Access pricing principles for fixed line services

A RESPONSE TO THE ACCC’S DISCUSSION PAPER PREPARED FOR THE CCC

February 2010
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Executive Summary

Frontier Economics (Frontier) has been asked by the Competitive Carriers’ Coalition to provide a report that responds to the Australian Competition and Consumer Commission’s (ACCC’s) Discussion Paper associated with its review of the 1997 guide to telecommunications access pricing principles for fixed line services (ACCC Discussion Paper). In Box 1 we outline our report conclusions, and then in the remainder of this summary we explain how these conclusions have been reached.

Box 1: Conclusions

- Ensuring access prices are cost based is still the appropriate starting point for determining access prices for fixed-line regulated services.
- TSLRIC is still, in general, the appropriate cost concept for pricing fixed-line telecommunications access services. But the way it is implemented can be improved.
- When implementing TSLRIC, it is sensible to “lock-in” a regulatory asset base (RAB) rather than periodically revaluing assets.
- Setting an opening value for the RAB will require a difficult exercise of regulatory discretion, and a balancing of interests. No valuation approach dominates the other in meeting the various regulatory objectives. All approaches will be difficult and contentious to implement.
- We favour setting the opening RAB based on the gross value of historic (actual) costs and deducting the accumulated depreciation based on actual cost recovery.
- If such an approach is too difficult to implement, then consideration should be given to adopting the depreciated asset values in Telstra’s regulatory accounts.
- Rather than an overriding price constraint across all services, a CPI-X expenditure incentive mechanism should be applied to prices at least down to the level of each access service. The service specific X-factors should be set by the regulator.
- A service quality incentives mechanism that contains financial rewards and penalties is also required.
- As long as Telstra is a vertically-integrated provider of fixed-line access services, it should not have the freedom to allocate common costs between different regulated services as it sees fit.
Background and over-arching themes

The ACCC’s 1997 telecommunications access pricing principles guide was issued shortly after the commencement of the telecommunications access regime, and laid the foundations for the ACCC’s approach to pricing telecommunications access services. Its core principle – that access prices should, in general, be set on the basis of a total service long-run incremental cost (TSLRIC) pricing principle – has been instrumental to the pricing of key fixed-line access services such as the unconditioned local loop service (ULLS), PSTN origination and termination (PSTN OTA) and the line sharing service (LSS). It has also guided access prices for other telecommunications access services such as the mobile terminating access service (MTAS) and transmission capacity services.

The Australian telecommunications industry currently faces the prospect of substantial changes that will radically alter the structure of the industry. The government is overseeing arrangements to roll out a national broadband network (NBN); and is also contemplating whether it would be desirable to structurally separate Telstra, the current provider of declared fixed-line access services. If the retail and wholesale arms of Telstra’s business are structurally separated, the resulting provider of access services would have much more in common with the electricity and gas utilities currently operating in Australia, which tend to be less vertically-integrated and/or subject to strict ring fencing arrangements. Further, there is industry dissatisfaction with the current legislative framework governing access pricing arrangements.

Within this context, it is reasonable to consider whether the ACCC should amend its fixed-line access pricing principles, and move towards pricing approaches more consistent with those used to price utility access services in other industries. In particular, the ACCC Discussion Paper raises questions about whether it should lock in a regulatory asset base (RAB) when determining access prices for fixed-line services; use incentive mechanisms to encourage efficient expenditure and quality of service; and set broader and more flexible price control measures which would provide greater freedom to allocate common costs.

The ACCC does not need to totally overhaul its approach to access pricing

Since the release of the 1997 access pricing principles, the ACCC has strongly advocated the benefits of TSLRIC pricing. It has also found support from the Australian Competition Tribunal that TSLRIC-based prices are reasonable within the meaning of the Trade Practices Act 1974 (the Act) for a number of telecommunications access services.

We believe there are good reasons for the ACCC and the Australian Competition Tribunal to have found in favour of TSLRIC access prices in the past. At a
conceptual level, TSLRIC is a form of long-run incremental cost pricing, which is generally appropriate for pricing natural monopoly services. Further, TSLRIC is:

- Broadly consistent with international best practice pricing of fixed-line telecommunications access services, and has been used by OfTEL, other European regulators and the Commerce Commission in New Zealand.

- In concept, not far removed from the building block approaches used to price regulated services in other utility industries in Australia and overseas.

We do not believe the ACCC needs to abandon the TSLRIC principle that it has developed and applied over the last 13 years. Many of the arguments put forward in support of cost-based pricing (and, in particular, in support of the concept of TSLRIC) by the ACCC in the past continue to be relevant in the current environment.

There is, however, room for the ACCC to improve the way it sets prices so that they are more consistent with the long-term interests of end-users. For instance, our report finds that the ACCC should move away from continually re-valuing the assets used to provide the regulated services on a forward-looking basis, and instead lock in a RAB and value new capital investments at their actual cost.

It is important to note that, technically, the concept of TSLRIC is not synonymous with estimating costs on a forward-looking basis. TSLRIC is a cost concept much like marginal cost and fixed cost, and forward-looking cost is one way in which a regulator can estimate TSLRIC. While TSLRIC has typically been measured using forward-looking costing techniques by the ACCC and other overseas regulators in the past, other measures – such as depreciated historic cost (DHC) and depreciated optimised replacement cost (DORC) – can also be used to help estimate a TSLRIC price. It also means a RAB can be estimated as part of, and therefore be consistent with, TSLRIC pricing. Accordingly, it would be wrong to characterise current pricing principle considerations as involving a choice between a RAB and the concept of TSLRIC – the two can co-exist together in a single set of pricing principles.

Hence, the focus of this report is less on whether TSLRIC is the right pricing concept for telecommunications access services, and more about how the ACCC could improve the way it is implemented and measured.
The ACCC should not simply transpose utility pricing approaches from other industries into the telecommunications sector

We believe there are two important features of the telecommunications industry that set it apart from other regulated industries in Australia.

First, Telstra’s existing fixed network can be used to provide a range of different services, with only some of the costs of running its network being common to all (or even subsets) of the regulated fixed-line services. This contrasts with other regulated utilities where the infrastructure for regulated services is used to provide either a single or more limited range of services. In turn, this means access pricing for fixed-line telecommunications services involves more complex questions of common cost allocation than are likely to exist in other utility industries.

Second, Telstra continues to operate in retail markets as well as being the primary provider of the declared fixed-line access services. This is not consistent with other utility industries (such as gas and electricity) where access providers tend not to be vertically integrated suppliers of retail services, or are subject to stricter ring-fencing requirements. Hence, Telstra’s incentives when setting access prices are likely to be different to access providers in many other utility industries in Australia. In particular, Telstra has an incentive to manipulate fixed-line access prices to improve its competitive position in downstream retail markets.

In combination, these factors mean it would be a mistake to simply transpose all aspects of the pricing regimes used for the electricity and gas sectors onto the telecommunications sector. This is especially the case when considering whether Telstra should be given more freedom to allocate common costs between the access services under some broader form of price control measure, such as an overall revenue or price cap. It may, however, be appropriate to transport some features of utility regulation, such as locking in a RAB, from other industries to the telecommunications industry.

Assumptions made in our report

While consideration is being given to whether Telstra should be structurally separated, it is uncertain whether this will actually occur (or indeed what form such separation would take). Even if Telstra is structurally separated, we do not believe this will be fully implemented in the short term. Hence, the ACCC will likely still be setting regulated access prices for a vertically-integrated provider of fixed-line access services for a number of years to come. For this reason, the analysis set out in this report proceeds on the assumption that Telstra remains vertically integrated. Some of our conclusions would change if Telstra were to be structurally separated. For instance, some of the concerns expressed in this report about providing Telstra with greater pricing flexibility would be significantly reduced. Where this is the case, this is noted in our report.
Executive Summary

Structure of this report

Our report is divided into three main sections that each addresses a key element of the process for determining an appropriate price for regulated access services. These cover, in turn:

- The costs Telstra should be allowed to recover in access prices to compensate it for past and future capital investments in the infrastructure used to provide the declared services. This is heavily influenced by decisions on how to initially value assets, incorporate depreciation and ‘roll-in’ future capital investments into a RAB.

- How Telstra can be given incentives to minimise its costs and to maintain service quality over time.

- The level of flexibility and discretion that should be given to Telstra to allocate costs across the various fixed-line access services when setting access prices for each of these services.

Our analysis on each of these sets of issues is contained, respectively, in sections 2, 3 and 4 of this report.

Treatment of sunk and new capital investment

Revaluing the RAB

The current practice of revaluing assets under forward-looking costing approaches is complex, costly, often arbitrary and yet offers few offsetting benefits. It can also give rise to windfall gains and losses to Telstra, depending on whether asset prices are rising or falling. The perceived benefits of such revaluations – that they provide useful incentives to access seekers to build or buy access services – are illusory in an environment where optimised replacement costs are likely to continue to rise because much of the cost is in labour-intensive basic infrastructure. This leads us to conclude there is merit to ‘locking-in’ a RAB for the next set of pricing determinations rather than continuing to revalue the asset base each time the ACCC determines prices.

Valuing the opening RAB

In locking in a RAB, the primary challenges for the ACCC are to:

- develop a suitable opening valuation for a ‘locked in’ RAB

- find a complementary method of accommodating new capital expenditure and depreciating existing sunk and new assets.

In valuing the RAB, the statutory criteria relating to the long-term interest of end-users are potentially consistent with a number of methods. We find that the ACCC will need to take account of other factors such as investor expectations, regulatory precedent, the likelihood and extent of any previous cost over-recovery, and information asymmetries. Some of these factors fit within Part XIC
criteria relating to the reasonableness of undertakings and arbitration decisions, particularly those relating to legitimate business interests and the direct costs of access.

In our report, we consider the case for a number of different valuation methods.

We conclude that net present value (NPV) and Optimised Replacement Cost (ORC) valuation methodologies would not be suitable for an opening RAB. An ORC methodology (as used in existing TSLRIC models) makes no allowance for depreciation of existing assets, and would lead to future cost over-recovery if replacement capital expenditure is later rolled into the RAB. An NPV approach would have to be based on existing prices, and, in practice, would mirror the ORC calculation.

DORC or DHC methods are more realistic opening valuation options. Each would allow for incorporating future capital expenditure into the RAB, because there would be some deduction from the gross asset values to reflect their age and quality.

We do not favour a DORC valuation for two main reasons. The first is that it has no particular economic merit, and will lock in windfall gains from past rises in asset values. The second is that a DORC valuation will be subjective and therefore highly contentious, particularly in the construction of DORC from ORC. A benefit of a DORC valuation is that it would be more consistent with the existing ORC methodology, but this is not a sufficient reason to pursue this option.

If a DORC valuation is used, there will be significant questions as to how accumulated depreciation is calculated (as different approaches appear to give quite different answers). In principle, we favour simpler approaches that are less contrived than the ‘NPV approach’, which rests on the unrealistic contestable market paradigm and presumes a certain path of cost recovery has been followed.

A DHC valuation would be less subjective than DORC. A usable base of information is already available, as Telstra’s existing regulatory accounts give values for gross and depreciated historic costs. A DHC approach would also provide a logical and consistent path towards an ongoing RAB methodology that allowed the rolling in of actual costs. Unlike the ORC valuation, there would be a clear allowance for the expiration of assets, and therefore a straightforward mechanism for incorporating replacement capital expenditure.

A potential issue with the use of DHC to set an opening RAB value is how to derive the accumulated depreciation (i.e. to derive DHC from HC). Accumulated depreciation in the regulatory accounts has been based on straight-line depreciation. This is not the way Telstra’s actual depreciation charges in access price have been calculated (TSLRIC models have recovered capital costs using tilted annuities). More generally, this raises an issue of whether it would be desirable to account for past compensation in setting the opening RAB.
In principle, we think it would be desirable to adjust the depreciated value of the asset base to reflect actual cost recovery. This would be more consistent with the proposed regulatory approach going forward. It would also avoid the possibility of a discrepancy between the actual path of cost recovery and an assumed path of cost recovery. That could give rise to significant cost over- or under-recovery.

Nonetheless, to calculate actual cost recovery for fixed network assets will be challenging. For a historic cost valuation, it would require estimating the actual capital charges (incorporating both depreciation charges and returns on capital) that have been recovered from users of the fixed network. This could be calculated by estimating the capital charges that have been set using tilted annuities and based on ORC valuations underpinning various TSLRIC models. Past compensation could then be used as a basis for determining the depreciated value of assets for the opening RAB. So DHC could be set as the HC less actual depreciation (sometimes called ‘residual value’ of assets), rather than the HC less straight-line depreciation as in Telstra’s regulatory accounts.

It is of some interest whether the residual value is higher or lower than the depreciated value of assets in the historic regulatory accounts. There are factors which point in opposite directions. Tilted annuities backload depreciation relative to straight-line depreciation, which might suggest that (regulatory) straight-line depreciation charges would be higher than actual depreciation charges used to set access prices. Countering this, capital charges (incorporating both depreciation and returns on capital) have been based on a higher asset value reflecting the (higher) replacement cost of assets. This means that returns on capital earned by Telstra in the past have been higher than if they were calculated on the historic cost of assets.

We conclude that if actual cost recovery can be calculated, then the use of historic costs would be consistent with Telstra’s legitimate business interests and allow the recovery of direct (actual) costs. Further, we think this method would best meet other legislative criteria relating to the promotion of competition and the efficient use of assets. If estimating actual cost recovery proves to be too difficult, then we would favour using the asset values in Telstra’s regulatory accounts.

More than one RAB?

The ACCC asks whether it would be helpful to adopt separate RABs by service, service layer, asset class or geography to increase the transparency of costing. We are not convinced of the merits of setting multiple RABs. Setting more than one RAB would not avoid the complex cost allocation problems that must be addressed to set TSLRIC access prices, and could limit the ACCC’s flexibility in

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1 Unless the ‘forward tilt’ is very high.
situations where there are common costs. This does not mean that we are in favour of averaging of prices across services or geographies. Our general presumption in this report is that the conceptual basis of service prices should be TSLRIC. Therefore, where there are significant intra-service cost variations (e.g. by geography), then these should be reflected in prices to ensure that prices promote competition, encourage efficient consumption and efficient investment by access seekers.

**Depreciation of the opening RAB and future capital expenditure**

The 1997 pricing principles favoured the use of economic depreciation in forward-looking cost models. A primary concern here was that using accounting methods of depreciation (such as straight line depreciation) would not accurately reflect the decline in value of the assets due to obsolescence – and may therefore result in under-recovery of efficiently-incurred costs. Going forward, these arguments seem less relevant so long as the existing copper network and the NBN do not compete. We therefore agree with the ACCC that the depreciation schedule adopted for the RAB is of minimal importance to cost recovery, and that a wide range of depreciation schedules should give rise to cost recovery.

Consumers and Telstra are, however, unlikely to be indifferent between different depreciation schedules. In general, it seems that consumers are likely to prefer schedules that avoid ‘rate shocks’ (smooth depreciation paths), but only where those shocks are price increases. Telstra will prefer schedules that minimise the risk that its assets will become stranded before cost recovery is achieved (a front-loaded profile). Access seekers and consumers may well prefer back-loaded profiles which keep prices lower in earlier periods. The balance should be struck in favour of consumers rather than Telstra, which (assuming it does not compete with NBNCo) faces a low risk of asset stranding.

**Asset lives**

A remaining problem for the ACCC is how to determine the remaining asset lives for assets constituting the RAB. In principle, these should be determined from economic rather than accounting (book) lives. We understand that the Analysys model contains estimates of economic lives for most or all relevant assets, and, therefore, it would make sense to use these asset lives to calculate the remaining asset lives of Telstra’s assets. However, the roll-out of the NBN may cause some assets to be made redundant, so that their economic lives could be shorter than those used in the Analysys model. Further consideration will need to be given to how those stranded assets are depreciated.

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2 However, in practice, the ACCC has instead favoured tilted annuities rather than directly estimating economic depreciation. The broad intention has been for the two to be reasonably consistent.
Providing incentives to ensure efficient expenditure over time and to maintain service quality

Incentive mechanisms

In moving to a fixed RAB framework, mechanisms are needed to ensure that only efficient levels of capital and operating expenditure are incurred and service quality is maintained.

Constraints on expenditure should be imposed via the use of a well-designed incentive mechanism. It should provide an incentive for the firm to keep expenditure below that forecast over a regulatory period, but avoid allowing unrealistically high forecasts of expenditure that are then too easy to beat.

The ACCC makes extensive reference to the Australian energy sector incentive mechanisms in its Discussion Paper. We do not consider that these would be ‘off the shelf’ models to adopt for the telecommunications sector, as they appear to provide the access provider with too much discretion. It is questionable whether these incentive mechanisms have been as successful as they could have been in encouraging efficient levels of expenditure in the energy sector.

Our view is that an expenditure incentive mechanism should take the form of CPI-X price caps at least down to the level of individual access services. If possible, the ACCC should derive separate values of X for individual access services. This would promote efficiency while limiting the potential for anti-competitive cost shifting. The use of individual service price caps would be consistent with the approach adopted by communications regulators in the UK and Canada.

Length of the regulatory period

We consider the length of the regulatory period should be 5 years consistent with international and other industry precedents, and declaration timeframes. This will help to provide certainty to access seekers and Telstra, and to provide Telstra with the adequate incentives to seek efficiency gains. However, there are some arguments to suggest that the first regulatory period should be 3 years. This will lower the risks as the result of getting things wrong initially, and to reflect the level of uncertainty associated with the roll out of the NBN.

Reopening price paths

It would be desirable for allow for price paths to be re-opened within the regulatory period to reflect unexpected major changes in expenditure requirements. This re-opening should be able to occur at the request of Telstra or of access seekers.

Service quality

We consider that the current service quality arrangements that apply in the telecommunications sector could form the basis of a wholesale-specific quality...
incentives mechanism that contains both financial rewards and penalties. This mechanism should also address service equivalence while Telstra remains vertically integrated.

**Structure of prices**

**Pricing flexibility**

Where a number of services share common costs of production, economic theory suggests that efficient use of infrastructure will occur where more of those common costs are recovered from those services where customer demand is less responsive to changes in price. This theory is often referred to as ‘Ramsey-Boiteux’ (or simply Ramsey) pricing.

A broad price control arrangement that gives an access provider freedom to recover common costs from a ‘basket’ of services can, theoretically, promote the efficient use of infrastructure in this way. This is one argument in favour of a broad price control arrangement applying across all the regulated fixed-line services, such as a maximum allowable revenue cap or average CPI – X % price cap.

These efficiency benefits can only be realised under certain conditions:

- if all services that share common assets are included in the basket of services subject to a broad price control arrangement
- if the service provider has monopoly market power over the provision of all such services.

These conditions do not exist in this instance. The regulated fixed-line access services are likely to share common costs with a number of other services, including other unregulated wholesale services (such as wholesale ADSL), retail fixed-line services provided in downstream markets and potentially even retail and wholesale mobile services. Further, Telstra is not a monopoly service provider in all of these markets. Accordingly, we believe it is highly unlikely that a broad price control arrangement that gave Telstra the flexibility to recover its common costs across the fixed-line access services as it sees fit would promote efficient pricing.

Further, we believe there is a significant risk that a flexible broad pricing principle applied across a basket of fixed-line access services could be used by Telstra to damage competition in downstream retail markets. Under a flexible price control arrangement, there would be nothing to stop Telstra from raising the prices of services its competitors rely more upon in downstream retail markets and reducing prices for services its rivals rely less upon. While the ACCC could seek to mitigate these risks via the use of the anti-competitive conduct provisions contained in Part XIB of the Act, or the use of imputation rules, neither of these measures is easy to implement. More importantly, these measures are unlikely to be sufficiently responsive to provide relief for access seekers adversely affected...
by access pricing decisions. These particular concerns would, however, be ameliorated if the access provider were to be structurally separated and not providing services in downstream retail markets.

We are also concerned that if Telstra was given pricing flexibility within a broader price control arrangement, it may rebalance prices quickly and create significant rate shock for access seekers and, ultimately, consumers. To reduce this risk, the ACCC could use side-controls, such as sub-caps on individual services (or groups of services). However, sub-caps will reduce the efficiency advantages of a broader price control arrangement.

On balance, therefore, we believe the ACCC should retain control over pricing of access to individual services.

**TSLRIC for all services?**

Historically, we have seen situations where retail price control arrangements can create a conflict between retail price regulation and the application of simple cost-based pricing principles for individual services. We believe the unpredictable nature of retail price control arrangements means the ACCC should not lock itself into a “one size fits all” approach to access pricing principles. Instead, it should leave itself the flexibility to adopt different pricing principles for different services if a new retail price control will lead to more appropriate access prices for individual services.

If, contrary to our views, the Commission allowed Telstra greater flexibility through the use of broad price control measures that applied across a range of regulated services, we favour an average CPI – X % price cap over a maximum allowable revenue cap. This is because a maximum allowable revenue cap will provide incentives to an access provider to reduce quantity and increase price to maximise profits in ways that would not promote economic efficiency.
2 Introduction and context

Frontier has been asked by the Competitive Carriers’ Coalition to provide a report that responds to the Australian Competition and Consumer Commission’s (ACCC’s) discussion paper associated with its review of the 1997 guide to telecommunications access pricing principles for fixed line services (ACCC Discussion Paper).

2.1 Introduction

The ACCC notes in section 3 of its discussion paper that decisions about access pricing must be consistent with the objectives of the Part XIC access regime.

The broad objective of the Part XIC access regime is currently, and will almost certainly remain, the promotion of the long-term interests of end-users.

In determining whether a particular thing promotes the LTIE, the ACCC must have regard to the extent to which it is likely to result in the promotion of the following objectives:

- promoting competition in markets for telecommunications services
- achieving any-to-any connectivity in relation to carriage services that involve communication between end-users
- encouraging the economically efficient use of, and the economically efficient investment in, the infrastructure by which telecommunications services are supplied, or are likely to become, capable of being supplied.

Further criteria may also be inferred from specific clauses that relate to the assessment of whether the terms and conditions of access are ‘reasonable’.

Section 152AH(1) sets out the matters to which regard must be had by the Commission (and by the Australian Competition Tribunal on review) in determining whether particular terms and conditions are reasonable:

(a) whether the terms and conditions promote the long-term interests of end-users of carriage services or of services supplied by means of carriage services;

(b) the legitimate business interests of the carrier or carriage service provider concerned, and the carrier’s or provider’s investment in facilities used to supply the declared service concerned;

(c) the interests of persons who have rights to use the declared service concerned;

(d) the direct costs of providing access to the declared service concerned;

(e) the operational and technical requirements necessary for the safe and reliable operation of a carriage service, a telecommunications network or a facility.
(f) the economically efficient operation of a carriage service, a telecommunications network or a facility.

We have sought to bear these matters in mind when making our recommendations as to appropriate pricing principles.

2.2 TSLRIC and the 1997 Guide

The ACCC’s original 1997 telecommunications access pricing principles guide was issued shortly after the commencement of the telecommunications access regime, and laid the foundations for much of the ACCC’s approach to pricing telecommunications access services throughout the next decade and more. Its core finding – that access prices should, in general, be set on the basis of a total service long-run incremental cost (TSLRIC) pricing principle – has been pivotal to the pricing of key fixed-line access services such as the unconditioned local loop service (ULLS), PSTN origination and termination (PSTN OTA) and the line sharing service (LSS). It has also guided access pricing decisions for other significant telecommunications access services such as the mobile terminating access service (MTAS).

Since the release of its initial 1997 access pricing principles, the ACCC has strongly advocated the benefits of TSLRIC pricing in a number of contexts. It has also found support from the Australian Competition Tribunal that its core principle is reasonable within the meaning of the Trade Practices Act (Act) for a number of telecommunications access services.

Importantly for the purpose of this review, however, it has also indicated in the past (ACCC 1997, p. 29) that:

TSLRIC is based on forward-looking costs. These are the ongoing costs of providing the service in the future using the most efficient means possible and commercially available. In practice this often means basing costs on the best-in-use technology and production practices and valuing inputs using current prices.

Perhaps because TSLRIC has typically been applied by the ACCC using forward-looking costs, the term “TSLRIC” appears to have almost become synonymous with a forward-looking cost methodology. We do not, however, believe this should necessarily be the case. TSLRIC is merely a cost concept – much like marginal cost, fixed cost and total cost. It refers to all the costs of providing a service (i.e. “total service”) a firm would avoid, in the long-run, if it ceased providing the service altogether. In that sense, it is all the long-run costs of providing the service that are directly attributable (or incremental) to providing the service. However, TSLRIC can be measured in a number of different ways. It can be measured using forward-looking estimates of costs, optimised replacement estimates of costs, actual/historic costs etc. Any of these types of cost-measure can be used to estimate a value for the costs that would fall within the concept of TSLRIC.
To illustrate, suppose an independent body was asked to estimate the cost of building an existing house. Before doing so, it may want to know how many rooms, bathrooms, floors, cupboards, doors etc comprised the house. Once this is specified, the body could estimate the cost of the house using a number of techniques – the original (or historic) cost of building the house (perhaps also adjusting for inflation); the cost of building it from scratch today; the cost of parts found in antique stores that matched the original fittings of the house, etc.

In a sense, the concept of TSLRIC is akin to determining the parts of the house that should be costed. This is different to actually estimating a value to attach to each of the parts of the house. Just as the costs of building a house can be measured using historic, replacement, or “as-new” costs, so too can the TSLRIC of a service be valued using DHC, ORC, DORC etc.

The ACCC Discussion Paper (ACCC 2009, p. 12) explicitly recognises the distinction between TSLRIC and forward-looking costs:

TSLRIC+ was chosen in the 1997 Pricing Principles Guide as the pricing methodology, whilst ‘forward looking’ refers to the perspective that is used to measure the costs that are included in TSLRIC+

We consider it is important to understand this distinction. While we believe it is no longer appropriate to measure TSLRIC using forward-looking costs, we do not believe this necessarily means TSLRIC should be abandoned as the appropriate cost concept for regulated services.

Importantly, the benefits that the concept of TSLRIC brings – promoting competition, encouraging the economically efficient use of (and investment in) telecommunications infrastructure, and meeting the legitimate business interests of access providers – are still valid provided TSLRIC is measured in an appropriate way.

2.3 The NBN will fundamentally change the industry and its regulation

Although little is currently known about important aspects of the NBN, it is difficult to divorce it from this pricing principles review. Many outcomes seem possible and each may have direct implications for what is regulated and how.

As we noted in our previous report for the CCC, some possible alternatives are:

- The Telstra CAN is rolled into the NBN company and the fibre-based NBN “morphs” from the Telstra CAN; or
- The NBN is built alongside the Telstra copper CAN in direct competition to it; or
- The NBN is built alongside the Telstra CAN, but Telstra also elects to upgrade its network to fibre.
Perhaps the simplest approach – and the approach we adopt in this report – is that there will be some transition between Telstra and the NBN such that the fixed network will retain its pseudo-monopoly status. This leaves us with the primary concern of developing a framework which allows for the rolling in of the significant new capital expenditure that will be associated with the NBN while minimising potential price shocks for consumers.

We note that there also is the potential for the NBN to have an influence on the methodology that is chosen due to the impact of the RAB on Telstra’s wholesale pricing and the relative competitive position of the two networks. For example, if Telstra elects not to vend assets in to the NBN, but instead elects to compete with it, then the setting of the RAB may well influence the competitive prospects and viability of the NBN.

Competition with the NBN may also result in a lessening of access regulation (as there would be two CANs), but in the transition there may be issues about ensuring that any RAB was set to allow Telstra to recover the cost of future (fibre) investments.

Although it is invariably difficult to speculate, we consider that the ACCC will need to be cognisant of potential NBN outcomes in framing its pricing principles going forward, and how they may need to adapt in different circumstances.
3 Ensuring the access provider is adequately compensated for existing and new investments

3.1 Overview of issues

In its Discussion Paper, the ACCC notes that it is of the view that: “a desirable feature of an access pricing approach is that it aims to ensure that the access provider is adequately compensated (and not over- or under-compensated) in the long-run” (p. 23).

This is a sensible principle. It is more in line with a fair ‘regulatory bargain’ between a regulator and access provider than (the prevailing) principle of allowing the access provider to recover the minimum ‘economic’ (or forward-looking, optimised replacement) costs that might be incurred by a hypothetical firm in the long run.

The key questions are then how a RAB and depreciation might be used to promote the achievement of this principle. In this section, and as per questions 1-14 of the ACCC’s Discussion Paper, we analyse:

● whether the ACCC should ‘lock in’ a RAB value
● how the opening value of a RAB should be established
● the appropriate principles for depreciation of the locked in RAB value and of new capital expenditures.

3.2 A RAB should be set once, and not re-valued

A key issue being contemplated by the ACCC is whether it should move towards ‘fixing’ a RAB. That is, whether a RAB should be fixed in value once, or whether it should be re-valued through time.

As we note above, the prevailing access pricing principle has focused on allowing the access provider to recover only the hypothetical costs that might be incurred by an efficient firm on a forward-looking basis. The latter approach has theoretical appeal, as identified in the 1997 pricing guide. In particular, it should have prevented the access provider passing on the cost of inefficiencies (in network design, etc.) to access seekers and end-users. However, in practice, its implementation – and particularly use of ongoing optimisations and revaluations – has:

● required arbitrary judgements – for example, how efficient the hypothetical firm should be
has allowed for profits and losses to be made which were (largely or entirely) out of the control of the regulated firm, and inconsistent with the concept of financial capital maintenance.\(^3\)

The ACCC has noted that one of the key rationales for the re-valuing the RAB in telecommunications was that it would send ‘efficient build or buy’ signals (ACCC, 2009c). This was considered important in light of expected competition and rapidly changing technology. It was considered that:

- valuing sunk infrastructure at its replacement cost at the time of a pricing determination would generate a price that would provide investors with correct signals concerning whether to build their own infrastructure to provide services, or to purchase access to the existing infrastructure (i.e. the build or buy signal); whereas

- valuing the sunk assets at their actual/historic cost would encourage access seekers to build their own infrastructure, when it would actually be more efficient for them to buy access to the existing infrastructure.

These arguments seem to assume that the price of replacing fixed networks would fall over time. However, with hindsight we now know that this assumption was not correct.

Looking forward, arguments for the ongoing use of replacement costs might still hold some force if there was an expectation that bypass decisions (to ‘build or buy’) were likely to be affected by the value of the RAB. That is, if replacement costs were falling rapidly but the RAB remained unaffected, then we could see bypass even though it would be more efficient for the access seeker to buy in this situation (reflecting that it would cost less to supply that incremental demand on the existing network rather than duplicating it). However, it has become increasingly obvious over time that replacement costs are unlikely to fall below historic costs, and that investments in competing or duplicate fixed access networks are becoming less likely, not more likely.\(^4\) Further, while wireless networks have rapidly increased their penetration and scale, technological change is likely to favour both kinds of networks, meaning that the functionality gap between them may well remain.\(^5\)

\(^3\) Consistency with financial capital maintenance would have required that changes to asset values be reflected as income (so increases in asset values should have been deducted from income requirements). This has not occurred in practice.

\(^4\) The Expert Panel that was commissioned to advise the Government on the development of an NBN noted that proposals to build a FTTN required exclusive (or near exclusive) access to Telstra’s copper access network. Further, where some duplication has been proposed (a fibre access network in Tasmania) it appears to be extensively underwritten by the federal and state governments (although no funding details are available).

\(^5\) This could also be accentuated by the physical limits to spectrum availability that apply in comparison to the seemingly limitless capacity of optical fibre networks.
In summary, the costs of ongoing revaluations are highly likely to exceed their benefits. Revaluations create uncertainty and ongoing regulatory proceedings (affecting not just Telstra, but also access seekers) and, if replacement costs continue to rise and this rise is sufficient to offset any optimisations, it allows for Telstra to earn monopoly returns. Revaluations could be beneficial if they sent useful signals to investors or users, but in the current context the primary impact of revaluing assets is changing the distribution of value between Telstra and access seekers.

The ACCC’s adoption of a new compensation principle gives rise to a strong preference for adopting an approach to access pricing that reflects actual or historic costs (with suitable controls to promote efficient expenditure). However, to do this will require that a value be attributed to existing investments in the fixed network. This method also needs to be complementary with the accommodation of new capital expenditure. We now turn to how those issues should be resolved.

### 3.3 A number of options are available in setting an opening RAB

As discussed in Frontier’s October report for the CCC\(^6\) (October report), when there is no clear market to value the assets (or the services provided), as is the case with many regulated assets, asset valuation methods adopted are split into two main groups:

- **Value based** – the Net Present Value (NPV) of the cash generated from the business or the net realisable value of selling the assets of the business
- **Cost based** – the cost of purchasing the assets for example, the depreciated historic cost, the depreciated replacement cost etc.

In section 4.1.1.2 of the Discussion Paper, the ACCC outlines the standard cost based methods:

- **historic cost/actual cost** — the original cost of acquiring or building the asset
- **depreciated historic/actual cost (DHC/DAC)** — adjusts the historic cost or purchase price of an asset by the proportion of these costs that have been recovered or assumed to be recovered in depreciation charges. The depreciated actual cost is sometimes known as the ‘residual asset value’.
- **optimised replacement cost (ORC)** — values the asset at the cost of replacing it with a modern equivalent asset (MEA)

\(^6\) Available at [http://www.accc.gov.au/content/index.phtml/itemId/897070](http://www.accc.gov.au/content/index.phtml/itemId/897070).
• **current replacement cost** — how much it would cost to replace the asset in substantially the same form at today’s prices (current costs may also be depreciated)

• **depreciated optimised replacement cost (DORC)** — values the asset at the cost of replacing it with an asset that is both a) adjusted for the proportion of the service potential of the existing asset that has expired and b) optimised to provide the required service potential in the most efficient way possible.

Alternatively, the value of network assets could be derived as the **net present value** of existing prices for services.

A further value based method that is not mentioned is the **net realisable value** (NRV) or **scrap value**. It is simply the value that could be realised by the sale of the asset itself. This is generally considered to be the absolute floor for a RAB, because lower values would likely cause the regulated entity to dispose of its assets and no longer provide the services.

### 3.4 A broad range of considerations will be relevant to valuing the opening RAB

In section 2.2 of our report, we discussed the relevant legislative principles that will guide the ACCC in the choice of a RAB valuation method. We have therefore sought to analyse the relevant considerations bearing these criteria firmly in mind.

The ACCC now recognises that attaching a replacement cost value to network assets is not likely to encourage more fixed network competition. Therefore, when examining the relevance of the LTIE criteria to a RAB value, a number of points follow:

• The **promotion of competition** should primarily be considered in the context of competition at downstream levels. Consequently, RAB values which are as closely as possible aligned with marginal opportunity costs are most likely to contribute to competition by bringing competitors’ costs more in line with those of the vertically-integrated access provider.\(^7\) These marginal opportunity costs are likely to be quite low, reflecting the high proportion of sunk assets in the fixed network, and the fact that the opportunity cost of sunk assets is zero.

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\(^7\) The prices that would best promote competition are those based on the short run marginal costs of the access provider. This is on the basis that these prices will be the access price imputed by the access provider’s retail operation. Only these prices can meet the objective of “competitive neutrality” – see the analysis of Gans and King (2004).
Promoting *efficiency in investment* for the fixed network could be achieved under a RAB approach so long as (a) the fixed network is valued at no less than its scrap value or net realisable value and (b) the regulator can credibly commit to allow the full recovery of the cost of new investments in the network. The second of these conditions is, however, extremely difficult in practice given long asset lives and potential for opportunism.

Promoting *efficiency in the use* of the fixed network will be best promoted by ensuring that prices cover marginal opportunity costs. (Again, this is most consistent with a scrap valuation of the assets).

These *prima facie* considerations suggest that, if more fixed network competition is unlikely and regulatory commitment is possible, an initial RAB valuation based on scrap or net realisable values should be favoured as being more in line with the LTIE. However, even aside from the regulatory commitment problem, there are a number of other legislative and contextual factors which may suggest that the ACCC should be more circumspect about using scrap value. In particular, we perceive that the following further factors might be relevant to considering an opening RAB methodology:

- The legitimate business interests of access providers, covering both:
  - existing regulatory precedent and the (real or perceived) promises that have been made to investors
  - the financial viability of the access providing firm
- Whether the valuation method will lead to the firm earning a normal return on its investments\(^8\)
- Existing price levels and the degree of any ‘adjustment shock’.
- Information asymmetries between the regulator and regulated firm and the quality of regulatory information.

A final over-arching factor is how the proposed methodology is likely to fit with the NBN.

It may appear that some of these issues are related to notions of fairness or equity, and are thus difficult to assess analytically. Nonetheless, as Yarrow has

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\(^8\) In a recent consultation on valuing RABs, the NZ Commerce Commission (2009) has expressed this point in the following way:

“The Commission considers that ensuring broad consistency with normal returns over the lifetime of regulated assets to the extent practicable, taking into account investors’ reasonable expectations, is likely to be important when establishing the initial value of the RAB. The Commission therefore proposes setting an initial RAB value for each regulated supplier that is, as far as possible, broadly consistent with each supplier having earned at least a normal return in the past (i.e., high enough to ensure suppliers expect to earn at least a normal return over the lifetime of their assets). This must be balanced against the need to ensure the valuation is consistent with limiting the over-recovery of investments over the remaining lifetime of their assets.”
pointed out (Commerce Commission, 2009, B37), these issues are very important to regulatory credibility and therefore efficiency.

“To put it very crudely, I mean if one is at the start of a new regime, which is hopefully a new beginning and a new partnership, it seems difficult to think that that would work well if it starts with a mugging of one side by the other... Now that may not sound like economics but let me answer you that it is...Because for a regulatory regime to work it has to have credibility and it has to be legitimate and it has to be legitimate for all parties involved. And I think rate shocks are to be avoided for that kind of reason, because they do undermine legitimacy and a regime which loses legitimacy or is lacking or lacks credibility is going to operate inefficiently in the long run. In other words there’s quite a close relationship in regulation between notions of fairness and reasonableness and also notions of efficiency.”

Below we explore how each of the further factors is likely to count for or against the particular valuation methodology in the circumstances of valuing Telstra’s fixed network. These issues were analysed in more detail in our October report.

Table 1: Considerations in setting an opening RAB

<table>
<thead>
<tr>
<th>Issue</th>
<th>Potential relevance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Existing regulatory precedent and the (real or perceived) promises that have been made to investors</td>
<td>If investors had invested on the basis that assets would continue to be valued by the regulator in a certain way, then may be undesirable to adopt valuation method which substantially deviates from this. The ACCC has favoured forward-looking replacement cost methodologies in the past.</td>
</tr>
<tr>
<td>Whether the valuation method will lead to the firm earning a normal return on its investments</td>
<td>The principle that the access provider should be neither under- or over-compensated suggests that some account should be taken of historical cost recovery and whether these returns are consistent with normal returns overall.</td>
</tr>
<tr>
<td>Existing price levels and the degree of any ‘adjustment shock’</td>
<td>Large changes to prices can have a substantive impact on access providers, access seekers and consumers.</td>
</tr>
<tr>
<td>Information asymmetries between the regulator and access provider</td>
<td>The greater the degree of asymmetry of information, the more the regulator should rely on valuation methods that are more objective.</td>
</tr>
<tr>
<td>Maintaining financial viability of the access provider</td>
<td>If the valuation methodology leads to a value that is so low that it threatens the ability of the firm to remain financially viable (e.g. servicing debts)</td>
</tr>
<tr>
<td>Compatibility with the NBN</td>
<td>Building the NBN will require significant new investment. The valuation approach chosen should minimise price shocks associated with that new investment, but also ensure that compensation for existing assets is compatible with cost recovery – and no more.</td>
</tr>
</tbody>
</table>

We now turn to an examination of the possible valuation options for the RAB.
3.5 ORC is not a suitable methodology

The ACCC currently determines access prices for the fixed network using TSLRIC+ cost estimates based on an ORC asset valuation methodology.

The ACCC estimates ORC using a ‘modern equivalent asset’ valuation for delivering particular service requirements. The optimisation process attempts to remove excess capacity and redundant services from the value of the asset base, and establish values using the most efficient configuration of assets needed to deliver the regulated services.

There are two factors that count against using ORC to set an initial or opening RAB:

- It is a highly subjective and contentious valuation methodology, with economic principles providing conflicting guidance as to appropriate implementation.
- There is no clear path from an ORC valuation to a standard RAB framework with ‘roll forward’ provisions.

3.5.1 Implementation issues with ORC are significant

Two criticisms may fairly be made of ORC valuation:

- that it exposes the regulated firm and consumers to price changes that are not driven by changes to the regulated firm’s actual costs (meaning that the approach can lead to over- or under-recovery of actual investment

- that, under the bottom-up approach to modelling costs, its implementation requires an unduly large number of subjective judgements about network design, patterns of demand and pricing paths – and usually over long time horizons.

The first of these criticisms of ORC valuation is well recognised by the ACCC and one reason why the ACCC is now considering the use of a locked in RAB value. However, raise the question of whether in setting the initial RAB value the ACCC should consider whether locking in a RAB value based on ORC would result in Telstra more than recovering its costs of supplying services over the fixed network. Use of replacement costs has given rise to regulatory asset values that appear well in excess of actual costs. The gains crystallise in capital

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9 Unless the revaluations are treated as income and offset against other revenue requirements. This has not occurred in telecommunications.

10 This was one of the reasons that periodic re-optimisation was abandoned for setting the RAB in the electricity sector under changes to the Electricity Rules. See AEMC (2006, p. 75).

11 In particular, we understand (ACCC, 2009c) that the gross historic cost of Telstra’s fixed network is around $17 billion while various ORC and CCA valuations would appear to be in excess of $25 billion.
charges – there is a higher value to depreciate and a higher return on capital. In practice, this question of over-recovery is complicated by the use of tilted annuities, which have tended to defer depreciation charges. However, if there were no more revaluations, cost over-recovery would be ensured over the life of the relevant assets if ORC was used to set an opening RAB. In changing valuation methodologies and preventing future re-valuations, the ACCC has an opportunity to ensure that this over-recovery does not occur. As we discuss later, one way to do this could be by setting the opening RAB based on historic costs and deducting accumulated depreciation based on an analysis of the cost recovery achieved under tilted annuity capital charges.

The second criticism of subjectivity is also relevant to setting the initial value. ORC valuation of assets is a highly subjective approach that leads to wide bands of potentially reasonable values. It requires determining the assets required to supply a specified level of service potential at minimum efficient cost. However, it is difficult in practice to specify what constitutes this ‘service potential’ – for example, what are the ‘core’ dimensions of the service we wish to replicate, how do we measure these, and for how long? Should the methodology incorporate different technologies (i.e. wireless) from those actually used by the access provider? Will future competition influence the appropriate path of cost recovery? These questions are not particularly amenable to a single ‘right’ answer.

A final criticism is that the way ORC has been implemented in the past can not result in efficient build / buy decisions. In particular, the ACCC has not sought to model the costs that would be actually incurred by a new entrant – rather, it has focused on making efficiency improvements to the costs of the actual access provider.12

The primary argument to use an ORC valuation for the opening RAB is that is has been used to date in telecommunications regulation so it would have precedent value, and estimates from various modelling exercises (for example the Analysys model and/or TEA model) have been used to support the ACCC’s indicative prices. However, as ORC does not offer a clear way forward (as discussed below), it realistically would need to be reduced to a DORC valuation.

### 3.5.2 ORC does not offer a clear way forward

Aside from the implementation criticisms of ORC, the primary issue associated with ORC in setting the initial RAB is somewhat different – how to maintain consistency between the initial RAB value and future additions and subtractions from the RAB value. The consistency issue is identified by the ACCC (2009c, p. 117), which notes that the approach used for valuing the opening RAB should complement the approach to depreciation and capital expenditure going forward.

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12 See ACCC, 2009d, p. 49.
In simple terms, this is about ensuring that assumptions behind the valuation methodology are ‘followed through’ – so that, for example, if one sets the RAB on the basis of ORC, no further allowance for replacement capital expenditure is made until these assets are fully depreciated. So, to avoid over-compensation, the path of all replacement expenditure would need to be specified and effectively “locked-in” at the initial RAB valuation – very difficult where some assets may have economic lives of 50 years or more. Consequently, if an ORC methodology is used and new capital investment is rolled-in to the RAB, there is a serious risk of cost over-recovery. Therefore, even if ORC is used as a starting point, it will be necessary to make some adjustment to reflect accumulated depreciation (i.e. to estimate a DORC valuation based on a written down the value of ORC).

### 3.6 Value based methods are not an alternative

The NPV approach values an asset as the present value of the predicted profit streams generated from using the asset over its life. Existing or future prices and quantities would be used to set target revenues over time, from which one could “back-out” an associated RAB. This would also require estimates of operating expenditure (opex) and a rate of return (for discounting purposes). The annual opex would be subtracted from the revenue to derive net cash flow which is discounted using the rate of return to derive the RAB.

An NPV asset valuation approach typically presents problems of calculation because it requires detailed information about future states of the world – but this is not unique to this approach.

However, the more serious objection that can be raised when using NPV for determining regulatory asset bases is that its circularity must be broken by choosing prices that are not based on asset values. This could well mean that the chosen set of prices is arbitrary (not related to efficiency or competition criteria) and non-transparent.

Moreover, if the existing (or future) regulated prices for the service are used to derive the RAB as suggested by the ACCC, this will in essence retrieve the asset value upon which those prices have been set i.e. a TSLRIC-based ORC valuation using the ACCC’s indicative prices. In this sense, it would make more sense to simply use the TSLRIC opening asset value and lock this in. Of course, if prices captured in the RAB calculation also cover non-regulated services, then one imagines that the RAB valuation may also capture a degree of monopoly profit.

This approach therefore probably makes more sense in a situation where prices have been heavily influenced by non-economic considerations (e.g. kept low for

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13 That is, there is circularity as the net cash flows that are to be used to value the asset are in turn determined by the revenues allowed by the regulator.
social policy reasons), and, in the absence of accurate historical cost information, the regulator wishes to establish an initial RAB. This is not the situation for fixed network access services.

3.7 **DORC has been used in other industries to set opening RABs, but implementation would be theoretically and practically difficult**

We have found that the ORC methodology is flawed for the purposes of setting an opening RAB. What of DORC, which at least deducts some estimate of accumulated depreciation so that, in theory, new capital expenditures may be added without causing cost over-recovery?

There is no question that DORC has been widely adopted – or used as a base – for the valuation of assets for incorporation of a RAB in Australia. Our October report provides some examples. It was widely used in the energy and rail sectors, although it was often applied in a manner that minimised price increases to end-consumers; for example, if the DORC value was much higher than that implicitly used in current price setting (NERA/PWC 2009). It was also (as in the Gas Code) seen as an ‘upper bound’ valuation, relative to alternatives like historic cost.

However, DORC is increasingly being questioned as a valuation methodology because:

- It suffers from the same subjectivity problem as ORC (as discussed above).
- Its claims to promote economic efficiency, or replicate the outcomes of competitive markets, have been substantively overstated.

The issue of subjectivity and optimisation was considered by Ofcom (2005), which concluded that:

> Ofcom agrees that such an [optimised costing] approach is not appropriate as there is a great deal of subjectivity in the modelling and it is important that the model is right if it is to be used. Also, the use of such a model could require Ofcom to become intrusively involved in BT’s internal network planning and investment decisions.

Ofcom also claims support by the US Federal Communications Commission for this view (Ofcom, 2005, p. 30). On the second point, one can readily see examples of the supposed advantages of DORC as a valuation method. For example, in the ACCC’s Statement of

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14 Note that Ofcom preferred the use of a replacement cost valuation methodology that (unlike in Australia) was consistent with financial capital maintenance as it took account of valuation gains as income.
Draft Regulatory Principles on the regulation of Electricity Transmission (ACCC, 1999), it commented that:

…the Commission has adopted the DORC valuation methodology as the approach it will use to set the cap on the valuation of the asset base. The Commission considers that a well defined DORC approach has some significant advantages as a valuation methodology on economic efficiency grounds.

First, regulators often look to competitive or contestable markets for guidance on efficient decision rules for regulating natural monopoly markets…

…Second, the maintenance of revenue streams over time at a level that is consistent with a DORC asset valuation will minimise the likelihood of significant shocks to tariffs as the replacement of assets becomes necessary…

…Thirdly, any value that is in excess of DORC is likely to imply pricing of services that will expose the service provider to being by-passed.

The Australian Competition Tribunal (ACT, 2008) has also commented favourably on its use:

192 DORC has become generally accepted as the most appropriate value to attach to assets when they are first brought into a RAB. Historic sunk assets are generally valued at DORC and new investments are allowed in at cost, as long as those investments are considered to be “prudent and efficient” (effectively ORC). DORC is the value which would leave a potential investor indifferent between acquiring an old sub-optimal existing asset and a new optimised asset to deliver the service. It provides a valuation consistent with the long run marginal cost of service provision, supports the maintenance of the capital required to deliver the service looking forwards, and prices and investor returns which would be expected to occur in a competitive market and hence promotes the efficient allocation of resources.

We argue that many of these historical comments by the ACCC and the Tribunal overstated the case for DORC and are not sufficiently supported by economic theory. Perhaps the most obvious indication that even the ACCC no longer appears to support the economic basis for DORC is that it explicitly rejects revaluations even when a DORC valuation is initially used (see for example ACCC, 2008b). Our view is that by not allowing revaluations, the key arguments for using DORC fall away (for example, consistency with a contestable market, encouraging efficient by-pass, minimising tariff shocks, etc.) as they only hold when changes in replacement cost are reflected in access prices. We now respond on the particular points that are said to favour the use of DORC.

● First, on economic efficiency grounds, there is little to choose between different valuation methodologies for sunk assets where entry is unlikely. In industries where the large majority of assets are sunk, any value placed on the assets that is greater than opportunity cost (scrap value) will result in efficient use of the asset. By definition, the asset will be earning more in its present use and so there will be no alternative to take it out of service. Of course, to encourage investment in new assets, credible commitments must be made that
investors will be able to receive a return on the capital that they provide. But there is no sense in which DORC gives rise to values which are more ‘efficient’ than alternative valuation approaches such as, say, historic cost.

- Second, DORC may still give rise to price shocks. As pointed out by Biggar (2004), potential problems may arise if large capital expenditures need to be undertaken which will not be reflected in ORC (and thereby DORC) valuations. An example might be replacing ‘worn out’ copper lines. This may lead to claims that these expenditures should be ‘expensed’ and recovered in the year that they are made. If those claims are accepted, then potentially this could lead to large fluctuations in revenues and prices.

- Third, firms thinking about bypassing the incumbent’s network will consider the ORC of the assets\(^{15}\), not DORC, as that is the actual cost that they will face. Even then, they will also have to factor in a strategic reaction from the incumbent. An incumbent is unlikely to maintain pre-entry prices when its cost structure consists of low variable costs and high sunk costs. Consequently, prices may need to be set well in excess of ORC before any entry actually occurs – on the expectation that prices post entry will be sufficient to recover ORC.

- Fourth, DORC does not provide an estimate of the long run marginal cost of an activity. As argued by Ergas (2009), the way in which ORC and DORC have been applied in Australia are essentially as long run average cost concepts, which are likely to lead to prices well in excess of marginal costs in a situation where marginal costs are decreasing as output rises.

- Fifth, the link between DORC and competitive market outcomes is tenuous and does not provide a reasonable basis (or a better basis) for a finding that DORC valuations promote the efficient allocation of resources. In particular, Johnstone (2003) shows that DORC can only be related to outcomes under perfect contestability if it is applied dynamically – with continued revaluations and implied depreciation schedules. The consistency with contestability claims therefore fall away if valuations are fixed going forward, or if other depreciation schedules are adopted (e.g. straight line depreciation).\(^{16}\) The NZ Commerce Commission (2009, p. 149) concludes that:

> Overall, the Commission considers that the arguments in favour of adopting a hypothetical new entrant benchmark on the basis of allocative efficiency, for the purposes of valuing the RAB for suppliers regulated under Part 4 of the

\(^{15}\) As mentioned above, this will be the ORC of building a new network from scratch, not the ORC of the incumbent’s assets.

\(^{16}\) In a recent position paper on asset valuation, the Commerce Commission (2009, p. 59) also finds that “B27 The Commission also considers that if it were to adopt the proposed hypothetical new entrant [DORC] approach then the approach should be applied over the entire lifetime of the assets (i.e., not just at the start of the regulatory regime).”
Ensuring the access provider is adequately compensated for existing and new investments
To estimate DORC using the ‘NPV approach’ - determined by the difference in the NPV of future costs of operating the existing asset relative to a new asset. As noted by the ACCC, this method of constructing DORC uses the conceptual basis of a hypothetical new entrant to estimate what a firm with a given service output would pay to avoid being deprived of, and subsequently having to replace, its existing assets.

Each of these approaches is conceptually and practically complex to apply.

The first approach assumes a certain path of cost recovery (straight line depreciation) that might not be consistent with actual cost recovery by Telstra. Depreciation has been recovered using tilted annuities for many years. Setting a DORC opening value for the RAB on the basis that straight-line depreciation has been recovered could give rise to under-recovery (of ORC) by Telstra. Offsetting this is the fact that ORC is significantly higher than actual costs incurred, so that this approach to setting DORC may not result in actual cost under-recovery.

The second approach would seem to take account of actual depreciation. However, this potentially mixes a hypothetical construction of asset values (ORC) with an ‘actuals’ approach to depreciation, which was criticised by the Australian Competition Tribunal in *East Australian Pipe Line* (2004). This weakness can be demonstrated by noting that estimates of ORC are well in excess of gross historic costs. So we would effectively be applying an approach to depreciation based on actual amounts recovered, but deducting this from an ORC valuation that is much higher than the actual costs that have been incurred in the first place.

On the third approach, in our October 2009 paper for the CCC, we argued that the collective statements of the Competition Tribunal, Stephen King and Agility Management implied that:

- DORC (and hence ORC) are calculated where it is desirable to estimate the costs incurred by a hypothetical new entrant.
- Such asset values are consistent with prices found in a (hypothetical) perfectly contestable market for the relevant services.
- Such asset values would encourage efficient build or buy decisions.

We further noted that – referring the ACCC’s decision on Telstra’s most recent ULLS undertaking – the ACCC now conclusively rejects the ‘new entrant’ test that would be implied by contestability theory as a reasonable benchmark for network costing. It is no longer seen as relevant, even if it were once so.

The implication is that if DORC is to be chosen as a methodology to set an initial RAB, it would not be incumbent on the ACCC to choose an ‘economic’
approach to depreciation based on contestable market theory.\textsuperscript{18} Plainly, these concepts are not as relevant to the regulation of communications infrastructure as they might be in other areas.

We therefore conclude that none of the available approaches appear entirely satisfactory from a conceptual point of view. This means that any resolution by the ACCC will involve a regulatory discretion which must balance the interests of Telstra, access seekers and consumers.

A further complication with the construction of DORC and ORC, and which is apparent with any construction, is how one should treat the remaining asset lives for the fixed network. Assuming that many of the assets are long-lived and will be replaced is not realistic. This is a question that must be resolved in conjunction with considerations of how the RAB should be depreciated.

\section*{3.8 Historic cost valuations are less subjective and compensate for costs actually incurred}

Under historic cost valuation, assets are valued at the cost at which they were originally purchased, including costs of construction and installation. With appropriate deductions for accumulated depreciation, this measure becomes DHC.

Adopting a DHC approach would be a change in regulatory direction for the ACCC in communications. However, as we note above, it is not necessarily a change that would be inconsistent with promises that have been made to investors. Historic cost measures the amount of capital actually invested in the business and on which owners require a return. It would allow for the recovery of the costs of prudently-incurred investment (consistent with \textit{ex ante} financial capital maintenance), whereas in contrast, adopting ORC for the initial RAB value may result in recovery of amounts quite different to the amount of capital that was sunk into construction or purchase of the assets.

The major advantage of the DHC approach is that it would provide a logical and consistent path towards an ongoing RAB methodology. That is, unlike with an ORC approach, it is straightforward to incorporate replacement capital expenditure and there would be a clear allowance for the expiration of assets.

\textsuperscript{18} It is also evident that other ‘economic’ approaches to depreciation, that do not rely on market contestability, could also be derived. For example, Oftel’s approach to economic depreciation in its mobile cost model was quite different. It reasoned that the contestable market approach to depreciation “provides a feasible answer to the specification of the competitor constraint, [but] the price/unit cost profile that it implies seems unattractive. When utilisation is very low, the price/unit cost is very high and vice versa. It also involves an assumption about new entrants that seems very unrealistic.” See http://www.ofcom.org.uk/static/archive/oftel/publications/mobile/demp0031.html#com.
A second major advantage of DHC is that it is relatively simple and objective, so it has fewer problems associated with information asymmetry. The ACCC noted in 1999 (p.46) that:

The cost information needed to calculate the rate base is usually readily available from the service provider’s existing accounting and financial systems.

Values for gross historic costs for fixed network assets should be able to be derived from regulatory and/or general ledger accounts. This assumes that detailed and accurate registers or accounts of the assets are available, which we understand has proven somewhat problematic for Telstra in the past, with a number of assets not included or not included with the requisite details (see e.g. ACCC, 2004). Of course, if these assets are not included because they have been fully written off but not yet replaced, no concern would arise (replacement expenditure would then fold into the new RAB as incurred).

Having said that, the depreciation recorded in the regulatory accounts is not likely to have been consistent with the depreciation actually recovered by Telstra in access prices. Depreciation in the regulatory accounts has been based on straight-line depreciation, which is not how regulatory depreciation charges (calculated using tilted annuities) have been set. The depreciated historic asset values in Telstra’s regulatory accounts might need to be adjusted to reflect that the assumed path of cost recovery has not been consistent with the actual path of cost recovery. The actual path is based on annuities, which, unless they have a large positive tilt, backload depreciation relative to a straight-line approach. In making such adjustments the ACCC would also need to be cognisant of the fact that revaluations have provided Telstra with higher returns on capital than it would have if no such revaluations occurred. So, while we think it would be reasonable to adjust the depreciated value of the asset base to reflect actual cost recovery, this might result in a higher or lower valuation.

There are two other problems that we could envisage with a DHC approach – one seemingly less serious, and one more so - but neither appear fatal to its use as an opening valuation method.

- The first problem is that often cited with historical cost valuation methods – that replacement capital expenditure may result in significant price jumps if assets are fully or nearly fully depreciated. This could be particularly problematic if the cost of replacement expenditure is significantly higher than the historical value - a problem for long-lived assets – or if investment is particularly lumpy. The ACCC also noted in 2002 (2002a, p. 36) that such valuations could bring forward replacement expenditure even for assets that still had remaining useful life (to achieve a return on them). However, the Productivity Commission (2002, p. 365) did not find these arguments persuasive, rationalising that such a bringing forward of investment was unlikely if some excess capacity remained.
The second and more serious drawback of historical cost valuation is that it provides no information about the efficiency with which a firm is conducting its activities. Technological change may have made the existing assets largely obsolete, in which case historic asset costs would overstate efficiently-incurred costs (productive inefficiency) and further distort consumption decisions (allocative inefficiency). For example, it may allow Telstra to recover the cost of some copper assets that have been optimised out of current TSLRIC ORC valuations because they are now not the lowest-cost methods of serving particular customers.

Even the concern that historic costs might overstate efficient costs is rendered less problematic by the fact that we are likely to migrate to a new network over the course of the next 10 years. This means that any excess recovery relating to recovery of imprudently-incurred costs is only likely to have a relatively short life as these assets will unwind from the regulatory accounts relatively quickly.

3.8.1 Conclusions on valuing the opening RAB

Our analysis suggests that there are two valuation options likely to be considered for an opening RAB – DORC and DHC. The DORC approach has considerable limitations, and there are difficulties with constructing a reasonable estimate of DORC from ORC. A DORC valuation will lock in cost over-recovery, and be unreasonable with regard to legitimate business interests. We favour setting an opening RAB using a form of DHC. Rather than directly using the DHC estimate from regulatory accounts, which are based on straight-line depreciation, we suggest that the gross value of historic costs from Telstra’s regulatory accounts should be reduced by the actual compensation that Telstra has been provided against those assets to date. This approach would be consistent with financial capital maintenance and maintaining investors’ capital in real terms, which will be the principle to be adopted looking forward (i.e. once the RAB is fixed). Further, we think this method would best meet legislative criteria relating to the promotion of competition and the efficient use of assets.

We recognise that our preferred approach will not be straightforward to implement – however, this appears to be the case with any valuation approach, in particular the use of DORC. If estimating actual cost recovery proves to be too difficult, then we would favour using the asset values in Telstra’s regulatory accounts.

There may be some deviations from this principle ex post to reward efficient behaviour or punish inefficient behaviour; i.e. price cap regulation generally allows for firms to keep the benefits of beating the cap by lowering costs. This would still be consistent with ex ante financial capital maintenance.
3.9 The ACCC should be cautious in adopting more than one RAB

An issue identified by the ACCC at two points in the Discussion Paper (4.1.2.1 and 4.3.6) is whether it should develop more than one RAB to reflect differences between:

- service layers (medium, physical network, data link, etc.)
- individual services
- geographies (e.g. ULL bands)
- asset classes (e.g. trenches) or groups of asset classes (e.g. core and access network).

As the ACCC recognises, the key valuation problem is to ensure that discrete values are attached to particular assets, and the associated costs (return of and on capital) must be allocated or attributed to regulated services without any ‘double’ allocation of those costs. Whether this is achieved using more than one RAB is essentially a second-order consideration.

We see certain benefits from having separate RABs in one or more of the dimensions identified:

- It would increase the transparency of the assets used in providing particular services, and hence gives access seekers greater confidence that issues around cost-shifting or cross-subsidisation can be addressed by the ACCC in its pricing of access services.
- In situations where a RAB is fixed going forward, it increases the certainty associated with prices for that asset because allocations of assets to RABs will not change over time (this may be contrasted with cost allocation rules which could change the allocation of assets to services over time).
- It would allow – at least in theory – for separate valuation bases to be applied to different assets. This would presumably be of some benefit because the core bottleneck assets could be identified with a finer degree of granularity than with a singular RAB. For example, it appears that switches are far more likely to be the subject of competitive build than are the copper wires within the access network. It might therefore be considered more important to ensure that switches are valued at their replacement cost while copper wires are valued at historic cost.

There are, however, a number of arguments against introducing separate RABs.

First, introducing more RABs could increase the complexity and reduce the flexibility of price setting by the ACCC. That is because it will be difficult to change the allocation of assets to services. This could be a problem where...
circumstances suggest that such changes are likely to be in the interests of end-users.

For example, suppose that a RAB is set for a particular service, but then the demand for that service diminishes and there is substitution towards another service under a different RAB (an example might be substitution away from WLR to ULL). Because the capital costs associated with each service will then be fixed, declines in volume will result in an increase in price of one service and declines in the other. This might not be problematic if the two services share no common costs. However, price changes may be inefficient if there are significant common costs between the two services if it results in a pattern of cost recovery that is unsustainable, or at odds with Ramsey pricing principles. A better approach might be to retain flexibility to re-allocate costs by having the two services in the same RAB, and using a cost allocator that better reflected the changing willingness-to-pay for the services (perhaps by using volumes as a common cost allocator). This would increase the common costs recovered from the service with the (now higher) demand and smooth price fluctuations.

A second and related point is that the benefits of having separate RABs could only be realised if there is no significant sharing of assets between services that use those assets. It is not clear, for example, how one could readily define separate RABs for PSTN originating and PSTN terminating services, because identical (or nearly identical) assets are used in producing these services. It would be much easier to take an asset focus to the definition of RABs, as this would avoid conceptual and practical problems around splitting assets between services that use those assets. Bearing these considerations in mind, our view is that:

- It would be difficult to introduce separate RABs based on individual services, because these services are likely to share the use of many assets with other services.
- It may be feasible to introduce separate RABs based on separate geography for some services, as the majority of assets (e.g. for ULL) will not be shared across geographies.
- It should be feasible to introduce separate RABs for separate asset classes or for service layers (e.g. trenches). This will not solve any cost allocation problems (which must be done later by converting asset costs into prices for particular services) but would allow for different valuation methodologies to be adopted.

A final issue with multiple RABs is that it is by no means certain that the ACCC would wish to apply separate valuations to different assets and/or services. We have noted in our report that the logic of using replacement costs is subject to flaws – it creates additional uncertainty due to the complexity of the revaluation process, and may not actually promote efficient build or buy decisions by access seekers.
As a general proposition, we are not convinced of the utility of setting separate RABs. Having multiple RABs would not solve the many complex allocation problems that must be overcome in setting TSLRIC access prices, but it could create additional complexity and limit the ACCC’s flexibility. That said, we are not in favour of a single RAB that would allow averaging of prices across services or geographies. Our general presumption in this report is that the conceptual basis of service prices should be TSLRIC. Where there are significant intra-service cost variations (e.g. by geography), then these should be reflected in prices to ensure that prices promote competition, encourage efficient consumption and efficient investment by access seekers.\(^{20}\)

### 3.10 Future depreciation charges should set a preferred path of prices and minimise rate shocks

#### 3.10.1 Principles of depreciation

There are two important issues in regard to depreciation. The first is to determine the depreciation methodology that is most appropriate. In turn this may depend on the approach to asset valuation. The second is to determine the parameters necessary to calculate depreciation expenses. These include the lives of assets and, for some depreciation methodologies (such as the tilted annuity), the rate at which asset values change over time.

When a RAB is fixed and new investments added to the RAB on a historic cost basis, depreciation sets the path of cost recovery and hence the pattern of prices. With that in mind, as stated by Whittington (1998):

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\(^{20}\) Note the Australian Competition Tribunal’s comments (2007) in relation to the ULLS that:

“179 As noted earlier, we are required to determine whether averaging is in the long-term interests of end-users. In this section we have found that averaging:

- is not likely to achieve the objective of promoting competition in urban and rural areas during the periods covered by the undertakings;
- is not likely to achieve the objective of encouraging the economically efficient use of infrastructure;
- is not likely to achieve the objective of encouraging economically efficient investment in infrastructure by access seekers; and
- may, in principle, achieve the objective of encouraging economically efficient investment by Telstra, but we are not satisfied that the $30 charge Telstra proposes will achieve this objective.

It follows from these findings that we are not satisfied that averaging is in the long-term interests of end-users of the ULLS.”
There are two views of depreciation: first, that it represents a return of capital subscribed; second, that it represents a charge for the replacement of assets consumed. The former view is consistent with the use of the RAB (Regulatory Asset Base) as a basis for assessing the investment in the firm, attributable to shareholders. The latter view is consistent with the use of the RAB as a measurement of the investment by the firm in real assets, and is the view implicit in current cost accounting. Both approaches to depreciation are relevant to particular problems. For the purpose of establishing a RAB for fixing the price cap, the return of capital approach seems to be the more relevant, because we are concerned with giving shareholders an adequate (but not excessive) return of (in the case of depreciation) and (in the case of profit) on the capital which they subscribed.

So in circumstances where the ACCC seeks to fix a RAB and to compensate the access provider (but no more), then we should use the return of capital approach to depreciation.

### 3.10.2 Key variables in setting depreciation charges

The key variables that then determine depreciation charges in any one year are:

(a) the asset lives

(b) whether assets are depreciated more in the early years (front-loading), more in the latter years (back-loading) or evenly over time (straight-line).

On (a), to set a path for depreciation the ACCC will need to determine the (average) remaining asset lives of all fixed network assets. This presents no small problem. While we understand that the Analysys model provides current estimates of the economic lives of fixed network assets, and while the physical lives of many assets might be quite long, the spectre of the NBN does suggest that many assets will not reach the end of their physical lives and that even the economic lives may be overstated. This seems to be unknown until further clarity can be provided as to whether Telstra will maintain control of certain assets that could be useful in the building of the NBN (or in the transition to the NBN). As we identify above, these considerations also potentially influence how DORC may be constructed (if adopted).

On (b), paths for depreciation may be developed using economic approaches (based on changes in market values) or accounting methods (which are more arbitrary). Accounting approaches are simpler and therefore less contentious and tend to be adopted. However, these can be chosen to provide rough proxies for economic depreciation – for example, an annuity tilted to reflect expected asset price decreases over time might correspond reasonably well to economic depreciation, as both would imply front-loaded profiles.

Nonetheless, as King (1996) has commented:

…for most assets the relevant incentives relate to initial investment, not to the ongoing relative use of the asset over time. In this situation the actual depreciation schedule is irrelevant so long as it does not give the owner...
incentives to scrap the asset before it is past its useful life. Changing the depreciation schedule simply alters the flow of funds to the asset owner, but does not alter the present value of the investment project...[but]... altering the flow of allowed revenues will however alter the allowed prices over time and may have a significant effect on final good consumers.

3.10.3 Adjusting depreciation to prevent rate shock

The ACCC also raises the issue of ‘rate shock’. Suppose that the value of the RAB was quite low, reflecting an unwinding of existing assets, but that large future expenditures were about to be incurred. Then prices would likely significantly jump to reflect the increased return on capital and increased depreciation. Depreciation schedules may be altered to limit these shocks.

We would expect that Telstra will raise the argument that it should be allowed to ‘front load’ depreciation to avoid the risk of asset stranding. However, a corollary of the reduced probability of bypass (that is now accepted by the ACCC) is that arguments to front load depreciation have little force. Having said that, there is little to choose between other methods. Access providers will prefer front loading, as this reduces their risk of asset stranding, and access seekers may prefer back loading, as this leads to lower prices in earlier periods.

The ACCC appears to hint that an approach which smooths price paths might be a desirable way to set annual depreciation. We consider this approach is supportable.
4 Providing incentives to ensure efficient expenditure over time and to maintain service quality

4.1 Overview of issues

This section addresses issues raised in Section 4.2 (and questions 15-22) of the ACCC’s Discussion Paper. Broadly these issues include:

- whether mechanisms will be required to encourage Telstra to incur efficient capital and operations expenditure, and how they should be structured
- the appropriate length of the regulatory period before price resets
- whether there should be provision for re-opening of price decisions during the regulatory period
- whether mechanisms will be required to encourage Telstra to maintain quality in addition to existing arrangements
- if additional quality arrangements are required, whether financial or non-financial mechanisms should be adopted.

4.2 In moving to a fixed RAB incentive mechanisms will be required to ensure efficient expenditure and to maintain quality

We consider that in moving to a fixed RAB framework, that removes the discipline on costs imposed by revaluations of the asset base, there will be a requirement for a mechanism to be put in place to ensure that only efficient levels of capital and operating expenditure are incurred over time.

Constraints on expenditure should be imposed via the use of a well designed incentive mechanism. Such a mechanism conventionally takes the form of CPI-X regulation applied to the forecast revenue or prices of the regulated entity over a defined regulatory period. This needs to provide an incentive for the firm to keep expenditure below that forecast over each regulatory period, but at the same time not be prone to offering unrealistically high forecasts of expenditure so that these are too easy to beat. On this basis we consider that that the X factor needs to be set by the ACCC.

To ensure that efficiency gains in expenditure are not realised at the expense of service quality, there will be a requirement for a regulatory incentive mechanism to ensure service quality is maintained.
Further details of the how these incentive mechanisms should be structured are provided in sections 3.3 to 3.5 below.

4.3 There are problems with adopting the energy incentive schemes for telecommunications

The ACCC’s Discussion Paper makes a number of references to the incentive mechanisms that are used to regulate electricity and gas transmission and distribution businesses in Australia. We consider that caution would need to be exercised by the ACCC in adopting these mechanisms for regulating Telstra. There are number of reasons for this.

First, broadly speaking, the regulatory framework for the energy sector is more singularly focused on investment than Part XIC of the TPA. The objective of the National Electricity Law, for example, is as follows:

*The objective of this Law is to promote efficient investment in, and efficient operation and use of, electricity services for the long term interests of consumers of electricity with respect to—*

(a) price, quality, safety, reliability and security of supply of electricity; and

(b) the reliability, safety and security of the national electricity system.*21*

A similar objective also applies under the National Gas Law.*22*

There is no mention in either of these laws of the promotion of competition, which could in large part reflect that there is greater vertical separation of transmission, distribution and retailing in these sectors. This lessens concerns surrounding more favourable treatment of a firm’s own downstream operations and those of access seekers.

Second, the expenditure incentive schemes for energy seem to be rather generous to the regulated entities in several respects. In relation to electricity transmission and distribution for example, the regulatory arrangements as contained in the National Electricity Rules include the following features:

- The schemes use revenue caps, not price caps, the effect of which is to remove volume risk from the access provider *(AEMC 2006, p. 44)*. While this could lower the overall costs of investments to the access provider, it is likely to increase the price risk (and associated volume risk) to downstream firms and end-users.

- Several key variables are nominated by the regulated entity rather than specified up-front by the regulator. These include the X-factor in the

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21 National Electricity Law (NEL) s. 7.
22 National Gas Law (NGL) s. 23.
CPI-X revenue cap and depreciation schedules (AEMC 2006 pp. 69, 78). These would seem to make it relatively easy for the regulated entity to set generous allowances for these variables that are easy to beat.

- While large capital expenditure proposals are subject to a ‘Regulatory Test’ where these need to be compared to alternative reasonable options,\(^\text{23}\) these alternatives are determined by the regulated entity rather than the regulator. In addition there is no ex-post prudence review of capital expenditure. The AEMC had rejected an ex-post review on the basis that it would undermine ex-ante incentives of the scheme (AEMC 2006 pp. 98).

Some other related points have been made by Mountain and Littlechild (2009 pp. 7-8, 11) in comparing the Australian electricity regime with the RPI-X regulatory regime for electricity distribution in the UK. It is claimed for example that:

- In contrast to the power of the UK regulator Ofgem, the National Electricity Rules restrict the discretion of the AER, as the regulator, to be able to modify the efficiency incentives to be imposed.

- Compared to the case in the UK, the onus of proof on expenditure proposals rest more heavily upon the Australian regulator to justify any alternative parameters that it proposes, and less so on the regulated entity to justify the reasonableness of its parameters.

- There is only limited use of benchmarking of expenditure parameters in the Australian regime, whereas this is integral to the UK regime.\(^\text{24}\)

Potentially reflecting these regulatory and some other differences in approach, and allowing for differences in customer density, the authors find that allowed costs and revenues per distribution customer were substantially lower in Great Britain compared to NSW and to a somewhat lower extent Victoria.\(^\text{25}\)

We have some further specific concerns with the way in which the X-factor is set under the energy regimes. This is discussed further in the section below.

This is not to say that there are not some useful aspects in the design of parts of the electricity incentive mechanisms that might be considered as part of a scheme for fixed telecommunications services. These comprise in particular some of the specific design features to ensure that the incentives are suitably balanced. Several of these have been subject to detailed consideration by the ACCC and the AER over many years prior to being adopted by the AEMC.

One of these is the operation of the efficiency carry-over mechanism for operating cost savings that allows savings to be carried over for 5 years from the

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\(^\text{23}\) AER (2007).

\(^\text{24}\) See also Littlechild (2009, p. 3).

year in which they occur and not just within the duration of the regulatory period. This has the advantage of providing equal incentives for operating cost savings over the course of the regulatory period. Another is that these standard carry over arrangements apply symmetrically to both efficiency gains and losses. (AEMC 2006 pp. 95-97).

The regime also provides for pass-through of major unexpected expenditures rather than attempting to forecast these and make allowance for their inclusion. (AEMC 2006, p. 104). This has the advantage of not rewarding the business for events that may not occur, but does allow costs to be fully recovered if they do occur.

Overall, however, we do not consider that the revenue incentive mechanisms that presently operate in the electricity and gas sectors in Australia would be suitable ‘off the shelf’ models to adopt for the telecommunications sector as they provide the access provider with too much discretion. This means that it is questionable whether they have been as successful as they could have been in encouraging efficient levels of expenditure.

4.4 A telecommunications expenditure incentive scheme should apply to individual service prices using X factors set by the ACCC

4.4.1 The CPI-X cap should apply to individual service prices

Incentive mechanisms using CPI-X regulation can take several different forms. The most common forms of cap include average revenue caps, pure revenue caps, hybrid revenue caps, weighted average price caps and disaggregated price caps. Hybrid combinations of these forms of control are also possible. The detailed specification of form of control can vary widely, depending on such considerations as whether additional side-constraints are imposed.

In the case of the telecommunications services being considered by the ACCC’s review, we consider that the expenditure incentive mechanism should take the form of CPI-X% price caps on individual access service prices. This could work by the use of a building block model to derive maximum allowable Year 1 revenues necessary to recover Year 1 capital and operating costs for each service for the expected level of demand for each service. The maximum allowable revenue for each service would then be divided by the expected demand for each service to derive the Year 1 prices. These prices would be subject to maximum
allowable annual changes over the regulatory period to reflect expected changes in Telstra’s average costs in supplying each service.\textsuperscript{26}

These expected changes in costs should reflect any expected new investments or asset retirements from the RAB. Given this, it may be necessary to forecast all costs for each year to determine the desired price paths for a regulatory period with greater accuracy. This will be more likely where cost and demand conditions are not stable from year to year. Some further issues in setting the X-factor are discussed in section 3.4.2.

Applying the cap to prices of individual services in this manner assigns volume risk to Telstra. We consider this is appropriate given the control that Telstra has over the technology used on the fixed network and possible substitutes to it (such as mobile communications) and the pace of cost-reducing technological change that has taken place in communications key areas of communications (such as in switching technology). In this context giving Telstra the opportunity to earn a guaranteed amount of annual revenue under a revenue cap rather than a price cap could lead it to impose excessive price rises on access seekers and their remaining customers and encourage it to delay investment in new technology.

The structuring of the incentive mechanism on the basis of individual services also has the desirable property of limiting potential for anti-competitive cost shifting where the service provider is vertically integrated into the downstream market.\textsuperscript{27} If there are concerns about intra-service anti-competitive costs shifting or distributional objectives, the CPI-X price caps could be applied at a more disaggregated level, say by prices for ULLS band or business or residential. It is unlikely, however, that this would require different values of X to be applied down to this level.

The use of individual service price caps is also consistent with the approach adopted by communications regulators in the UK and Canada, for example. Table 2 below provides some details of recent prices caps applied in these countries for services similar to the fixed network services subject to the ACCC’s pricing principles review.

\textsuperscript{26} See for example Joskow (2006, p. 20).

\textsuperscript{27} See for example Vogelsang (2001, p. 20).
Table 2: International examples of current individual access service price caps

<table>
<thead>
<tr>
<th>UK</th>
<th>Canada</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Call termination RPI+3.75%</strong></td>
<td><strong>Local interconnection CPI-3.5%</strong></td>
</tr>
<tr>
<td><strong>Call origination RPI+2.75%</strong></td>
<td><strong>Toll interconnection CPI-3.5%</strong></td>
</tr>
<tr>
<td>MPF (=ULLS) RPI+5.5%</td>
<td>ULL CPI-3.5%</td>
</tr>
<tr>
<td>SMPF (=LSS) RPI+1.0%</td>
<td>ADSL access service CPI-3.5%</td>
</tr>
<tr>
<td>WLR* RPI-RPI</td>
<td>Wholesale local service CPI-3.5% only if CPI&gt;3.5% and on application by ILEC</td>
</tr>
</tbody>
</table>

Notes: * Subject to review.

In the case of the UK, Ofcom determines the X-factor specific to each service. The CRTC in Canada applies a generic X-factor for all services. The approach by Ofcom, while more analytically demanding, is conceptually more rigorous on the assumption that the scope for productivity gains would be expected to vary between services with substantially different input requirements (such as between switched and non-switched services). The Canadian approach of a single value of X for its X-factor is more suited to a broad-based cap as the individual services covered are unlikely to all have the same input price and productivity changes relative to the rest of the economy. It is to be noted that in their latest incarnations the UK caps are in the main substantially more generous than the Canadian X-factor that was last set in 2002 (CRTC 2002, 2008).

In the US the above types of fixed network wholesale services, to the extent they are mandated for third party access, continue to be regulated on the basis of TELRIC, not price caps. Nonetheless broad-based price caps are widely used at the retail level and for some high speed ‘special access’ services.28

In practice it is possible to design revenue and price caps in a variety of ways to reach specific pricing objectives. For example an overall revenue cap with side controls on individual prices might address concerns about anti-competitive cost shifting. Limiting the choice to a particular method therefore needs to reflect the

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28 Maxwell (2007) and Tardiff and Taylor (2003).
consideration of which best serves economic efficiency objectives, including considerations of administrative simplicity. Unfortunately, it may be hard in practice to rank the performance of methods with many different combinations of features.

4.4.2 The ACCC should set X-factors for each service

In a standard setting, the X-factor is designed to capture the annual productivity growth that is expected to be achieved by the regulated firm (overall or for a particular activity) relative to the rest of the economy as well as the difference between its annual change in input prices faced and those for the rest of the economy. To the extent that the input price and productivity changes of the firm/activity differ relative to the rest of the economy, these differences are then passed on to consumers as either decreases or increases in prices (Bernstein & Sappington 2000, pp. 64-65).

In practice it is possible for the value of X to be determined in a number of ways. In the case of the energy regime revenue cap regulation, it is determined by the regulated firm as a result of the cost/revenue forecasts contained in the building block model for each year. It is allowed to vary year by year, but is subject to the constraints that the net present value of maximum allowable revenues is equal to the net present value of the annual building block revenue requirement over the regulatory period and that the value of maximum allowable revenues in the final year of the regulatory period is equal to the building block revenue requirement for that year.

Under the energy regime there are also, to varying degrees, constraints imposed on the amount that particular prices can move between years. For example, in regard to electricity distribution services it is not possible to increase the expected average revenue from a particular tariff class by the greater of either the overall CPI-X limitation on revenues between two years plus 2% or CPI plus 2% (subject to some specific exclusions) (NER 2009, pp. 562-563).

The energy regime approach essentially makes the X-factor endogenous to the building block model, and gives the regulated firm a large amount of discretion in setting it based on its own expectations of its cost and associated revenue requirements over the regulatory period. The regulator is then faced with the task of determining whether the X-factor for the regulatory period is reasonable by assessing if a firm’s cost forecasts are reasonable. This can be a difficult exercise, essentially involving backward economic and technical assessments of building block models to determine if the expenditure parameters are reasonable to meet particular volume forecasts. While the use of expenditure benchmarks has apparently been considered by the AER for this purpose (as it is guided to do so
under the Transmission Revenue Rule\textsuperscript{29} for example) it is claimed benchmarking is little utilised by the AER in practice (Mountain and Littlechild 2009, pp. 11-12).

An alternative is for the X-factor to be determined outside the building block model and fitted to it. It might be framed using Total Factor Productivity (TFP) analysis on a historical or forecast basis or benchmarking of prices with more efficient firms. This is likely to be the most practical approach where the regulator is responsible for setting the X-factor, because otherwise it will essentially have to build its own building block model to derive it endogenously for each year, and the exercise essentially becomes one of cost-based regulation rather than incentive regulation. However as mentioned previously, use of a building block model in this fashion will be more desirable if cost and demand conditions are not stable from year to year.

We consider the X-factors for the services to be regulated should be set by the ACCC rather than nominated by the regulated firm. This is on the basis that the regulated firm has a strong incentive to set these too leniently so that it is relatively easy for it to beat the forecasts and earn super-normal profits. The setting of these X-factors should take place via a consultative process with the access provider and access seekers.

It would be desirable under very limited circumstances for price paths to be reopened within the regulatory period to reflect unexpected major changes in expenditure requirements. This would allow such expenditure to be incorporated into the revenue requirement as a direct pass-through or “z-factor”. This reopening should be able to occur at the request of Telstra or of access seekers. This mechanism would need to be subject to a rigorous prudency check by the ACCC (including a consultative process) to avoid abuse. The advantage of this approach is that it would enable the ACCC to control expenditure relatively tightly for the benefit of access seekers under the incentive mechanism while protecting Telstra from the prospect of a severe regulatory error that could severely affect its financial viability.

\section*{4.5 The regulatory period should be no more than 5 years}

All else being equal, the incentive for efficiency is widely accepted to be greater the longer is the regulatory period over which an efficiency target is set. This is on the basis that a firm can hold on to its efficiency gains made in excess of the efficiency target for longer. A downside is that the longer that prices remain out of line with underlying costs, the more allocative efficiency is undermined. A further argument against a relatively long regulatory period is if costs and demand

\footnotesize{\textsuperscript{29} See AEMC (2006, p. v).}
conditions are highly uncertain. Where there are mechanisms for rent sharing, or re-opening of the cap in response to major unexpected events during the regulatory period, these can help to justify a longer regulatory period than otherwise.

Once the regime is fully bedded down we consider the length of the regulatory period should be 5 years consistent with other Australian and international regulated industry precedents. A 5 year period is also consistent with declaration timeframes. We consider this length of period will help to provide certainty to access seekers and Telstra and to provide Telstra with the adequate incentive to beat the forecasts.

However, we consider that the first regulatory period should be set at 3 years. This is to reflect the level of demand uncertainty associated with the roll out of the NBN, and will help to ameliorate the regulatory risk that could arise from getting any things wrong initially.

4.6 There should be a quality incentive scheme with financial rewards and penalties

Quality of service for access seekers and end customers is frequently strongly related to levels of investment and other expenditure by the regulated firm. Consequently, the presence of an expenditure reduction incentive mechanism also requires a parallel quality incentive mechanism for each access service to ensure that expenditure savings are not achieved at the expense of deteriorations in service quality. Further, in setting the initial price caps it is necessary for the regulator to have in mind an associated quality standard that is expected to be achieved at the specified level of prices.

In regard to the nature of the quality incentive mechanism, Burns and Riechmann (2004, p. 218) state:

> Regulation needs to acknowledge quality of services as a key output of infrastructure providers and good quality performance should be rewarded financially. Quality rewards should be designed such that infrastructure providers have incentives to select the efficient level of investment.

They consider that quality rewards need to reflect customers’ valuation of quality, and that both contemporaneous and leading indicators of quality are required to ensure quality of service and investment in the long run. In line with their recommendation, we consider that the nature of the services supplied in the present case means there is some merit in incorporating into telecommunications regulation a mechanism that provides incentive to maintain quality within a minimum and maximum range. This would also be augmented by severe penalties for under-performance and relatively weaker incentives for over-performance. Such a mechanism is designed to provide a strong signal to focus on performance within a specified range (Burns and Riechmann 2004, p. 214).
This could involve allowing Telstra to charge slightly higher prices if it exceeds key quality benchmarks by a certain percentage and require it to charge slightly lower prices by a certain percentage if it falls short of these quality benchmarks. Any major breach in quality would be accompanied by a large fine. The asymmetric structure of this mechanism is considered suitable given the stronger incentive for a vertically integrated Telstra to provide inferior performance to access seekers and the information asymmetry that exists between Telstra and the ACCC.

If Telstra remains vertically integrated the quality mechanism should encapsulate measures that cover equivalence of performance with self-provided services. The Telstra non-price terms and conditions Record Keeping Rules (RKR$s)$, which is designed to ensure equal treatment of access seekers and Telstra’s retail operations in ordering and provisioning and fault rectification could offer a useful starting point of some possible indicators in this regard. More broadly, other Standard Access Obligations (SAOs) and quality performance indicators used in the communications sector (such as those listed in the ACCC Discussion Paper) could be used to specify parameters in a financially based quality incentive scheme if it were considered that these are not sufficient in their existing guise to encourage Telstra to meet quality benchmarks.

We understand for example, that there have been problems with Telstra’s lack of compliance with several of the SAOs. Therefore, building indicators based on them into a quality incentive mechanism could reduce reliance on Part XIB mechanisms such as RKR$s$ to monitor and enforce them.

### 4.7 Conclusions

We consider that in moving to a fixed RAB framework, there will be a requirement for mechanisms to be put in place to ensure that only efficient levels of capital and operating expenditure are incurred over time and that service quality is maintained.

Constraints on expenditure should be imposed via the use of a well designed incentive mechanism. This needs to provide an incentive for the firm to keep expenditure below that forecast over a regulatory period, but at the same time not be prone to offering unrealistically high forecasts of expenditure so that these are too easy to beat. We would be concerned if the ACCC were to adopt the

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30 Service quality incentive schemes along these lines, but which operate as a +/- percentage on allowable revenues applies, with respect to the regulation of electricity distribution and transmission. See for example, AER (2009).

31 See ACCC (Various Years).

32 ACCC Discussion Paper p. 50.
energy sector schemes as an ‘off the shelf’ model for the telecommunications sector.

Due to concerns about vertical integration of Telstra, the multiplicity of access services it provides and the associated possibility of anti-competitive conduct, we conclude that CPI-X expenditure incentives should be applied to each access service individually rather than in the form of a broad overriding constraint across all services. The X-factors should be set by the regulator.

We consider that the current SAOs and service quality arrangements that apply in the telecommunications sector could form the basis of a wholesale specific quality incentives mechanism that contains financial rewards and penalties. This should address equivalence of service while Telstra remains vertically integrated.
5 Principles for structuring the prices of different fixed-line access services

5.1 Overview of issues

In this section of our report, we address many of the issues raised in Section 4.3 (and, in particular, questions 23 to 27) of the ACCC’s Discussion Paper. Broadly, these issues include:

- whether Telstra should be given greater freedom to allocate estimated costs to individual services as it sees fit, or whether the ACCC should retain the ability to set individual prices for individual services
- whether the theoretical efficiency advantages that might be hoped for if Telstra were given greater freedom to recover common costs across different services are likely to be achieved in reality
- the risk that Telstra might use greater flexibility to recover costs in ways that could inhibit competition in downstream retail markets
- whether providing Telstra with greater flexibility could give rise to substantial and rapid rebalancing of different access prices, with consequent risk of ‘rate shock’ for access seekers and end-users
- whether the ACCC should retain the flexibility to adopt different pricing principles for different services – particularly in circumstances where the unpredictable nature of retail price control arrangements might make standard cost-based pricing principles inappropriate
- whether the ACCC should adopt an average CPI – X % price cap or a maximum allowable revenue cap if it is minded to give access providers greater flexibility when setting access prices
- whether previous period revenue weights should be used if the ACCC chooses to apply CPI – X % price caps for the regulated services.

5.2 Allowing access providers greater flexibility to structure access prices can improve economic efficiency in certain circumstances

5.2.1 Incremental cost pricing and the need to recover common costs

We believe estimation of an appropriate access price should start from the premise that it seeks to ensure recovery of the incremental and directly
attributable costs of providing a service. In this sense, TSLRIC (without the ‘+’ in TSLRIC+) is the appropriate starting concept for pricing access to telecommunications services.

The difficulty with pricing each individual service on the basis of pure TSLRIC, however, is that there are a number of costs that are not directly attributable to any particular service, but which instead are common to a number of services. Such common costs can come in two main forms:

- **Common network costs.** In the case of fixed-line services, this might include the copper wires in the customer access network, which may be common to the provision of retail line rental services, the ULLS, the LCS and wholesale ADSL services. Other examples might include the costs of switching equipment in exchanges, which could be common to the provision of both PSTN and LCS services.

- **Common organisational level (or business overhead) costs.** These are non-network costs that are not directly attributable to the provision of any given services, and may include the costs of retailing, marketing, human resources, finance departments etc.

Where a firm produces a number of services that share common costs, it would be unable to recover all of its costs of production if each service was only priced on the basis of the directly attributable incremental costs of providing the service and no service made a contribution towards the recovery of common costs.

When setting access prices for declared fixed-line services in the past, the ACCC has typically allowed access prices to make some recovery towards common costs. This is achieved by ensuring the access price for fixed-line services are augmented above pure TSLRIC to make a contribution towards common costs. Such pricing is often referred to as “TSLRIC+”.

The challenge for regulatory authorities is to determine how large the contribution each service makes towards recovering common costs should be – in other words, if TSLRIC+ is the chosen pricing principle, how big should the “+” in TSLRIC+ be for each service?
5.2.2 The theoretical properties and limitations of Ramsey pricing

In the absence of a “first-best” means for financing common costs, theory suggests that economic efficiency would be best served if common costs were recovered using Ramsey-Boiteaux pricing principles (or simply Ramsey pricing). In the context of pricing of mobile termination access services, the ACCC (2006b, p. 174) has previously recognised that:

... in principle, the efficiency properties of R-B [Ramsey-Boiteaux] pricing for the recovery of common costs are convincing, and have been well recognised in the literature and by other regulators...

Under Ramsey pricing, the extent to which pricing of a given service makes a contribution towards the recovery of common costs is inversely proportional to measures of elasticity of demand for the service.

While Ramsey pricing is relatively straightforward in theory, it is practically difficult to implement for a regulator. This is because it requires precise knowledge of the elasticity of demand for all services that share the common costs the regulator is seeking to allow recovery of. Indeed, if implemented correctly, Ramsey pricing requires the regulator to know not just the extent to which an increase in the price of a service impacts on demand for the service itself, it must also know how increases in the prices for the service impact on the demand for other substitute and complimentary services. Only when the impact on all services is understood can the regulator seek to minimise the overall distortion from increasing prices for services above their TSLRIC. The extent to which an increase in the price of one service impacts on demand for that and other services is measured by so-called “super-elasticities”.

Acquiring robust estimates of such super-elasticities is, however, likely to be very time consuming and costly, and likely to quickly be out-of-date. Given errors in super-elasticity estimates can lead to substantial differences in prices for individual services, and consequent welfare losses, regulators have tended to avoid seeking to set prices on the basis of Ramsey pricing principles. As noted by Baumol and Sidak, (1994, pps. 38-39):

The data requirement is one reason why most regulators and consulting economists have rejected the use of Ramsey formulas even to provide approximations for the prices that the regulated firm should be permitted to charge for its products. Marginal-cost figures are difficult enough to come by, although reasonably defensible approximations have been provided by firms to regulatory bodies. But up-to-date estimates of the full set of pertinent elasticities and cross-elasticities are virtually impossible to calculate, particularly in markets where demand conditions change frequently and substantially. As a result, an attempt to provide the regulator with an extensive set of Ramsey prices is likely to be beset by inaccuracies, by obsolete demand data, and by delays that will prevent the firm from responding promptly and appropriately to evolving market conditions.
5.2.3 More flexible pricing principles can, theoretically, lead to improved economic efficiency

While a regulator may not be able to easily and quickly extract information to enable it to determine super-elasticities for a range of services, a firm is likely to have better information available to it to assess the sensitivity of customer demand to changes in prices for its services.

The economic literature suggests that, in theory, a regulator may be able to design access pricing principles in a way that gives a regulated firm the incentive to adopt a Ramsey pricing structure without the regulator needing to know information about the elasticities of demand for various services. In general, these alternative pricing principles involve the regulator moving away from setting individual prices for specific regulated services, and instead providing greater flexibility to the regulated firm to determine how it would wish to structure its prices subject to some broader revenue or price constraint. In this context, two main types of flexible price control measure are often discussed:

- An average CPI – X % price cap. Under this approach, all regulated services sharing common costs are placed in a single basket. The regulated firm is then required to reduce the average price of the basket from current (or initially estimated) levels by CPI – X % each period, where CPI represents a measure of general inflation and X is a number chosen by the regulator.  

Within this constraint, the regulated firm can change the price of individual services however it wishes so long as the average price movement for the basket of services as a whole meets the overall reduction required by the price cap measure. For instance, the regulated firm could actually increase the price of one service within its basket of regulated services so long as it reduces the prices of other services in the basket by a sufficiently large amount so that, on average, the price of the basket as whole decreases enough to meet the requirements of the overall price cap constraint. This form of pricing principle has been applied to Telstra’s retail fixed line services for a number of years. This was used by Telstra during the early part of the last decade to “rebalance” its retail prices, whereby it increased the prices of basic access/line rental services in exchange for reductions in the price of per call services (such as national and international long distance calls).  

It has also been applied by the UK regulator (Ofcom) when setting prices for individual access services. This has given BT the opportunity to change

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33 For a more detailed illustration of how such a price cap might work in practice, refer to ACCC (2007, p. 82).

34 For an overview of the price changes that occurred during this period, see ACCC Various Years b

35 See, for instance, Ofcom 2009b.
prices for different customer segments by different amounts so long as it meets the overall price reduction requirement.

- A maximum allowable revenue cap. Under this approach, the regulator determines specified amounts of revenue that a regulated firm is allowed to recover in a given period (or set of periods). These revenue amounts are normally determined to enable the firm to recover costs the regulator has estimated will be incurred in providing the relevant services. Within this broad revenue cap, the regulated firm can structure its prices for individual services however it wishes, so long as it does not generate more revenue across all of the regulated services than the amount allowed under the revenue cap for the relevant period(s).

While both of these forms of price control arrangement can provide incentives for a firm to find cost efficiencies (refer to the discussion in section 4.4 of this report), they can also give the firm an incentive to choose a pricing structure more closely aligned with Ramsey pricing. The intuition behind giving the regulated firm more flexibility to structure its prices relates to the notion that a profit maximising monopolist will naturally have an incentive to structure its prices in Ramsey efficient ways.

To illustrate, suppose a profit maximising monopolist is initially left unregulated. Theory suggests the firm would raise the price of each service above marginal (or in this case attributable) costs to profit maximising levels. This would generally involve prices for those goods that are less responsive to changes in price being raised proportionately more above cost than the prices of those goods that are more responsive to changes in price. This is because any given increase in price will lead to a proportionately greater reduction in demand for those services that are more responsive to price increases, and hence a proportionately lesser increase in profit. Hence, a profit maximising firm naturally has an incentive to raise the prices of those goods that are less responsive to changes in price proportionately more than those goods that are more responsive to changes in price – and thereby a natural incentive to adopt pricing structures more in keeping with Ramsey pricing structures.\(^{36}\)

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\(^{36}\) Another way to view this is by considering a profit maximizing firm that is asked to reduce its prices, on average, by X per cent each year. A $1 reduction in price for those services where demand shows little response to a change in price will experience a sharp decrease in revenue, as a result of the $1 price decrease on all infra-marginal units of the service previously consumed, with little offsetting revenue increase from additional demand. Conversely, a $1 decrease in the price of those services where demand is more responsive to changes in price will lead to a much larger offsetting increase in revenue due to a greater increase in demand in response to the decrease in price. Hence, the regulated firm will be encouraged to reduce the price of those goods with a greater responsiveness to changes in price by relatively more than it will want to decrease the price of those goods where demand is less responsive to changes in price. In turn, this will push the firm towards Ramsey prices where a smaller proportionate mark-up above attributable costs are observed for those services that are more responsive to changes in price.
The incentive for a profit maximising firm to structure its prices in Ramsey efficient ways is well understood in the economic literature. For instance, Laffont and Tirole (2000, p. 66) find that:

In principle, the choice of Ramsey-Boiteux prices can be decentralized to the firm through price caps.

... It is easily demonstrated ... that if weights are equal to the future realized quantities ... then optimality conditions for the firm yield Ramsey prices in structure.

The ACCC has also noted the potential efficiency benefits of pricing principles that provide greater flexibility to a regulated firm to choose its own structure of prices, subject to some broad form of price or revenue constraint. For instance, in the context of retail price controls for Telstra’s fixed line services, the ACCC (2001, p. 29) has previously found that:

A regulator can give a firm the incentive to Ramsey price by including a number of services with common costs within the same broad price cap basket. For instance ... a central theme of all price control arrangements since their inception in 1989 has been the inclusion of a broad CPI – X per cent price cap on a broad basket of services.. Under this form of price control, a firm is still required to reduce the prices of a number of its services collectively towards cost, but still has the freedom to do so in a way which minimises the allocative inefficiency of recovering common costs across these services.

5.3 The efficiency benefits from flexible pricing are likely to be limited in practice

While giving a regulated firm greater control over its pricing of individual services can theoretically provide it with incentives to adopt a Ramsey structure of prices, there are a number of factors which lead us to believe the extent of these efficiency benefits are likely to be muted in practice.

The ability to efficiently set Ramsey prices requires that:

- all services that share common costs are included in the same basket of regulated services subject to either a price or revenue cap
- the regulated firm has market power over the provision of all services, and therefore the ability to raise the price of individual services above their marginal or incremental costs of production to extract contributions towards recovering common cost.

Both of these features are unlikely to be present in current telecommunications markets in Australia. Most obviously, while many of the fixed line regulated services shares some costs that are common, these costs are also likely to be common to other services. For instance, some of the costs of the customer access network that may be shared by the ULLS, LSS and WLR services are also
likely to be common to the production of retail line rental services, wholesale ADSL services etc. Further, it is likely that these services also share costs that are common to other telecommunications services, such as mobile telephony services. The failure to include all services that share common costs has previously led the ACCC to raise questions about the utility of Ramsey pricing in the context of assessing mobile terminating access service (MTAS) undertakings. For instance, the ACCC (2006b, p. 192) found that:

The correct approach would be to include all services that give rise to common costs in the R-B framework. If certain relevant services are excluded from the R-B framework, those services that are included will, other things being equal, bear a greater than appropriate portion of common costs.

This concern is likely to be even further exacerbated in circumstances where the regulated firm has market power over the provision of some services that share common costs, but not over others. This is because a profit maximising firm will set prices having regard to the elasticities of demand it faces, and not necessarily the market elasticities of demand. For those services where a firm is the monopoly provider of services, it faces the market elasticity of demand. However, for those services where it faces more competition, it will face an elasticity of demand that is greater than that of the market as a whole. For instance, in the case of a perfectly competitive market, the elasticity of demand for a service faced by any individual firm will be perfect, while the elasticity of demand for the market as a whole is likely not to be. Hence, even if all services that share common costs were included in the same price control basket, it is unlikely the firm will adopt a Ramsey structure of prices if some of those services are supplied in competitive (or even imperfectly competitive) markets. This conclusion has previously been noted by Baumol and Sidak (1994, p. 40):

… the prices that will accomplish this objective are those for which the firm’s demand elasticity is lowest, regardless of what the own-price elasticity of demand may be for those products for the entire industry. This observation is important. It means that Ramsey markups on competitive products will be lower, because they are appropriately guided by the firm’s elasticity of demand; to compensate for this, Ramsey markups on monopoly products will be higher than they would be if the pertinent demand elasticity for each of the firm’s products were that for the industry.

To the extent that Telstra has costs that are common to the fixed-line regulated services and services sold in other areas of its business, and that it does not have monopoly control over the provision of all services sharing common costs, it is likely that providing it with greater pricing flexibility will lead to:

- more than efficient common costs being recovered from those services for which it is the monopoly provider (such as the fixed-line regulated services)
- less than efficient (if any) common costs being recovered from those services over which it is subject to more competition.
It follows, therefore, that it is highly unlikely that giving Telstra greater flexibility to allocate common costs between different access services under a price or revenue cap would be likely to generate Ramsey efficient prices for the fixed-line access services. That said, if Telstra were to be structurally separated in a way that ensured a new access provider was created that only provided the fixed-line access services (and did not compete in the retail market), we believe it would be far more likely that a broad price or revenue cap would give the access provider incentives to move closer towards Ramsey efficient pricing structures.

5.4 Giving access providers greater pricing flexibility will introduce a number of detriments and risks

The previous section outlined practical reasons why we believe greater pricing flexibility is unlikely to lead to significant efficiency benefits. This section considers detriments we believe could arise from greater pricing flexibility.

5.4.1 Greater flexibility will provide Telstra with the ability and incentive to use access pricing in ways that inhibit competition

A significant risk of allowing Telstra greater pricing flexibility is that it will have the ability to raise the prices of those services that its rivals rely more heavily upon to compete against it in downstream retail markets in exchange for reduced prices for those services that its rivals are less dependent on.

Where an access provider is not vertically integrated, this ability should be of less concern to a regulator. In these circumstances, the access provider’s profit will only be determined by the revenues and costs it faces from providing access services. Accordingly, it is more likely that it will maximise profits by moving towards Ramsey pricing for these services, as discussed in section 4.2.3 above.

Where an access provider operates in both access and retail markets, however, its profits will be determined by the prices it sets at both the access and retail level. In this regard, the prices it sets at the access level can influence the extent of competitive constraint it faces at the retail level, and therefore the profits it makes in retail markets. Lower access prices for those services its rivals depend most heavily upon will increase the competitive constraint it faces at the retail level, and hence the amount of profit it can expect to earn in retail markets. Conversely, higher prices for those access services relied heavily upon by its rivals might reduce the level of competition it faces at the retail level, and increase the profit it can make in these markets.

It follows, therefore, that a vertically integrated access provider will have different incentives to an access provider that only operates in access markets. Its profit maximising set of access prices will be those that maximise its profits.
across the whole of its business, and not just across the regulated fixed-line access services it provides. We believe it is likely Telstra would have an incentive under simple price and revenue cap regulations to use greater freedom to allocate costs to different services strategically in a way that enhances its competitive position overall, and not just to maximise profits with respect to the access services it provides.

The risk of a vertically-integrated access provider using pricing flexibility to inhibit competition in retail markets has previously been noted by the ACCC (2007, p. 83) in its draft consideration of a special access undertaking (SAU) provided to it by FANOC:

Put simply, allowing the regulated firm the flexibility to set access prices may, in some settings, result in a potential price squeeze whereby the access service is priced substantially above cost in order to exclude competitors from retail markets. While the proposed general approach to pricing access services could still be appropriate if the access provider was vertically integrated, additional regulatory oversight of access price setting and, potentially, competition in downstream markets than is envisaged in the SAU may be required for the pricing approach to be in the long-term interests of end-users.

The risk of pricing flexibility being used to inhibit competition in downstream markets can conceivably be mitigated, to some extent, by the use of other measures available to the ACCC. For instance, the ACCC could monitor the extent to which Telstra rebalances fixed-line regulatory prices and use its powers under Part XIB of the Trade Practices Act (Act) to take action if it thought Telstra was seeking to use its pricing flexibility to harm its competitors in anti-competitive ways. While the use of Part XIB could act as some constraint on anti-competitive abuse of greater pricing flexibility, the limitations of relying on Part XIB of the Act to constrain anti-competitive access pricing are well known. In particular, requirements to consult with the carrier suspected to be in breach of Part XIB; the need to complete detailed and lengthy investigations to gather evidence to prosecute a case; and the length of court hearings and considerations of matters mean there are significant limitations to how quickly concerns about potential anti-competitive conduct can be addressed. In this regard, the ACCC (2009, p. 69) has previously noted that:

... in circumstances where the recipient of a competition notice does not alter its conduct, the competition notice regime does not operate efficiently to stop anti-competitive conduct.

... the enforcement of a competition notice in the Federal Court necessitates complex and comprehensive investigation by the ACCC to obtain the requisite detailed economic and industry evidence to establish the ‘effect’ of the conduct.
Procedural challenges to the competition notice and/or consultation notice can also prevent the ACCC from quickly addressing competition concerns in telecommunications markets. Such challenges can distract both the ACCC and the recipient of a notice from addressing the alleged anti-competitive conduct and can be resource intensive.

5.4.2 Greater flexibility could lead to rapid and substantial increases for some access prices

A second risk of providing greater pricing flexibility under a simple price or revenue cap is that there will be no constraint on the speed with which Telstra can change access prices for different services. For instance, under an average CPI – X % price cap, there would be nothing to stop Telstra doubling the price of the ULLS so long as there were sufficiently large reductions in other access prices to meet its overall price cap commitments.

Even if such price changes moved prices closer to Ramsey levels and were not motivated by a desire to inhibit competition in downstream markets, rapid and substantial changes to access prices could be particularly damaging to the business plans of access seekers. For instance, a large and unanticipated increase in the price of the ULLS would be particularly damaging for access seekers that had already invested heavily in complimentary equipment to use with the ULLS, such as DSLAM equipment, relative to those that relied on other means to compete in downstream markets. Problems of rapid and substantial price movements would be further exacerbated if Telstra were to adjust its prices unpredictably from one period to the next.

It follows, therefore, that providing greater pricing flexibility to Telstra could generate significant uncertainty for access seekers. In turn, this could stifle investment by access seekers in complimentary infrastructure to use with various access services and is unlikely to be in the interests of persons who have rights to use the declared services.

Uncertainty around future price movements could be reduced by access providers and seekers entering into long-term contracts that govern the extent of future price movements. These can provide some certainty over how prices will move during an agreed period, however, they do not remove the ability of the access provider to impose substantial prices changes from one period to the next. Hence, the introduction of pricing flexibility could lead to overnight changes in prices that could do significant harm to access seekers who have already sunk investments in telecommunications infrastructure.

For this reason, the ACCC would want to carefully consider whether it should introduce side controls (such as sub-caps that limit the speed with which an access provider can adjust prices for individual services in any given period) to limit the speed and size of any changes for individual services. That is, the ACCC could set some form of sub-cap which limits the extent to which Telstra
could change the price of any fixed-line regulated service (relative to existing prices) to CPI +/− X %. For instance, during the earlier part of the 2000s, the government chose to limit the extent of rebalancing of retail fixed-line services available to Telstra under a broad CPI – X % price cap by also setting a CPI + 4 % price cap on line rental services.

While such side controls could minimise the risk of “rate shock” in the transition from one set of prices to another, it is well recognised that using sub-caps limits the extent to which broader price control measures can be used by a regulated firm to pursue Ramsey efficient prices. This is because they limit the very flexibility a broad price control measure seeks to provide the regulated firm. This has been previously recognised by the ACCC (2001, p. 31) in the context of making recommendations on the appropriate form of retail price control arrangements that should apply to Telstra:

... where common costs exist, efficiency is best served by applying a price cap to as broad a basket of the services sharing these costs as possible.

A natural implication of this conclusion is that sub-caps, which impose additional restrictions on the movement of the price of services within the broader basket, are undesirable from an efficient pricing perspective.

Hence, the more the ACCC feels it needs to control the size of price movements to avoid rate shock, the lesser will be the prospect that Telstra can use the flexibility provided by broader price control measures to achieve Ramsey efficient prices. We believe the need for sub-caps further reduces the extent of efficiency benefits that can be expected under flexible pricing arrangements, and therefore further undermines the claimed arguments for introducing broader price or revenue cap arrangements.

### 5.5 Unpredictable future retail price controls mean the ACCC should retain the flexibility to use different pricing principles for different services

While the ACCC’s 1997 Access Pricing Principles paper indicated that, in general, TSLRIC+ should be the pricing principle adopted for most well-developed telecommunications access services, it has not always applied this pricing principle in practice. For instance, the ACCC has:

- set prices on a retail minus retail costs (RMRC) basis for the LCS and WLR

- previously allowed Telstra to set a price for PSTN OTA that lies above TSLRIC+ in recognition of the need for access prices to make an access deficit contribution (ADC) – so-called “TSLRIC++” pricing

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37 See ACCC (2008, p. 3).
In many cases, it has been the existence of price control arrangements that have applied caps to the retail prices Telstra could charge for services in downstream markets that has led the ACCC to depart from TSLRIC+ for certain access services. For instance:

- the existence of a 22 cents (GST inclusive) cap on the price Telstra could charge for the LCS was a key factor in leading it to adopt a RMRC pricing principle for the LCS. In this regard, the ACCC was concerned that the combination of a per minute TSLRIC access charge for the LCS and a retail price cap in the downstream market might subject access seekers to a price squeeze if a TSLRIC+ pricing principle were adopted for this service[^39].

- the “access deficit” that led to the ADC was a result of Telstra successfully arguing that the previous retail price caps on line rentals led it to make a loss on providing basic access (i.e. line rental) to consumers, and that this loss needed to be recovered through above-cost per minute charging for retail and access services.

Further, most of the arguments for geographic averaging of the ULLS have stemmed from the inter-play of the retail pricing parity obligations contained in clause 19A of the *Telstra Carrier Charges – Price Control Arrangements, Notification and Disallowance Determination No. 1 of 2005*, which requires Telstra to meet certain retail pricing parity obligations for metropolitan and non-metropolitan consumers.

More recently, the ACCC has indicated it is considering setting a TSLRIC-type pricing principle for all fixed-line regulatory services, and is likely to move away from RMRC pricing for the LCS and WLR.

In general, we agree that a cost-based pricing principle is appropriate for regulated services. However, we also believe it is important that the ACCC maintain some degree of flexibility when setting access prices for various services, and should not assume TSLRIC or another cost-based pricing method must always apply to regulated fixed-line services. This is especially the case if retail price control arrangements are introduced that impact on the prices various parties can set for services provided in downstream retail markets. In this regard, we note that the existing retail price control arrangements that apply to Telstra are currently under review. It is also noteworthy that the government (Commonwealth of Australia 2009) has indicated that:

> It is intended that the new determination will have effect for a period of two years. This will allow for adjustments to be made to the price control arrangements, whilst allowing time for more analysis and further policy

[^38]: See ACCC (2006a, fn 27).
development to occur so that more substantial changes can be implemented at a later date.

Hence, not only is the government considering amendments to existing price controls right now, it is also signalling it is prepared to contemplate substantial changes to any new retail price control arrangements in a further two years time. To the extent that the ACCC is considering putting in place pricing principles that will apply over the medium to long term, this suggests that substantial changes could be made to retail price control arrangements during the period over which any new fixed-line pricing principles could apply.

We believe this has two clear implications for the ACCC.

### 5.5.1 The ACCC should retain the flexibility to apply different pricing principles for different services

We believe the ACCC should be wary of mandating, up-front, a set pricing principle that would apply to all fixed-line access services. Decisions on retail price control arrangements are influenced by factors other than those which the ACCC is required to have regard to under the Act when setting access prices. In particular, the terms of reference for the current inquiry into amending Telstra’s retail price control arrangements require the ACCC to have regard to the “availability” and “prices” of services to consumers. Typically, this requires the ACCC to take into account social policy objectives, such as ensuring consumers from different geographic areas and with different income levels are able to have access to affordable telecommunications services. These are not criteria that the ACCC is required to have regard to when setting access prices for declared services.

The history of telecommunications regulation in Australia demonstrates there have been many occasions where the social policy objectives that govern the determination of retail price control arrangements can lead to price caps and retail price parity obligations that mean different and innovative access pricing principles are required for individual services. It cannot be guaranteed that similar conflicts between a “general” pricing principle and retail price control arrangements may not arise again in the future. In this regard, it is noteworthy that the Minister for Broadband communications and the Digital Economy (Commonwealth of Australia 2009) has directed the ACCC to:

> ... have regard to the intention that price controls for legacy telecommunications retail services will remain in place for a further two years, during which time consideration will be given to the impact the transition to the new National Broadband Network environment will have on pricing policy.

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40 See ACCC (2010, p. 8).
In these circumstances, it is not beyond the realms of possibility that the government may introduce price controls on retail broadband services in its 2012 review of retail price control arrangements to meet particular social policy objectives. If this were to be the case, the ACCC may find that the combination of cost-based access prices for some access services (such as the ULLS) and price control restrictions imposed at the retail level could make it unprofitable for access seekers to provide certain retail services, or in certain parts of the country. In this instance, it may be desirable for the ACCC to retain the flexibility to set individual access prices for individual services – and not stick to a set pricing principle for all regulated fixed-line services.

Given there is considerable uncertainty about what retail price control arrangements might apply in the future, we believe it is crucially important that the ACCC retain flexibility to deviate away from a general pricing principle where circumstances suggest doing so would better promote the objectives of the Act. This suggests the ACCC should avoid settling on access pricing principles that lock it in to setting access prices in a particular way for many periods to come.

Giving Telstra greater flexibility to allocate common costs between different services via a price or revenue cap may limit the ability of the ACCC to adjust its pricing principles for individual services in ways that respond to changes in retail price control arrangements. Hence, in circumstances where the government might impose a retail price cap on a particular service, there would be nothing to require Telstra to adjust its access pricing to meet relevant objectives under the Act if it is given freedom to allocate costs between the fixed-line services as it sees fit. For instance, if the price of a given retail fixed-line service was capped below its attributable costs of production, there would be nothing to require Telstra to reflect this in its access pricing. Indeed, Telstra would remain free to recover large amounts of common costs by raising the price of key access services required by its competitors to provide the product in downstream markets.

In many ways, concerns about the inability of the regulator to adjust access prices to unanticipated changes in retail price controls is simply an extension of our concerns raised in section 4.4.1 about providing access pricing flexibility to Telstra. While the ACCC could attempt to address concerns about the inter-play of retail price controls and access prices set by Telstra through the use of Part XIB of the Act, we do not believe this is ideal for the reasons set out in section 4.4.1.

### 5.5.2 Global price caps are not a practical solution for the ACCC

One alternative approach to addressing concerns about retail price controls and access pricing would be to consider the use of global price caps. This form of price control arrangement is similar to an average CPI – X % price cap.
However, under a global price cap, the regulator includes all services that share common costs – including both retail and access services – in the basket of price controlled services. In the case of Telstra, therefore, this would involve including both its retail services and its fixed-line access services in the same single price cap.

While this form of price control arrangement has been the subject of much academic interest, we are not confident it will lead to efficient pricing outcomes in practice. In particular, unless an aggressive “X-factor” is set for the global price cap, we believe the cap will do little to address any excess profits an access provider may be earning across the whole of its fixed-line business at the start of the regulatory period. Instead it will, at best, lead to a pricing structure that continues to raise excess profits in the most Ramsey-efficient way.

Importantly, it is also unlikely that a simple global price cap would ameliorate concerns about retail and access prices being set in a way that limits competition in downstream retail markets. As noted by Laffont and Tirole (2000, p. 174 – 178):

> A price squeeze, however, is easy to carry out under a global price cap. The operator can increase the access charge and reduce its final price while keeping the price cap constraint satisfied. It thereby hurts its rivals on the retail market considerably. One can then conceive of use of this strategy for predatory purposes. That is, the operator might reduce its profit until the next price review, but eliminate rivals who otherwise would have been used by the regulator as benchmarks for the future.

While Laffont and Tirole discuss the possibility of using imputation rules (such as ensuring the price of access is subject to an efficient component pricing rule), we think the use of imputation rules are an imperfect solution for the reasons set out in section 4.4.1 of this report.

More importantly, it is unclear whether the ACCC would have the power to set a global price cap for Telstra’s retail and access fixed-line services. To date, retail price control arrangements have been determined by relevant government Ministers. While the ACCC has frequently been asked to advise the government on the appropriate form of retail price control arrangement that should apply to Telstra, its recommendations have not always been implemented in full. There is no suggestion at this stage that the government would contemplate collapsing both retail and access fixed-line price controls into the one set of arrangements.

42 Vogelsang (2001, pp. 20 – 21) discusses the possibility that a global price cap may have in-built mechanisms to insure against predatory behavior. As noted by Vogelsang, however, this possibility strongly depends on the barriers to re-entry that would be faced by rivals of the vertically-integrated firm that is subject to a global price cap.
5.6 **The ACCC should continue to apply traditional techniques to allocate common costs**

If the ACCC is to continue to set individual prices for each of the declared services on a TSLRIC+ basis, it will need to choose a way to allocate common costs between the individual access services.

As indicated in section 5.2.2, economic efficiency would be best promoted if the ACCC were to allocate costs in accordance with Ramsey pricing principles. However, the inability to practically attain reliable super-elasticity estimates means it is highly unlikely the ACCC will be able to accurately determine Ramsey efficient allocations of common costs. Further, the appropriate specification of Ramsey prices is highly sensitive to super-elasticity estimates. This means there is a significant risk that small errors in super-elasticity estimates can lead to large deviations from efficient prices and significant welfare losses.

As a result of the practical difficulties associated with accurate implementation of Ramsey pricing, the ACCC and other regulators around the world have often chosen more practical ways to allocate common costs across different services. In some cases, common costs are directly attributed to particular services using volume allocation rules (e.g. on the basis of the proportion of minutes of use of a network element). For instance, in the fixed-line LRIC model developed for the ACCC by Analysys (the Analysys model), the costs of some “core” network assets that are common to the provision of a number of services are directly allocated to different services in proportion to percentage usage measures.

Alternatively, some common costs are allocated across different services using an equi-proportionate mark-up (EPMU) rule. This is especially the case for common organisational-level (or business overhead) costs. Under this approach, the directly attributable costs of each service are marked-up by a constant (i.e. equi-proportionate) percentage amount to allow a contribution towards the recovery of the regulated firm’s common costs. As noted by NERA (2009, p. 11-13), EPMU has been used to allocate common fixed costs by Oftel, the FCC and European regulators when determining TSLRIC+ prices for regulated fixed-line services. EPMU has also been used to allocate some common and indirect costs in the Analysys model, and has been used to allocate general overheads in Telstra’s TEA model.

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43 See Analysys (2008, p. 120).
44 See Analysys (2008, p. 119 – 134). While it appears Analysys has allocated some common costs directly between the access and core networks in its model, it has also allocated other common costs on an EPMU basis.
While practically convenient, these alternatives to Ramsey pricing are unlikely to ensure an optimal allocation of common costs. For instance, access prices set on the basis of EPMU will only be allocatively efficient if the super-elasticities of demand for all services sharing common costs are the same. This is almost certainly not the case in practice. Where super-elasticities of demand vary between services, an EPMU rule will lead to:

- more than an efficient amount of the common costs being recovered from those services that have a relatively higher super-elasticity of demand
- too little common costs being recovered from those services that have a relatively lower super-elasticity of demand.

Despite these limitations, we do not hold strong objections to the use of practical common cost allocation methods. In the first instance, it is not clear that practical allocation methods such as EPMU will lead to worse outcomes than attempts to allocate common costs using Ramsey principles informed by unreliable super-elasticity estimates. This is especially the case if the regulated services form only part of the set of services sharing common costs, and some of the other services sharing common costs are provided in competitive markets. Further, these practical alternatives are administratively simpler than attempts at Ramsey pricing. They also remove the incentive and opportunity for interested parties to try to game the regulator to accept preferred super-elasticity estimates.

In practice, however, there will still be difficult issues for the ACCC to resolve when using more practical principles to allocate common costs. These include:

- The appropriate types and size of common costs that need to be allocated across services (i.e. what costs are common to what services, and how large are those costs).
- Whether some common costs only apply to a subset of the regulated fixed-line access services, and therefore should only be allocated across some of the regulated services (and not all).

These are examples of some of the issues considered by Analysys in preparing its fixed-line LRIC model for the ACCC. We believe these are practical implementation issues best dealt with in the context of a specific pricing determination exercise. For that reason we do not propose to comment on the suitability of the Analysys (or indeed any other TSLRIC+ model such as Telstra’s TEA model) for the purposes of this pricing principles consideration. At a principled level, however, we believe it would be preferable for the ACCC not to:

- give Telstra complete freedom to allocate common costs as Telstra sees fit.
- Seek to estimate Ramsey prices itself given it is unlikely to have adequate information and it would be costly and time consuming to attempt to do so.
Instead, we believe it would be better to continue to prudently apply traditional (and more practical) techniques for allocating common costs, such as EPMU and volume-based allocation principles.

The appropriate way to allocate a specific type of common cost may vary depending on the nature of the cost involved. For instance, while some common costs may more easily be able to be allocated to particular services using usage factors, this may not be suitable for other types of cost. This is especially the case for organisational-level costs.

Wherever possible, we believe the ACCC should seek to follow a cost-causality principle when deciding how to allocate common costs. Where costs are common to only a sub-set of the regulated services, it should allocate these costs only to those services. Further, if usage factors – such as relative minutes of use or routing factors – can be used to sensibly allocate common costs to various services, we believe these should be applied. This has the greatest prospect of ensuring the prices of services are related to the costs of providing them. Only where there is no usage factor that can be meaningfully applied to allocate common costs should the ACCC rely on more arbitrary measures such as EPMU.

Further, to ensure cost allocation is subject to as little regulatory gaming and disputation as possible, the ACCC should when allocating Telstra’s common costs apply high-level principles such as objectivity, consistency and transparency. This would make it consistent with cost allocation principles used by other regulators such as Ofgem in the UK. 46

5.7 CPI – X per cent price caps are preferable to maximum allowable revenue caps

Price capping arrangements that operate on the overall (weighted average) prices that Telstra could charge would enable it to maximise revenues by setting its individual service prices in accordance with Ramsey pricing principles. This exposes the firm to volume risk, so that to the extent prices diverge from marginal costs, it will earn greater revenue if volumes are higher than expected and lower revenues if they are lower than expected.

Under a maximum allowable revenue cap, the regulatory control would operate by specifying the total maximum allowable revenue that Telstra could earn in any one year, subject to a CPI-X adjustment factor. Under this mechanism Telstra is able to earn a guaranteed amount of revenue regardless of actual output.

While a revenue cap provides Telstra with a similar level of individual service pricing flexibility as an overall price cap, the main trouble with this is that it would bear little, if any, volume risk, so the incentives to reduce prices in a manner to expand output are muted. Some of the specific reasons why it is appropriate for Telstra to bear volume risk rather than access seekers and end-customers are discussed in Section 3.3 above.

5.8 **CPI – X per cent price caps may be suitable for individual services**

As is clear from the discussion above, the use of broad-based CPI-X price caps should promote efficiency if there are no concerns about pricing flexibility being used to disadvantage rivals. If there are concerns, these can be addressed via the use of individual service caps. Alternatively, the concern about pricing to damage rivals would be ameliorated with the structural separation of Telstra’s wholesale and retail operations.

Where there are distributional objectives such as geographic averaging or a desire to maintain different prices for business and residential end-user customers, further granularity in price caps might be considered. However, each additional restriction that is imposed is likely to undermine the efficiency benefits from providing greater flexibility in pricing to Telstra. For example, it might be Ramsey efficient for Telstra to allocate more common costs to ULLS prices in the country than in the city on the basis that end user demand for fixed line services is more inelastic due to lack of reliable substitute services.

5.9 **CPI – X per cent price caps should use previous period revenue weights**

If the ACCC were to adopt a ‘basket’ approach to the pricing of different access services or for different types of individual services using an overall CPI-X price cap, the use of previous period rather than current period revenue weights is considered more appropriate.

The use of current year revenue weights compared to previous year weights would serve as a tougher constrain in pricing as it reduces the credit that can be obtained as a result of a price fall (by lowering the weight) as well increasing the penalty for a price rise (by increasing the weight). While this might be appealing to access seekers it has the disadvantage of increasing uncertainty and administrative costs as the revenue weights must be forecast in advance, opening the possibility of an ex-post adjustment to ensure compliance. (ACCC, 2001, pp. 50-51). Further, both its greater punitive and administrative difficulty properties would seem to be incompatible for a price control that is more about a CPI-X
mechanism to encourage incentives to reduce costs within a regulatory period and less about applying a strict price control regime to Telstra.

Previous year revenue weights are also currently used for Telstra’s retail price controls\(^\text{47}\) and by the ACCC for calculating the annual changes in the prices of telecommunications services for its Division 12 reports.\(^\text{48}\)

### 5.10 Conclusions

In general, in the absence of externalities and retail price control arrangements that cap prices for retail telecommunications services, we believe access prices should cover the directly attributable costs of providing a service. We believe this is fairly non-contentious. At a conceptual level, TSLRIC (without the ‘+’ in TSLRIC+) seeks to ensure this is the case.

What is less immediately clear, however, is how common costs should be allocated across different services. That is, there are some costs (such as network common costs and organisation-level costs) which are not directly attributable to any particular service. We believe discussions around how to determine an appropriate structure of prices for the different fixed-line access services are mostly concerned with how common costs should be allocated across different services. In this regard, the key issue is whether:

- the ACCC should seek to set separate prices for each service itself by estimating directly attributable costs for each service and then allocating a certain amount of common costs to each service; or
- Telstra should be given greater freedom to structure access prices itself so that, in effect, it determines how much of its costs to recover from each of the regulated services. This freedom could be achieved by some form of broader price control measure, such as a maximum allowable revenue cap; an average CPI – X % price cap or a global price cap.

This issue lies at the core of this section of our report. Our analysis leads us to conclude that:

- there are theoretical arguments for providing Telstra with the freedom to recover common costs across a range of different services as it sees fit. These arguments are based on the efficiency benefits of Ramsey pricing
- achieving these efficiency advantages is, however, dependent on a number of strict conditions (such as all services – both retail and access – that share

\(^{47}\) ACCC (2009a, p. 5). It is noted that the ACCC’s methodology was recently adjusted to allow use by Telstra of previous period revenue weights rather than an average of previous and current revenue weights after objections from Telstra.

\(^{48}\) ACCC (2009b).
common costs being included in the relevant price control measure, and Telstra having monopoly power over the provision of all such services). We do not believe these conditions will be met if Telstra is given greater freedom to allocate costs across the fixed-line access services

- Telstra could take advantage of pricing flexibility to restrict the ability of its rivals to compete on their merits in downstream retail markets
- providing greater pricing flexibility could give rise to substantial and rapid rebalancing of different access prices, with consequent risks of ‘rate shock’ for access seekers and end-users. While this can be managed by side controls (such as sub-caps on regulated services), this undermines the efficiency advantages of more flexible pricing principles
- regulatory history in telecommunications markets in Australia demonstrates that potential conflicts can exist between retail price controls and access pricing arrangements. This suggests the ACCC should retain the flexibility to set different pricing principles for different services where this would be in the long-term interests of end-users
- if, despite our arguments to the contrary, the ACCC is minded to give access providers greater flexibility when seeking to structure prices, then it should choose an average CPI – X % price cap rather than a maximum allowable revenue cap
- that while we have concerns about adopting an average CPI – X per cent price cap for a basket of regulated access services, we are less concerned about applying individual CPI – X % price caps for individual access services, as occurs in other jurisdictions such as the UK (subject to potential concerns about the geographic averaging of ULLS access prices)
- if CPI – X % price caps are used for any regulated services, they should be applied using previous period revenue weights as previously argued by the ACCC in its consideration of retail price control arrangements.

On balance, we conclude that the ACCC should not deviate from its past practice of separately determining prices for each of the regulated fixed-line services. Further, it should retain the flexibility to deviate from its core pricing principles for individual services if a change in circumstances means a unique pricing principle would better promote the long-term interests of end-users for a particular service.
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