclosure year in respect of which the cost allocation is carried out; and
- in relation to regulated service asset values, it was defined to encompass a situation in which a factor influences the utilisation of an asset during the 18-

16 They must offer the same input services, systems and processes to all access seekers, themselves and related parties.

17 The providers are obligated not to discriminate in how they treat access seekers, related parties and themselves.

18 It may boost competition at the retail level by enabling RSPs to install transmission equipment tailored to their own specific requirements, which could spur even greater product differentiation and innovation.

19 Unbundling of layer 1 services may also promote access competition at the *wholesale* level, i.e., 'unbundlers' could conceivably offer layer 2 services to other RSPs in competition with Chorus. If this type of layer 1 bundling is sufficiently widespread, it is conceivable that a time may come where it is neither necessary nor desirable to regulate the terms upon which Chorus offers its layer 2 services – or, at least, those regulations may no longer be ubiquitous. But again, the prospect of that competition hinges critically upon how the FFAS IMs are designed and implemented – the cost allocation IM in particular.

20 Technical Paper, p.67

month period terminating on the last day of the disclosure year in respect of which the asset allocation is carried out.

In my opinion, there may be a problem with this proposed approach as it pertains to the allocation of costs of shared assets. Namely, even if something has influenced the *utilisation* of an asset during a prior 18-month period (e.g., traffic volume), it does not follow that it has *caused* that cost to be incurred in any meaningful sense. For example, the sunk historical cost of a duct used to supply both FFLAS and copper services would not change with the relative *utilisation* of both services. As such, it would not really be accurate to state that there is a 'causal relationship' between, say, traffic volume and that sunk, historical duct cost.

Something that has influenced the utilisation of an asset during the previous 18-months is not necessarily driving current or future costs.

Furthermore, just because something has influenced the utilisation of an asset during the previous 18-months (e.g., overall traffic volumes) that does not necessarily mean that it is driving (or 'causing') *future* costs. For example, it could be that some other factor (e.g., volumes during times of *peak demand*) will determine future network build requirements. Accordingly, as it stands, there is the potential for the Commission's proposed approach to result in asset costs being allocated on the basis of factors that are not true cost drivers.

The potential downsides of adopting this definition and approach under Part 4 may have been thought to be relatively minor. However, as I explained earlier, the potential impacts of the Commission's cost allocation IM on *actual competition* are far more profound in the context of Part 6. It may consequently be worthwhile implementing a different approach that addresses this potential inaccuracy. In particular, it may better promote the Part 6 purpose statements if 'causal relationships' are defined as encompassing situations where:

- there is a current relationship between the cost in question and the underlying driver, e.g., if, say, additional traffic volume resulted in an increase in shared, current operating costs; or
- the driver in question is influencing future shared costs, e.g., if, say, additional traffic volumes would bring forward the time at which an asset in question might need to be upgraded or replaced.

The competition objective in s.166(2)(b) may have a role to play in deciding between different allocation approaches.

The purpose statements – particularly the directive in s.166(2)(b) to promote *actual* workable competition in telecommunications markets – may also have an important role to play in deciding between different potential allocation approaches. For example, if several 'causal relationships' meet the definition I have suggested above (or whatever the Commission chooses to adopt) then, arguably, the approach that is likely to best meet the objective in s.166(2)(b) should be selected – to the extent it can be ascertained.[21] I explore this point in more detail below.

21 It may even be appropriate in some circumstances to allow a provider – or the Commission – to ignore causal relationships altogether and to select an allocation approach simply on the basis that it would best promote actual workable competition.

2.2.3 Process for the selection of causal allocators

The Commission is plainly reluctant to impose particular methodologies upon suppliers for the purposes of allocating the costs that are common between FFLAS and other services. That hesitancy is understandable. As the Commission highlights; it is the providers themselves that are likely to be better placed to identify any causal factors underlying costs in their particular business environments.[22] From that perspective, it would be easier for them to 'do the work' to determine when it is customer numbers, share of traffic, and so on, driving costs.

The Commission has a crucial role to play in the process of selecting causal allocators – even if it does not do the 'leg work'.

However, that information asymmetry does not – and, in my view, *should* not – preclude the Commission from having *any say* in such matters. Indeed, if that were so, then there would arguably be little or no role for an economic regulator to play in any industry since, by definition, regulated businesses will *always* be privy to the most information about their own operations. Overcoming this information asymmetry problem is one of the enduring challenges of regulators everywhere – it is certainly not an excuse to provide carte blanche to the firms that they regulate.

To that end, it is one thing for the Commission to acknowledge their informational disadvantage and to decide against providing firms with detailed instructions on how to allocate costs, i.e., for it to eschew from mandating particular allocators. But it is quite another for it to impose virtually *no constraints whatsoever*. For example, even if the Commission decides to leave it to the businesses to do the relevant analysis to determine cost drivers and proxies, it should still mandate *how* that work is be performed and reserve for itself a final approval role. To that end, it is currently unclear whether:

- the Commission would require suppliers to provide any explanation at all for the causal allocators they select (however defined – see above); and
- if so, what supporting analyses – if any – that suppliers would be required to provide to the Commission as evidence of the underlying relationships; and
- if so, what would happen – if anything – if the explanations provided were either incomplete or incorrect, e.g., whether the Commission could intervene.

Suppliers should not be free to apply whatever causal allocators they please without any constraint or oversight.

In my opinion, it would be inappropriate if suppliers were free to apply whatever causal allocators they pleased without any constraints or oversight. That could plainly lead to sub-optimal outcomes. There will seldom be a single, inarguable cost driver. Where causal relationships exist, there will typically be multiple factors driving costs, e.g., customer numbers, customer density, traffic share, etc. Under the Commission's proposed definition – or the alternative I suggested in the previous section – there might therefore be any number of potential causal allocators from which a firm could choose in any circumstance.

This begs a somewhat obvious question: where multiple cost drivers exist, if suppliers were free to pick any cost allocator that meets the rather loose proposed criteria, what would they do? Might they pick the allocators that represented the

22 Technical Paper, p.71.

strongest cost drivers, i.e., the ones with the most 'explanatory power'? Or might they allocate costs based on some form of weighted average of the different drivers? Either is *possible*. But it is also possible – likely, even – that suppliers would pick the allocators that were the *most financially advantageous* to them. That would clearly be undesirable. The example in Box 2.1 illustrates.

Box 2.1: How might suppliers pick causal allocators?

If suppliers are free to choose between multiple causal allocators, they may pick the one that is the most financially advantageous.

Commercial incentive to favour particular causal allocators

Suppose that the *principal* driver of a cost that is shared between FFLAS and legacy copper services is customer numbers. But imagine that traffic volume also drives costs – albeit to a significantly lesser degree. Suppose that if those common costs are allocated based on customer numbers, then around 50% are assigned to FFLAS. However, if traffic volume is used, that share climbs to 75%.

If the supplier had the flexibility to do so, it would have a clear commercial incentive to allocate the costs based on *traffic volume*. The greater allocation to FFLAS would increase its revenue cap – leading to higher returns on those services. Moreover, the reduced allocation to copper would not affect its returns from those services, since they are subject to legacy prices.

For those reasons, in my view, the approach described by the Commission is incomplete and in need of refinement. Even if the Commission does not want to pick causal allocators (which, to some degree, is understandable), it still has a vital role to play in prescribing how suppliers should undertake that exercise and in approving or rejecting the allocations that those firms decide to propose. Most notably, the Commission has an essential role to play in ensuring that suppliers are not cherry-picking allocators for their own financial gain when superior options are available (as the example in Box 2.1 illustrates).

The most financially advantageous allocation might be the one most likely to reduce competition.

Indeed, it is quite conceivable that the most financially advantageous 'causal allocation' might be the one that is most likely to reduce or eliminate actual and/or potential competitive rivalry. For example, if an approach would result in a much larger share of common costs being allocated to a service (e.g., the DFAS) that forms a key input into a competing product (e.g., wireless broadband), then it may serve to raise rivals' costs and reduce their ability to compete effectively. In my opinion, the Commission needs to be fully alert to such possibilities.

Suppliers could be directed to select the causal relationship that would be likely to best promote s.166(2)(b).

With that in mind, I suggested earlier that if several 'causal relationships' meet the applicable definition, then the IM could direct the supplier to select the allocation approach that would likely to best promote the competition objective specified in s.166(2)(b).[23] If that approach is implemented, then the Commission would have a very important part to play in ensuring that suppliers were adhering to that methodology. I return to this point subsequently when I explore potential improvements in section 2.3.

[23] I also indicated that it may even be appropriate in some circumstances to allow a provider – or the Commission – to ignore causal relationships altogether and to select an allocation approach simply on the basis that it would best promote actual workable competition.

2.2.4 Explanation and selection of proxy allocators

The Commission's preliminary view is that suppliers should, in certain circumstances, be permitted to use proxy allocators when assigning costs across FFLAS and other services. It has indicated that, when a supplier uses such a proxy, it must explain why a causal relationship could not be established and the rationale for the proxy thereby selected.[24] However, here again, the nature of this requirement is not articulated in any significant detail by the Commission. For example:

The process for selecting proxy allocators needs to be refined and expanded if it to prove effective.

- it is unclear what the explanation would need to entail, e.g., what kinds of supporting analyses – if any – that suppliers would be expected to provide; and
- it is unclear what would happen – if anything – if the explanation provided was inadequate, e.g., if it was either incomplete or incorrect.

This process will therefore need to be refined and expanded if this aspect of the IM is to ultimately prove effective. At the very least, suppliers should be required to supply compelling evidence that they had explored thoroughly the possibility of applying a causal allocator. The Commission should also be required to explicitly accept or reject the explanation so provided, i.e., it should not be a simple 'notification'. The Commission should also be able to substitute its own approach in certain circumstances, e.g., if the explanation is inadequate.

Suppliers could be required to select proxy allocators that would be likely to best promote s.166(2)(b).

Here again, it may be appropriate for the selection and application of proxy allocators to be guided explicitly by the competition objective contained in s.166(2)(b). For example, the IM could specify that firms should select and apply proxy allocators that will best promote actual workable competition in telecommunications markets. Ensuring compliance with any such directive would then form another key part of the Commission's ongoing monitoring and oversight role. I explore these matters in more detail in section 2.3.

2.2.5 No allocation methodology for 'step two'

For the allocation of costs between different types of FFLAS, the Commission has largely eschewed from proposing any rules at all, which is highly problematic.

When it comes to allocating costs between different types of FFLAS, the Commission has essentially eschewed from recommending any rules at all. It has proposed instead to require suppliers to fully allocate any costs that are directly attributable to a characteristic (e.g., a geographic location, a service, etc.) to that trait and for them to then simply 'identify' any common costs. The Commission neither recommends nor precludes any particular allocation methodologies for this exercise. In my opinion, there are several problems with this rather lax suggested approach.

First, because the Commission has proposed not to restrict the potential allocation methodologies then, strictly speaking, Chorus would be free to apply ACAM when assigning common costs to certain FFLAS. For example, under the Commission's proposed approach, when Chorus came to allocate costs to, say, the direct fibre access service (DFAS) and layer 1 products in the future, it could theoretically

24 Technical Paper, p.67.

apportion 100% of all shared costs to those services. In my opinion, such an outcome would plainly be undesirable, because:

- as the experts advising regulated energy businesses and monitored airports throughout the Part 4 process agreed unanimously; firms in workably competitive markets would expect to recover some portion of their common costs from *all* services in the long term;[25] and
- the Commission explicitly ruled out ACAM as a methodology for allocating costs between FFLAS and other services (i.e., the first step in Figure 2.1) on the basis that it would not promote workably competitive market outcomes[26] – it would therefore be incongruous to allow it in this subsequent step.

It is possible that this is simply an oversight. Regardless of the explanation, in my opinion, the Commission should at the *very least* clarify that businesses are precluded from applying ACAM when allocating costs to particular fibre services. I also believe that it should go much further. In particular, I do not consider that it is appropriate for businesses to have complete freedom to choose whatever allocation methodologies they choose when allocating costs that are common across multiple FFLAS (even assuming that ACAM is 'off the table'). The reasons are much the same as those I set out earlier; namely:

The Commission should clarify that ACAM is not an available option and introduce far more prescriptive processes.

- if presented with this flexibility, it is natural to expect that suppliers would be tempted to select allocation approaches that would be the *most financially advantageous* to them in the circumstances; and
- in this particular context, that would frequently mean choosing allocators that served to assuage existing or future competitive threats, e.g., by lumping more common costs onto the DFAS, layer 1 services, and so on.

Curiously, the Commission has expressed an interest in hearing stakeholders' views on potential situations that would support explicit requirements governing the way in which suppliers allocate costs between FFLAS.[27] I say 'curiously', because several germane scenarios were presented to the Commission in the submissions provided in response to its New Framework Paper. For example, my first report described the potential dangers of providing Chorus with too much freedom when it allocates costs to (and set prices for) the DFAS[28] and layer 1 products[29] in the future.

25 Commerce Commission, *Input Methodologies (EDBs &GPBs) Reasons Paper*, 22 December 2010, p.68.

26 Technical Paper, p.73.

27 Technical Paper, p.74.

28 For example, if an allocator is selected that assigns more common costs to the DFAS and this then flows through to any 'cost-based' price, this will reduce the competitiveness of mobile broadband services relative to fixed line services. It would therefore increase the cost that a potential competitor is paying for an essential input. *See:* Axiom First Report, p.26.

29 For example, if an allocator is selected that assigns more common costs to Layer 1 services, then this will reduce the ability of potential 'unbundlers' to compete with Chorus at the Layer 2 level. If the regulations allow it, Chorus might even attempt to set its tariffs so that there is insufficient margin between the layer 1 and layer 2 prices for an unbundler to pay the former to Chorus and incur the necessary incremental costs to provide the equivalent layer 2 service itself (a so-called 'vertical price squeeze'). *See:* Axiom First Report, p.28.

Those observations remain equally applicable. As I indicated above, in my opinion, the potential adverse impacts upon competition of inappropriate common cost allocations are sufficiently profound to warrant significantly more prescription than the Commission contemplates in its Technical Paper. I also see no obvious reason to differentiate between the approach the Commission applies to the allocation of common costs between FFLAS and other services (to 'step 1') and the subsequent assignment to particular characteristics (to 'step 2'), i.e., to geographic locations, individual products and so on. I elaborate below.

2.3 Recommendations

As I stated earlier, I can understand why the Commission might be reluctant to assume the role of analysing the factors driving the costs being incurred by different suppliers and then mandating appropriate allocation approaches. That would be a large undertaking and, as the Commission has highlighted, the businesses themselves may be in superior positions to do this 'leg work', given that they know their operations better than anyone else. However, as I explained above, that does not mean that the cost allocation IM should be largely non-prescriptive and/or that the Commission's role should be minor. Far from it.

If businesses are free to decide how they allocate costs to FFLAS generally and, in turn, by reference to particular characteristics – with little or no oversight from the Commission – then, in my view, it is easy to predict what might happen. Namely, they could act on the strong commercial incentives that will inevitably result by selecting allocators that would enrich them financially. That may involve assigning costs in ways that may assuage or foreclose current and future facilities- and access-based competition – a risk that was not nearly as profound under Part 4. This would not promote the overarching statutory objectives.

There is no reason to apply different approaches to the two steps of the cost allocation process.

Consequently, I recommend that the Commission makes a number of changes to its proposed IM. For starters, I see no compelling reason to apply different methodologies to 'steps 1 and 2' of the cost allocation process (see Figure 2.1), since wholly analogous considerations apply to each. I would instead favour an IM that applied the same approach to allocate costs between regulated FFLAS and other products, and then to sub-sets of particular characteristics. An important part of this would involve prohibiting businesses from applying ACAM at *either* step, but that would only be the beginning.

It may be appropriate to change the definition of 'causal relationship' that the Commission has proposed.

In my opinion, it may also be appropriate to change the definition of 'causal relationship' that the Commission has proposed – and which it has applied in the context of Part 4. The application of Commission's proposed approach would result in asset costs being allocated on the basis of factors that are not true cost drivers. This may have more significant downsides in the current context, given the much greater role that cost allocation will have in determining competitive outcomes. 'Causal relationship's might therefore be redefined to encompass situations where:

- there is a current relationship between the cost in question and the underlying driver, e.g., if, say, additional traffic volume resulted in an increase in shared, current operating costs; or

- the driver in question is influencing future shared costs, e.g., if, say, additional traffic volumes would bring forward the time at which an asset in question might need to be upgraded or replaced.

By far the most important additional step would be to include in the IM a requirement for businesses to prepare something akin to a 'cost allocation statement' ('CAS'). In broad terms, a CAS would describe how a supplier was going to allocate common costs between FFLAS and other services and, where relevant, to particular characteristics (e.g., to geographies, bespoke services, etc.). The Commission could provide more specific instructions in advance regarding precisely what the CAS would need to contain and in what format. The CAS would also set out the analyses that had been performed to:

Businesses should be required to prepare a 'cost allocation statement' with tightly prescribed requirements.

- identify the selected causal allocators in each instance and how the businesses were proposing to apply those metrics (these would need to comply with the definition of 'causal relationship' that was ultimately adopted – see above);
- determine where causal allocators were not available and where proxy allocators were proposed to be applied instead; and
- select appropriate proxy allocators, where applicable.

There may also be an opportunity to craft the cost allocation IM in way that promotes explicitly the competition objective contained in s.166(2)(b). For example, the IM could specify that firms should select and apply causal and proxy allocators that will best promote actual workable competition in telecommunications markets. Ensuring that a firm has complied with any such directive when preparing and implementing its CAS would consequently form a key part of the Commission's monitoring and oversight role.

The IM could direct firms to select and apply causal and proxy allocators that will best promote actual workable competition in telecommunicati ons markets.

Specifically, the CAS could be approved by the Commission as part of the periodic regulatory determination process. It could be provided by the businesses prior to the commencement of the regulatory period, consulted upon and, once finalised, it could then apply for the duration of the ensuing pricing window. Ongoing compliance with the CAS might also be monitored by the Commission on a periodic basis – perhaps annually. This process would be far more prescriptive than the cost allocation exercises undertaken by firms regulated under Part 4 – and quite appropriately in my view, given the crucial contextual differences.

In my opinion, this approach would result in arguably the right parties – i.e., the businesses themselves – undertaking the necessary analysis, whilst retaining an absolutely vital oversight role for the Commission. In particular, by reserving the right to approve or refuse the CAS (or to seek further information, etc.) following consultation, the Commission would be reducing – conceivably by a considerable margin – the probability of the adverse effects described above coming to fruition; for example:

- it would be in a better position to detect any cases of suppliers inappropriately selecting 'causal allocators' or proxies to enrich themselves financially – including by seeking to reduce competitive rivalry; and

- knowing this, the businesses in question might therefore be less inclined (or perhaps wholly disinclined) to pursue those types of strategies in the first place, i.e., they might decide against pushing the boundaries.

These proposed changes could yield significant benefits, for little or no additional cost.

There are therefore potentially significant incremental benefits. Furthermore, the incremental costs are likely to be modest at most. Even under the Commission's current proposal, the businesses would presumably still be undertaking all of the relevant underlying analysis described above in order to determine the applicable causal and proxy allocators. The CAS would simply represent a formalised way of capturing and presenting that work and exposing it to welcome scrutiny from third parties – including, most importantly, the Commission. In my view, an IM incorporating these elements would be materially better at promoting the statutory objectives than the approach proposed preliminarily in the emerging views paper.

Finally, on the more specific matter of how to allocate the costs of assets that have been triggered by the fibre build but that are being used to supply both FFLAS and other services (e.g., legacy copper services), I believe the best approach is to focus simply on current use. Firstly, I do not consider that it would be appropriate to fully allocate those assets to the fibre RAB – even if they were 'triggered' by the UFB build. That simply does not reflect how those assets are being utilised and risks resulting in double recovery across both broad suites of services.

Furthermore, I do not think that it would be wise to attempt to undertake the cost allocation exercise by engaging in thought experiments such as: "what if the asset – or as similar one – would have been built at some point anyway, just not quite as soon?" In my opinion, this would inevitably cause the Commission (and others) to head down countless proverbial 'rabbit holes'. The altogether more straightforward approach would be to look simply at how the asset is currently being utilised. To that end, if it is being shared between FFLAS and other services, then that should be reflected in the allocation of the RAB.

3. Pricing methodologies

The list of matters covered by IMs in Part 4 explicitly included pricing methodologies.[30] There is no equivalent provision in the list contained in s.175(1) of Part 6. However, this list is 'non-exhaustive'. The Commission has the broad power to determine IMs in relation to other matter if it wishes. In my first report, I recommended the Commission prepare a pricing methodologies IM. I emphasised that the purpose of IMs is to:[31]

> *'…**promote certainty** for regulated fibre service providers, **access seekers**, and end-users in relation to the rules, requirements, and processes applying to the regulation, or proposed regulation, of fibre fixed line access services.'* [emphasis added]

I found it hard to see how this overarching objective could be fulfilled *without* some guidance being provided on how the Commission would go about setting prices. However, the Commission's emerging view is that such an IM is not necessary – or, at least, not at this time. In the remainder of this section I provide a summary of its preliminary position. I then evaluate its proposal, identifying some potential shortcomings. I conclude by suggesting some revisions.

3.1 Overview of emerging view

The emerging view of the Commission is that there does not appear to be a strong case for it to prepare an IM containing specific pricing principles.

The Commission's emerging view is that there does not appear to be a strong case for it to prepare an IM containing specific pricing *principles*, and that it would be preferable to rely instead on the various constraints imposed already on Chorus through various instruments/mechanisms. This position appears to have been influenced significantly by the advice supplied by Professors Vogelsang and Cave.[32] In their accompanying paper, the authors consider and dismiss a number of potential additional 'pricing principles', for example:[33]

- they conclude that a principle requiring 'efficient pricing', such as Ramsey pricing, would be undermined by the non-cost-based pricing rules that the Act imposes on Chorus, e.g., geographically consistent pricing restrictions;
- they state that a principle requiring 'no foreclosure' is unlikely to add additional constraints on Chorus' prices, given that layer 1 unbundling is subject to rules specified in the Act and that Chorus does not offer other downstream services;
- they contend that a principle requiring 'no pricing below cost' is likely to be unnecessary given that Chorus is subject to several pricing constraints (e.g., on anchor services) and the difficulties associated with detecting predation; and

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30 *See: Commerce Act 1986*, s.52T(b). The section also exempted the Commission from having to prepare such an IM where another industry regulator – such as the Electricity Authority – already had the power to set pricing methodologies in relation to particular goods or services.

31 Section 174 of the Act.

32 Vogelsang I., & Cave., M, *Pricing under the new regulatory framework provided by Part 6 of the Telecommunications Act*, May 16, 2019 (hereafter: 'Vogelsang & Cave').

33 Technical Paper, p.34.

- they claim that a principle requiring pricing between incremental and stand-alone cost, while sound, would create a significant burden – both in terms of upfront cost data collection and subsequent ongoing monitoring.

Temporal considerations were also a key determinant of the Commission's emerging view. The Commission notes that the Act prevents it from specifying the prices that regulated suppliers can charge prior to the reset date for the regime for any FFLAS other than anchor services and DFAS.[34] It notes also that anchor services and DFAS are subject currently to legacy pricing arrangements imposed by the Act.[35] The inference seems to be that, because any pricing methodologies could not be applied for some time, they are not currently required.

3.2 Assessment of emerging view

I remain of the opinion that the Commission should provide guidance on the *methodologies* that it will use to specify 'cost-reflective' prices for key services in the future – most notably, for anchor services and DFAS. If it instead determined those prices on an *ad hoc* basis following s.206[36] or s.207[37] reviews (i.e., at some point after the first regulatory period had elapsed) it would be leaving a conspicuous hole in the regulatory tapestry. However, whether the solution to that problem is a bespoke 'pricing principles' IM is debatable.

There seems to be some confusion here between principles and methodologies – it is the latter that is of most relevance.

There appears to be some confusion here between *principles* and *methodologies.* What we are talking about here is the latter, as opposed to the former. There is *already* a principle in place – namely, the Commission will, at some point, need to set *cost-based* prices for those key services. The question is: what *methodologies* will it use to *give effect* to that principle, i.e., to produce cost-based prices? In my view, this is a crucial uncertainty that requires upfront addressment. Unfortunately, neither the Commission nor Professors Vogelsang and Cave have addressed this point. Consequently, much of the discussion of pricing in the consultation materials appears to be misdirected.

3.2.1 Vogelsang & Cave paper

I confess to having experienced some difficulty discerning the various points that Professors Vogelsang and Cave were attempting to convey in their paper – upon which the Commission appears to have relied quite heavily. The paper contained myriad perplexing analyses of uncertain foundation and/or significance. Two of the more puzzling examples were the following:

- It was unclear to me precisely how the authors even view Chorus as an entity. In some places it is referred to as a traditional monopoly, in others as a potentially

34 Technical Paper, p.37.

35 *Ibid.*

36 Section 206(6) states that, after the start of the first regulatory period, the Commission may recommend (following a review) a maximum 'cost-based price' for a prescribed anchor service.

37 Section 207 states that, 3 years after the implementation date, the Commission can recommend (following a review) a maximum 'cost-based price' for an unbundled fibre service or a DFAS.

It is difficult to discern the points that Professors Vogelsang and Cave were attempting to convey.

'aggressive competitor' and elsewhere as a firm engaging in Cournot or Bertrand competition.

- The authors explored the so-called Crew-Kleindorfer effect, which predicts that a profit-maximising single-product firm under a binding pure revenue cap will charge a price that exceeds the unconstrained monopoly price. Yet, it is unclear to me why – or how – this was thought to be relevant, considering that Chorus:
  - is not a single product firm;
  - competes currently with various players in adjacent markets (e.g., wireless broadband suppliers);
  - faces various sources of potential infrastructure and access-based competition (e.g., from layer 1 and 5G); and
  - is not assured of recovering its revenue cap, i.e., the cap may not be binding.

In my case, the paper therefore served more to confuse than to clarify. Comprehensibility challenges aside, I was also left with the impression that the authors' responses were, for the most part, theoretical in nature – drawn principally from stylised models of industrial organisation. I am therefore not convinced that they accounted sufficiently for the broader market context within which the Commission must determine its IMs. If that is accurate, then it follows that much of what they have presented is likely to have little or no practical application.

The authors' consideration of foreclosure issues is also conspicuously perfunctory. In my first report I raised the possibility of Chorus assigning a disproportionate quantum of common costs to the DFAS and layer 1 services in order to assuage or foreclose competitive threats.[38] I concluded that the Commission should accordingly set out how the maximum 'cost-based' prices for these services would be defined, in expectation of having to undertake those tasks at some future point. The authors do not address this point adequately. Rather they contend that:[39]

> *"Although there may be other potential price squeeze issues for backhaul and DFAS services* [sic] *used for 5G and FWA as* [sic] *new infrastructure competitors, we believe that for Chorus these are more horizontal issues between its various services. Also, DFAS services* [sic] *are price regulated, which should reduce price squeeze issues."*

I confess that I have not grasped fully what the authors are attempting to say in this passage. The reference to 'horizontal issues' *might* imply simply that 'price squeezes' are customarily 'vertical' matters – the classic case being when a vertically integrated provider sets a wholesale price at a level that 'squeezes' a competitor's available retail margin. If that is indeed what they are trying to say (which, again, is unclear), then they have missed the point.

As I explained in detail in my first report, analogous foreclosure concerns can still arise if, say, the price of a key input to a product in an adjacent competitive market is inflated. For example, increasing the price of DFAS would make mobile/wireless

38 Axiom First Report, p.25.

39 Vogelsang & Cave, para 52.

services more expensive to provide, potentially reducing their competitiveness *vis-à-vis* FFLAS and risking foreclosure.

The second point relating to DFAS is even more difficult to follow. Although it is again very unclear, the authors seem to be suggesting that, because DFAS is 'price regulated', there are no 'price squeeze' concerns. If so, their contention makes no sense. The fundamental point I raised in my first report was that unless the Commission sets out clear, prescriptive rules for *how* it is going to set about 'regulating' – i.e., *how* it will specify 'cost reflective prices' – then potential foreclosure risks could remain that might diminish investment incentives.

For example, I explained that unless Chorus was precluded from to, say, allocating a disproportionate share of common costs (perhaps even 100% if ACAM is applied[40]) to DFAS when setting a 'cost-reflective' price, then this might threaten competition. The resulting uncertainty surrounding future price levels might discourage competitors from investing in adjacent markets in the first place (or affect the scale and/or nature of those outlays) and/or reduce subsequently their ability to compete effectively. Professors Vogelsang and Cave seem not to have appreciated this central point and have consequently not grappled with it in any meaningful way.

3.2.2 Temporal considerations

The Commission seems to imply that there is no particular rush to provide guidance on the methodologies that it will use to produce cost-reflective prices for certain key regulated services. Specifically, although it will have to do this at some point in the future, it sees no urgent need to do it right now. It instead seems content to leave the current legacy pricing arrangements in place in the meantime and to address the matter later. In my opinion, it would be a mistake to adopt this approach because, as I laid out in my first report:[41]

It would be a mistake to wait to provide key guidance on how the core pricing principles will be applied in the future.

- businesses are likely to be investing very large sums of money on 5G mobile networks in coming years, and it is important for them to know the methodologies that the Commission will use to determine 'cost-reflective' tariffs for key inputs such as DFAS *now* – even if the maximum prices themselves cannot be determined by the Commission prior to a s.207 review; and
- in a similar vein, businesses contemplating acquiring layer 1 dark fibre services need to know how the prices will be set in, say, 2025 so that they can be factored into their investment plans *today*, i.e., they may be disinclined to deploy capital towards these endeavours if there is a risk that Chorus' prices will ultimately prove uneconomic.

Put simply, investment decisions are being made *now* that may be influenced by the prices that those businesses anticipate they will have to pay for key inputs like

40 As I noted previously, the Commission's current proposal in relation to cost allocation does not explicitly preclude businesses from applying ACAM when assigning costs to individual characteristics, e.g., to geographic areas, to bespoke products, etc. However, as I observed, there is a good chance that this is simply an oversight.

41 Axiom First Report, p.16.

DFAS. The Act specifies that the Commission will, at some point, face the task of setting 'cost-based prices' for those services. In my opinion, to provide greater certainty, the Commission should provide guidance to prospective investors/competitors regarding how it will give effect to that principle, i.e., the methodologies it will employ.[42]

Put simply, I do not think this is a situation in which there is a clear, positive 'option value' associated with waiting to provide this guidance. It is going to need to do so at some point, but if it is, say, several years from now instead of in the near-term, then irreversible decisions may have already been made. For example, if a business has decided not to invest in unbundling and pursued a different strategy that may not be something that can be unwound if clarity is achieved subsequently. I elaborate below.

3.3 Recommendations

The Commission could well be correct that it is not necessary to specify any *additional* pricing principles in a bespoke "pricing principles" IM. The candidate principles it has explored may be either very complex (or perhaps even infeasible) to implement (e.g., Ramsey pricing) or too vague (e.g., below cost pricing prohibitions). But even if the Commission is unwilling to countenance the introduction of *extra* principles, that should not dissuade it from providing clear, prescriptive, upfront guidance on how it will apply the *existing* statutory pricing principles.

The Commission should explain how 'cost-based' prices for key services will be defined, in expectation of having to undertake those tasks at some future point.

Specifically, as I have emphasised above, I believe that the Commission should set out how the maximum 'cost-based' prices for key services (e.g., anchor services, DFAS, etc.) will be defined, in expectation of having to undertake those tasks at some future point. In other words, even if it cannot yet say what those prices will be in *quantitative terms* it can at least disclose the *pricing methodologies* that will be applied to derive them, i.e., in *qualitative* terms. Providing that *ex-ante* guidance may serve to promote efficient investment by potential infrastructure– and access-based competitors, consistent with the overarching statutory objectives.

Conversely, if the Commission decides not to supply this information in advance – or does not provide sufficient detail – this may give rise to irreparable consumer detriment. Most notably, if uncertainty surrounding the future determination of cost-based prices results in detrimental distortions to firms' investment decisions (e.g., on 5G rollouts) it is unlikely to matter if the Commission later provides clear answers. By that stage the damage may have been done – any reduction in competition is likely to be irreversible. The Commission may therefore not have the luxury of time.

42 I note that the Commission recently signalled its intention to develop: 'in a transparent way, [its] views on what the equivalence and non-discrimination obligations in the Fibre Deeds (and other deeds) involve' (see: here). It plans to consult on that guidance in the third quarter of this year. That is an encouraging development, but questions would still remain regarding the pricing of other services such as DFAS.

I do not currently have a firm view on the best means by which to provide that guidance, but several options exist. One way would be to prepare a bespoke pricing *methodologies* IM. It might also be possible to achieve the objective through the cost allocation methodology – or perhaps an adjunct to it. Indeed, a core component of the derivation of 'cost-based' prices would inevitably be ensuring an appropriate allocation of common costs, e.g., avoiding inappropriate approaches such as ACAM. However, the precise means by which this guidance is provided is ultimately neither here nor there. Rather, the most important thing is that the guidance is supplied one way or another – and sooner rather than later.

At the very least, businesses should have sufficient assurance from the Commission that its pricing methodologies will protect them from the natural commercial incentives that Chorus would otherwise have to set prices in ways that foreclose potential rivalry. As I indicated in section 2, that is likely to necessitate more prescription around how common costs are allocated when deriving 'cost-based' prices. In my opinion, such an approach – however specified – is likely to be materially better at promoting the relevant statutory objectives than the preliminary proposal described in the Commission's Technical Paper.