INCENTA Economic Consulting

Memorandum

To:	Chorus
From:	Jeff Balchin
Date:	28 February 2014
Subject:	TSLRIC for UCLL service – asset valuation issues

1. Purpose and summary

1.1 Purpose

I have been asked by Chorus to comment on the conclusions reached by Frontier Economics (Frontier) in relation to how assets are valued in order to estimate the TSLRIC for Chorus's unconditional local loop service.[1] In the relevant section of its report, Frontier recommends different approaches to asset valuations depending upon whether the assets in question will be reused for the purpose of the fibre network rollout or whether the assets in question are dedicated to the copper network. Frontier's conclusions are that:

- assets that are to be reused for the fibre network should be valued according to the "depreciated optimised replacement cost" of the assets rather than the "optimised replacement cost", and recovered over the remaining lives of the assets in question, and

- the remaining assets should be valued at their "optimised replacement cost", and with the TSLRIC calculated using a life equal to the expected life for an "as new" asset and with utilisation of the asset to remain at current levels.

In relation to the valuation of the assets that will be reused, Frontier's conclusions rested upon a number of propositions, which included that:

- the application of an ODRC (or DORC) valuation will produce a materially different outcome for prices (i.e., a materially different estimate of TSLRIC) to the use of an ORC valuation for this purpose, and

- to use an ORC valuation to derive a TSLRIC value inherently will lead to a windfall gain for Chorus, with the use of an ODRC valuation something that is less likely to lead to such a windfall gain.

[1] Frontier Economics, 2014, Determining a TSLRIC price for Chorus' UCLL service, report for Vodafone New Zealand, Telecom New Zealand and Callplus, February.

1.2 Summary of conclusions

1.2.1 Overview

I disagree with the conclusions that Frontier has reached in relation to the assets that will be reused for the fibre networks. In my view:

- Frontier is incorrect to suggest that the use of an ODRC valuation should produce a different TSLRIC estimate (and one that is materially lower) than the use of an ORC valuation. If applied correctly, the valuation methods should produce the same TSLRIC estimate.
  - The source of the error is with the purpose of the "depreciation" step in an ODRC valuation. The purpose of this step is to account for the difference in the forward-looking total cost of using an "old" asset to provide the service in question compared to the forward-looking total cost of using a "new" asset for this purpose; views about the historical recovery of costs are irrelevant for this purpose.
- Frontier is also incorrect to suggest that valuing assets at ORC (which I conclude will generate the same TSLRIC as an ODRC valuation, if the latter is done correctly) will give rise to a windfall gain. There is no basis for such an a priori assumption.
- Applying an ORC valuation rather than ODRC (the choice between which I argue should not affect the TSLRIC estimate in any event) is likely to have administrative benefits given the current context. The practice in the energy sector of using ODRC valuations is not informative on this matter.

In relation to the assets that are not expected to be reused for fibre networks, I agree that Frontier's proposal is a pragmatic one in view of the complexities caused by the transition, this proposal being to value the assets at the replacement cost of the current technology and to assume a recovery of that cost over the life of a "new" asset.

1.2.2 Materiality of the choice between an ORC and ODRC valuation

Frontier's assumption that the choice between using an ODRC or ORC valuation in the TSLRIC model for ducts and trenches will deliver a materially different answer – and so address matters like protecting against windfalls on past investments being made – is, in my view, incorrect.

If the ODRC valuation is done correctly – that is, according to its conceptual underpinnings – the resulting price will be identical to the price that is obtained from an ORC valuation. This is because the whole purpose of "depreciation" in an ODRC valuation is to derive the value for an old asset that will create the same total cost structure as that of a new asset – therefore this outcome is a tautology.

- When an ORC is used, allowances for expenditure must reflect that of the new (hypothetical) asset, whereas when an ODRC is used allowances for expenditure must reflect that of the old (actual) asset. The depreciation (when calculated consistent with the conceptual underpinning of the correct method) is the amount that makes these two cost-stacks – and hence the calculated TSLRIC – the same (at least in present value terms).

Whether "straight line depreciation" is a close approximation for the difference in the forward-looking cost of using an old asset compared to a new asset is an empirical question that depends on the

characteristics of the asset in question (and so for which precedents from the energy sector are not relevant). For assets for which maintenance costs are expected to be relatively constant with the age of the asset (or immaterial), then straight line depreciation is likely to materially overstate the extent to which an "old" asset is less valuable than a "new" asset, which is expected to be the case for assets that will be reused for the fibre networks (i.e., ducts).

1.2.3 Should an ORC or ODRC valuation be applied?

In view of the discussion above, whether an ORC and ODRC valuation is applied is a second order issue (i.e., the same TSLRIC should be expected), and indeed if material differences arise this is indicative of error.

Where assets are going to be revalued periodically with reference to hypothetical new entrant's cost structure – which is implicit in the requirement for the Commission to apply a forward-looking TSLRIC estimate each time these charges are revised – then there are no administrative or incentive benefits from applying an ODRC valuation, and indeed applying an ORC valuation (and estimating TSLRIC in a manner that is consistent with new assets being used) would appear to offer administrative advantages.

While in the energy sector it has been the practice of applying an ODRC valuation, this has been a consequence of the more significant practice of "locking-in" a starting RAB and updating it thereafter to by rolling in actual capital expenditure, in which case an ODRC valuation is the only practical alternative. However, such a "locking in" is less appropriate when prices are required to be determined (and re-determined) in line with forward-looking costs and so this practice is uninformative.

1.2.4 Windfall gains and ORC or ODRC

Whether or not setting an asset value at ORC/ODRC may lead to a windfall gain over the life of the asset in question is an empirical issue, requiring an analysis of past pricing and the historical pattern of expenditures. However, there is no sound basis for an a priori conclusion that ORC/ODRC would lead to a windfall. Indeed, where infrastructure services are efficiently priced, capital is almost certainly returned to investors at a slower rate than assumed by accounting measures of depreciation, and it is also not unexpected that capital may have been returned at a slower rate than assumed by a hypothetical new entrant asset valuation (i.e., ORC/ODRC). The implication is that it may equally be the case that ORC/ODRC valuations understate the RAB required to earn an NPV=0 over the relevant asset's life.

This proposition is demonstrated for a simple, stylised example where it is assumed that a price is set to be constant in real (inflation adjusted) terms and there is modest market growth (3 per cent per annum), CPI inflation of 2.5 per cent and real growth in replacement costs of 2 per cent per annum. In this example, the RAB that would be required to ensure cost recovery over the asset's life when the asset is part way through its life is multiples of the standard accounting values, and modestly above the ODRC.

1.2.5 Assets that will not be reused in the fibre networks

An implicit assumption in ORC and ODRC valuations is that the relevant service continues in perpetuity. Frontier has in effect proposed to value the assets that will not be reused for the fibre networks (i.e., the copper) by hypothesising that this assumption holds – that is, to value the copper at

today's replacement cost, and to derive the TSLRIC on the assumption that costs are recovered over the anticipated life of "new" copper. I agree that this is a pragmatic solution to the management of the transition from copper to fibre networks.

2. Analysis and elaboration

2.1 ODRC vs. ORC

2.1.1 Conceptual underpinning of ORC and ODRC

Both ORC and ODRC valuations derive from the same objective, which is to deliver an asset value that in turn generates a price (or TSLRIC) that would be consistent with what would be observed in a workably competitive market in long run equilibrium. This latter condition occurs when there is no incentive for net entry or exit – which means that the prices allow a hypothetical new entrant to make a normal return on the investment that it could incur if it entered and served the market.

In the telecommunications sector, valuing assets so as to provide neutrality with a hypothetical new entrant's cost structure has often been advocated as desirable on the basis that it is likely to promote an efficient "build-buy" decision, and Frontier argues from this that the loss of favour of "build-buy" neutrality as an objective means that there is now little or no rationale for an ORC valuation. In my view, Frontier is overstating this point: ODRC valuations (which I argue below should deliver the same result as an ORC valuation) have a long history in the energy sector, where there has never been an objective to preserve a "build-buy" incentive. In an early foundational document, the ACCC described ODRC valuations as consistent with replicating the outcome of a competitive markets, and explained this objective as follows:[2]

> *First, while the outcomes of competitive or contestable markets do not provide all of the answers, regulators often look to competitive or contestable markets for guidance on efficient decision rules for regulating natural monopoly markets. Such comparisons can provide useful guiding principles for certain regulatory problems. In addition, the establishment of broadly symmetrical pricing and incentive structures across regulated and unregulated markets has attractions on general resource allocation grounds. It is noted in this regard that one of the objectives is to replicate the desirable outcomes of a competitive market.*

When an ORC valuation is applied, it is used as part of a direct estimate of the cost of the hypothetical new entrant's cost. That is, the ORC is used in combination with estimates of the cost of operating and maintaining the hypothetical (new) asset, and the owner is assumed to recover the costs over the life of the new asset. In contrast, when an ODRC valuation is used, a value for the old (actual) assets is first inferred from the proposition that the total cost of using "old" assets to provide the service must be the same as the total cost that would be borne by a hypothetical (efficient) new entrant. Thus, to the extent that it costs more to provide the service using "old" assets (for example, maintenance costs are higher) or those assets must be replaced earlier, then the value of those "old" assets must be lower by the amount of this (forward-looking) cost disadvantage.[3] The conceptually-correct

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2 Australian Competition and Consumer Commission, 1999, Draft Statement for the Regulation of Transmission Revenues, May, p.40.

3 An alternative but equivalent way of expressing the objective when estimating an ODRC value is to ask what a provider would willingly pay for the old assets if it had a choice between buying (and providing the service) using the old assets or the new assets. In this case, it would be prepared to pay

depreciation in an ODRC valuation is difference in value between the new assets and old assets that is caused by the difference in the forward-looking running costs between using old compared to new assets. It follows from this that the total cost structure – and therefore the regulated price – must be the same irrespective of whether an ORC is used or an ODRC because this is precisely the outcome that the "depreciation" adjustment is intended to generate.[4]

In equation form, the relationship between ORC and ODRC – and therefore the correct depreciation adjustment – can be expressed as:

$$ODRC = ORC - \big(NPV(Future\ costs: old\ asset) - NPV(Future\ costs: new\ asset)\big)$$

The total future regulated revenue stream (in present value terms) depending on whether it is assumed that assets are "new" or "old" can be expressed as follows:

$$Future\ revenue\ (New) = ORC + NPV(Future\ costs: new\ asset)$$
$$Future\ revenue\ (Old) = ODRC + NPV(Future\ costs: old\ asset)$$

which, given the earlier relationship between ORC and ODRC must be identical.

2.1.2 Application of ODRC in practice

It is acknowledged, as Frontier points out, that when ODRC valuations have been applied in practice for infrastructure assets, straight line depreciation has most often been applied to give effect to the depreciation step. A number of reasons can be hypothesised for the use of a simplistic proxy in other sectors (such as the energy sector). Clearly, the application of the conceptually-correct method of deriving an ODRC value (or the depreciation component thereof) is reasonably information intensive, and it may be that it was considered to be a good proxy in the context of the assets in question. It is also the case that in many circumstances where ODRC valuations have been applied in Australia, the relevant regulator was not obliged to apply either an ODRC valuation or to seek to replicate the outcomes of a competitive market, but was provided with a wider discretion. In this context, there would have been less incentive for a proponent to devote the resources to refine the ODRC estimate.[5]

However, it is also noted that in Australia a more recent decision of the Australian Competition Tribunal recognised that the depreciation step when applying an ODRC valuation is a critical factor, and expressed strong reservations about the use of accounting concepts of depreciation for this purpose. Its key statements included the following:[6]

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the same as it would pay for the new assets (i.e., the ORC) less the difference in future costs expected from using the old assets compared to the new.

4 This concept behind the ODRC value has been recognised by Australian regulators, for example, Australian Competition and Consumer Commission, 1999, Draft Statement for the Regulation of Transmission Revenues, May, pp.39-40.

5 For example, under the former Gas Code (now replaced by the Gas Rules), replicating the outcome of a competitive market was one of five objectives (section 8.1) and in relation to asset valuation specifically the Code directed that the asset value should normally sit within ODRC and the depreciated actual cost, and required a series of factors to be taken into account, including the basis upon which tariffs were set in the past and reasonable expectations of parties.

6 Application by East Australian Pipeline Limited [2004] ACompT 8, paras.26, 38. ICB stands for the initial capital base, which means the same thing as a starting regulatory asset base.

> *… ORC is only utilised in this field as the starting point from which to deduce DORC. These are forward looking concepts and the 'depreciation' concerned is economic depreciation. There is no support for ORC to be adjusted to take account of past events particularly based upon accounting concepts of depreciation, and to do so is wrong in principle.*
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> …
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> *[I]n our opinion the theoretical underpinning of DORC has progressed over the years to the point where it can now be recognised that straight line depreciation is too crude a tool to be used where there is the opportunity for a more sophisticated analysis. In our opinion, the materials before the ACCC, including its own Draft Statement of Principles, recognise that a net present value (NPV) approach is required for the most reliable result to be achieved, albeit, in our opinion, based upon costs rather than revenue. We recognise that there will inevitably be differences of opinion as to how those principles apply in this particular factual situation. Resolution of those differences of opinion in the first instance is properly (and remains) the function of the ACCC rather than the Tribunal. It is not an adequate response to that responsibility to claim that the task is too difficult. When the matter is reconsidered, attention should be directed to the proper application of a NPV approach to depreciation in this case. Where the value attributed to the ICB will have a continuing effect for the balance of the life of the pipeline, it is appropriate that there be a serious effort made to arrive at the correct result.*

When applying such a sophisticated method to derive the depreciation adjustment, the factors that have the most significant effect on how much an asset is depreciated (holding constant the life of the asset in question) are:

- *The discount rate (WACC)* – with a lower rate increasing the depreciation of the "old" assets. This is because a lower WACC will increase the cost (in present value terms) of the replacement of the "old" assets, thus increasing their cost disadvantage relative to "new" assets.

- *Operating and maintenance costs* – if these activities increase with the age of the asset, then the old assets will have a higher cost disadvantage compared to the new assets and so depreciation will be higher, and

- *Expected construction cost inflation* – with a higher rate of inflation causing higher depreciation of the old assets. This is because a faster increase in replacement costs again increases the significance of the replacement of the old assets, and thus the cost disadvantage of the old assets compared to the new assets.

If it is assumed that operating and maintenance costs are approximately constant over the life of the assets in question, so that the timing of the next (and subsequent) replacements of the assets in question is the only factor that causes the forward-looking cost of using the old and new assets to differ, then the change in the value of assets over time (i.e., as they get closer to replacement) will follow a "growing annuity" function, where the growth rate is equal to the annual rate of growth in the replacement costs of the assets in question. The relationship between the ORC and ODRC of an asset in this case would be as follows:[7]

[7] The difference between the ORC and ODRC values is the depreciation adjustment.

$$ODRC = ORC\left(\frac{(1+r)^{n-i+1} - (1+c)^{n-i+1}}{(1+r)^{n} - (1+c)^{n}}\right)(1+r)^{i-1}$$

where *n* is the expected life of a new asset, *i* is the expected remaining life of the actual (old) asset, *c* is the expected annual rate of increase in construction/replacement costs and *r* is the discount rate.[8]

Table 1 shows how the depreciation adjustment that is calculated using the formula above compares to the depreciation adjustment that is calculated using straight line depreciation. The figures in the cells show the ratio of the correct depreciation adjustment to the adjustment that is derived using straight line depreciation for assets of different ages (i.e., as at the end of year 5, year 10, etc.), with this ratio expressed as a percentage. A figure that is less than 100 per cent therefore indicates that the straight line depreciation proxy will exceed the correct depreciation adjustment. A discount rate of 10 per cent (pre tax nominal) and a life for "new" assets of 60 years have been assumed.

Table 1 – Comparison of the "correct" (forward looking) depreciation adjustment to the straight-line proxy (pre tax nominal discount rate of 10 per cent, life of new assets of 60 years)

Annual real change in replacement costs	'Correct' depreciation / straight line depreciation at the end of the relevant year (60 year life of newassets)										
	5	10	15	20	25	30	35	40	45	50	55
-2.00%	3%	4%	5%	7%	9%	12%	17%	24%	34%	48%	69%
-1.00%	5%	6%	8%	10%	12%	16%	22%	29%	39%	53%	73%
0.00%	7%	9%	11%	14%	17%	21%	27%	35%	45%	58%	76%
1.00%	11%	13%	16%	19%	23%	28%	34%	42%	52%	64%	80%
2.00%	17%	20%	23%	26%	31%	36%	42%	50%	59%	70%	83%
3.00%	25%	28%	32%	36%	40%	45%	51%	58%	66%	76%	87%
4.00%	37%	40%	43%	47%	51%	56%	61%	68%	74%	82%	90%
5.00%	51%	54%	57%	61%	64%	68%	73%	77%	82%	88%	94%

These results show that if maintenance costs are approximately constant with the age of assets, then the straight line depreciation proxy will overstate the correct depreciation adjustment, even when an implausibly large value is assumed for the real growth rate of replacement costs, and material for plausible assumptions about the growth rate of replacement costs. In addition, these results also show that while the error in using straight line depreciation is greatest when the "old" assets are youngest, the differences remain material even when the "old" assets are in the last decade of their lives.

The assets that will be reused for the fibre networks – such as ducts – are likely to fit this pattern of having maintenance costs that are not related materially to the life of assets, as well as not comprising a material share of total cost. The use of straight line depreciation would therefore be expected to materially understate the ODRC value that is consistent with the use of forward looking costs. If an ODRC value is to be used to derive TSLRIC, then the formula set out above for converting an ORC value into an ODRC value would be expected to provide a better proxy for the correct depreciation adjustment and should be applied. Whether there are advantages to applying an ODRC value over an ORC value is discussed next.

[8] The values for c and r should either both be real values or nominal values.

2.1.3 Should an ORC or ODRC valuation be applied?

The conclusion of the discussion above was that the choice between using an ORC or ODRC valuation should not affect the TSLRIC that is calculated.[9] This in itself means that the choice between ORC and ODRC – assuming both concepts would be applied correctly – should be a second order issue. Having said that, given that an argument has been made that ORC and ODRC would result in materially different TSLRIC calculations, this itself suggests provides a good reason to apply an ORC valuation, given that it is in the depreciation step where the difference of opinion exists.

In my view, there are also practical arguments for an ORC valuation rather than an ODRC valuation being applied in this case.

The TSLRIC value will be re-determined periodically, and in all cases a forward-looking cost estimate is required to be applied. This means that there is no option but to re-estimate the ORC or ODRC values periodically. Given that either value will be re-estimated, both will result in asset values being re-determined against an exogenous benchmark and so there will be no difference in the incentives for investment between using an ORC or ODRC value.

In addition, if an ODRC valuation is applied, additional information (at least on the face of it) is required. The application of the relevant formulae requires inputs on the characteristics of the "old" assets as well as information on the characteristics of the new asset, even though that additional information may be "washed out" when the full set of formulae are applied to estimate the TSLRIC.[10]

Frontier has commented correctly that in the energy sector the standard practice has been to apply an ODRC valuation rather than an ORC valuation. However, this practice has emerged as a consequence of the more significant practice of "locking in" a starting valuation and adjusting that value thereafter to reflect actual capital expenditure, which can be contrasted with resetting the asset value periodically at an exogenous benchmark. It is this "locking in" and use of actual capital expenditure thereafter that changes the incentive properties of the regime. Moreover, once the decision is made to "lock in" a starting asset value and use actual capital expenditure, a starting value must be used that is consistent with using actual capital expenditure, which necessarily requires the use of an ODRC value.

However, as the Commission is required to estimate and re-estimate TSLRIC in line with forward-looking costs, a "locking in" of a starting value is precluded, meaning that the practice from the energy sector is not informative.

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9 I observe here that for a ODRC and ORC value to generate the same TSLRIC value in each year (rather than in present value terms) also requires the formula for translating the asset values into an annual capital cost – and the implicit depreciation contained therein – to be consistent with the depreciation adjustment that is used to convert the ORC value into an ODRC value. If it is assumed that operations and maintenance costs are approximately constant with asset age and so the depreciation for converting the ORC to ODRC is assumed to follow a "growing annuity" profile, then this would appear consistent with the Commission's proposed use of a "tilted annuity" formula. It is noted, however, that a modification to the standard tilted annuity formula (which is designed to be applied to a sequence of ORC values) is required to apply it to a sequence of ODRC values.

10 That is, as the TSLRIC should be the same irrespective of whether an ORC or ODRC valuation is used, then the additional information that is required to calculate an ODRC over an ORC cannot affect the TSLRIC and so must be cancelled out elsewhere in the relevant formulae.

2.2 Windfall gains and ORC or ODRC

As discussed above, in my view Frontier is incorrect to conclude that an ODRC valuation will result in a materially lower TSLRIC compared to what would be derived if ORC valuation was used. In my view, the use of either valuation should deliver the same TSLRIC estimate if applied correctly, and indeed that if a different answer is produced this is indicative of error.

However, as part of its reasons for preferring an ODRC valuation, Frontier also suggests that an ORC valuation may (or will) provide a windfall gain to the asset owner. The concept of "windfall gain" to which Frontier is referring is that the asset owner would earn an income stream over the life of the assets in question that exceeds NPV=0 if the asset value is set above a particular level, with such a windfall arising if an ORC valuation is used.

However, as a general matter, the question of whether or not such a "windfall gain" could be said to be created if an ORC (or ODRC) valuation is applied is a complex one because it has nothing to do with how assets may have been accounted for in financial accounts, but rather depends upon the pattern of historical expenditure and how prices were set historically. Clearly, getting an estimate of the historical returns – and hence the asset value required today in order to generate an NPV=0 over the asset's life – would be a substantial exercise and would be expected to come with a large margin of error.

Having said that, if it is assumed that efficient prices had been set in the past, then it is difficult to make a strong a priori case that valuing assets today at ORC (or ODRC, which I argue should generate the same regulated price) would necessarily result in a windfall gain. Where new infrastructure assets are built with excess capacity to serve future growth and those costs are spread efficiently over current and future customers, then it is inherent that investors will have their investment returned much more slowly than assumed by standard accounting straight line depreciation. It is also very plausible that efficient prices would be much lower than implied by the "hypothetical new entrant" benchmark and so capital would also be returned more slowly in the early years of an asset's life than assumed by an ODRC valuation. The implication of both of these factors is that the RAB that would be needed part way through the life of the asset in order to deliver an NPV=0 over the asset's life would be expected to be much higher than the accounting book value, and plausibly higher than the ODRC.

This is illustrated in the following stylised example. It is based upon the following assumptions:

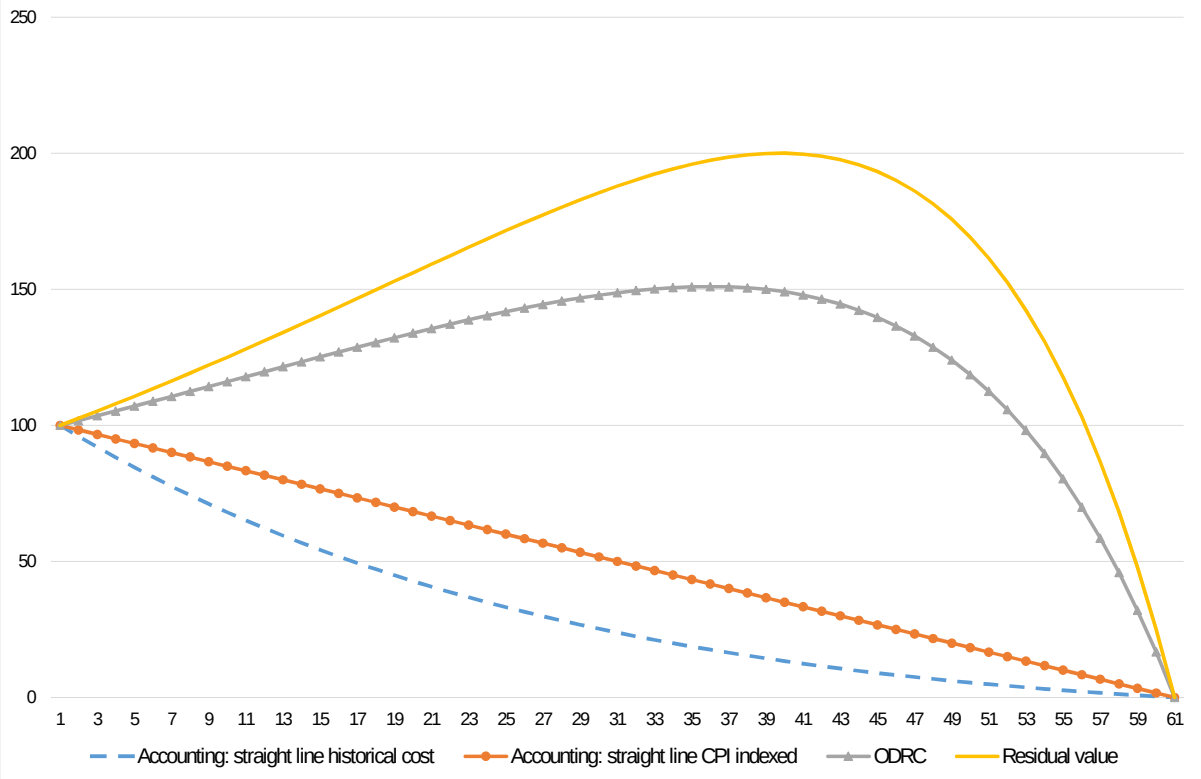
- An asset with an original cost of $100 and expected life of 60 years
- CPI inflation of 2.5 per cent per annum and real input price (capital cost) inflation of 2 per cent per annum (implying growth of replacement costs in nominal terms of 4.55 per cent per annum)
- Customer growth of 3 per cent per annum,[11] and
- A discount rate of 10 per cent nominal (pre tax).

[11] To be clear, it is assumed implicitly that the asset is installed and progressively used over its life without need for material augmentation costs.

The figure below depicts four trajectories for asset values over time that are derived from the above assumptions.

- There are two accounting asset valuations, one being historical cost straight line depreciation and the second with straight line depreciation applied to an asset value that is escalated for CPI inflation
- The ODRC calculated in the conceptually-correct manner as discussed above (and again assuming that maintenance costs do not change materially with asset age), and
- The asset value that is implied by setting a price path that is levelised in real terms over the life of the asset.

Figure 1 – Asset values over time: accounting values, ODRC and the residual value under levelised prices (values are expressed in inflation-adjusted [real] terms)



The implication of this is that asset value that is required part way through the life of the asset to ensure cost recovery over time would be much higher than the accounting book values and would also exceed the ODRC value (at the end of year 30, the NPV=0 asset value exceeds the correctly-calculated ODRC value by 26 per cent).

One question that may be asked is whether it is reasonable to assume that prices would have been set lower than what would have been predicted in a competitive (or, more specifically, a perfectly contestable) market.

The fact that the efficient prices may be lower than would be predicted in a perfectly contestable market does make intuitive sense because, in a perfectly contestable market, the asset owner would

need to set prices that recover the full (average) cost of providing service in each period would be reflected in prices for that period. Thus, where demand is expected to rise – and there are strong economies of scale and/or scope in the provision of the service – prices would be high when utilisation of the asset is low and would fall over time as utilisation increases. In contrast, efficiency would be improved by smoothing prices over time.

Indeed, a similar point was made the UK Office of Telecommunications Regulation (as it was then) in explaining its approach to modelling economic depreciation for regulated mobile termination calls:[12]

> *20 One way to specify the competitor constraint would be the contestable market approach. It could be assumed for the purposes of the analysis (even if this represents a departure from reality) that entrants never experience a type (i) difference compared to incumbents. In a contestable market entrants face no barriers to entry and so would always be able to achieve the same utilisation as the incumbent(s) in any calendar year. So, for illustration, assume that the incumbent invested three years ago and achieved 50% utilisation in its first year of operation and 75% in its second year before reaching 100% in the current year. The contestable market approach would mean that the entrant in the current year would be assumed to achieve 100% in the current year, its first year of operation (and so has greater type (ii) efficiency than the incumbent).*
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> *21 Competition from potential entrants to a contestable market would be sufficient to ensure the removal of super-normal profit (whatever the number of incumbents or the nature of competition among them). The incumbent would be unable to defer depreciation when utilisation is low. If input costs (MEA price and operating expenses) were constant, then the economic depreciation profile under contestability would be a constant annual cost recovery (in £) each year. The unit cost (or price) would be inversely proportional to utilisation.*
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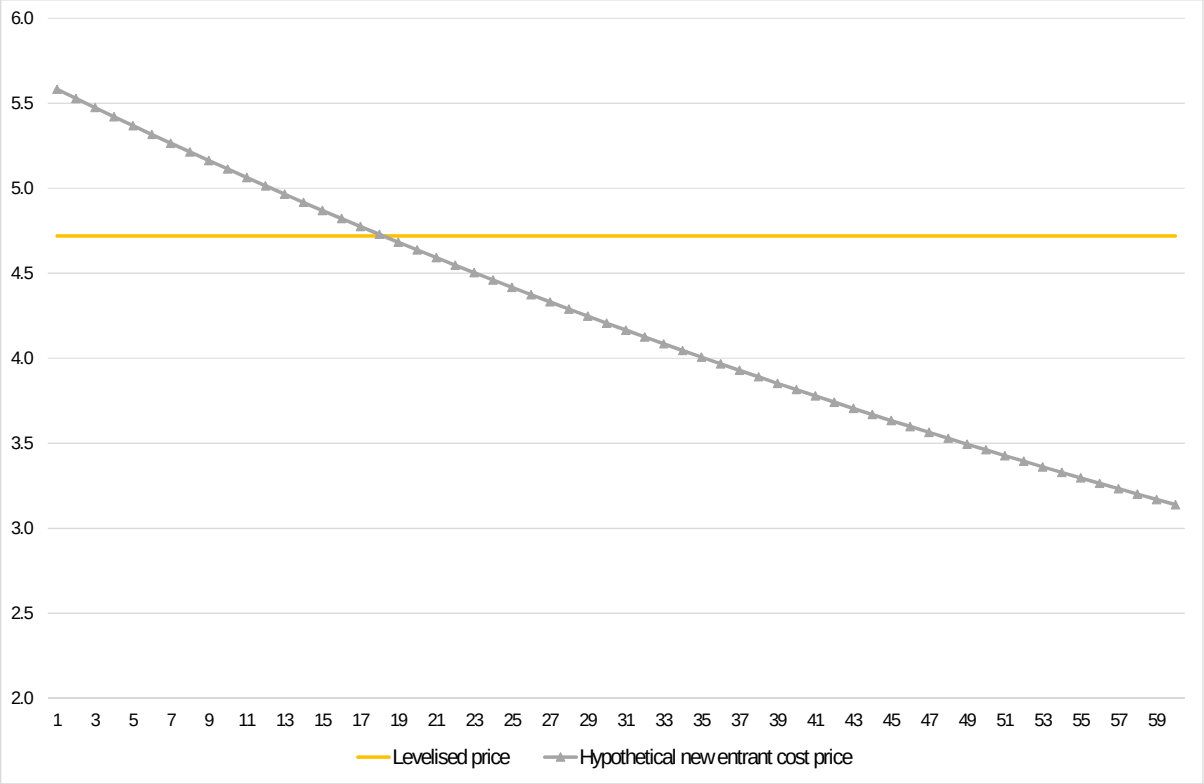
> *22 Although contestability provides a feasible answer to the specification of the competitor constraint, the price/unit cost profile that it implies seems unattractive. When utilisation is very low, the price/unit cost is very high and vice versa. It also involves an assumption about new entrants that seems very unrealistic.*

The concern of the UK Office of Telecommunications Regulation that prices that recovered a hypothetical new entrant's cost structure fully when asset utilisation starts low are "unattractive" is demonstrated for case of the hypothetical example provided above. Two price trajectories are shown, one being the prices that were levelised in real terms and the second being the price that is consistent with assets being revalued at ORC or ODRC (and with revaluation gains treated as income). Both price trajectories are shown in inflation-adjusted (real) terms.

[12] Oftel, Calls to Mobiles: Economic Depreciation, undated (http://www.ofcom.org.uk/static/archive/oftel/publications/mobile/depr0901.htm).

Figure 2 – trajectory of a "levelised" price to a "hypothetical new entrant cost" price (prices are expressed in inflation-adjusted [real] terms)



It is clear in this case that the levelised prices wold be more consistent with encouraging take-up of the service in the early years when utilisation is low, and so encourage a more efficient use of the service.

2.3 Valuation of assets that will not be reused for the fibre networks

An implicit assumption behind the concept of ODRC and the new entrant standard is that the market that is served by the assets in question continues and so the existing stock of assets will be replaced at the end of their lives. This assumption means that the value of the current assets – the ORC and depreciation of the old assets if an ODRC valuation is applied – is determined solely with reference to forward-looking costs. However, with the construction of the fibre networks, it is expected that the copper assets will not be replaced and may well be decommissioned well before they reach the end of their technical lives.

Frontier has proposed setting the TSLRIC for the copper assets by hypothesising that provision of the copper-based services continues. In my view, this is a pragmatic solution and is consistent with the requirement for TSLRIC to reflect forward-looking costs.