



# Valuation and Investment Issues Relating to the Local Loop\*

## Bouygues Telecom

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In 2005 Martin Cave was invited by ARCEP to contribute to its consultation on valuation of the local loop. In this note, prepared at the request of Bouygues Télécom, we revisit the issues raised in the earlier contributions<sup>1</sup> in the light of ARCEP's recent consultation paper on the same set of issues.<sup>2</sup>

### 1. Changing objectives

In the earlier article, the objectives of pricing were discussed in the following terms:

“These normally fall into 3 categories

- a) the maintenance of investment incentives via regulatory commitment to the recovery of future costs
- b) fairness as between end users and investors
- c) generation of signals for efficient entry by competitors.

These are considered in turn.

A private investor anticipating partial or total expropriation of future investments will either not invest or require a return allowing for high ‘regulatory risk’. In a forward looking way, a regulator will seek to allay such fears by committing to a pattern of recovery of costs, provided they are efficiently incurred. Trust in such a commitment will be powerfully influenced by observation of the regulator's current and past conduct. This does not necessarily require full remuneration of any given set of assets at replacement cost, if recognised past events have generated a different valuation.

Turning to prices, it is clear that an asset valuation adopted for price control purposes moves income between consumers and investors. For example, the UK water industry, with assets with a historic cost valuation of €15bn and a replacement cost valuation of €150bn, was sold in 1989 for €9bn for price control purposes. Valuing these legacy assets above €9bn for price control purposes would have transferred the equivalent amount of rents to investors, which was generally seen as unfair. Hence the hybrid regulatory asset base ...

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<sup>1</sup> Martin Cave, *Valuation Issues Relating to the Local Loop*, and *Investment Incentives and Local Loop Prices*, both August 2005

<sup>2</sup> *Les critères de choix d'une méthode d'annualisation des coûts d'investissement et la transition du cuivre vers la fibre*, ARCEP 29 Mars 2011

with legacy assets valued at acquisition costs, and new assets at replacement cost.

However, where entry is possible, a low valuation of assets and the resulting low cost-oriented prices may exclude a more efficient competitor, which will have to pay market values for newly acquired or second-hand assets. The regulator of a dominant firm wanting to encourage efficient entry will therefore seek to take account the impact of valuations on competition. Regulation on the basis of replicating competitive outcomes has strong attractions. This is especially so in telecommunications where new technical developments (especially the development of competing delivery platforms based on a variety of wire and wireless technologies) make competition technically feasible everywhere in the value chain.”

At stake in the current exercise are valuations of assets of two kinds: the copper loop, and the civil works (ducts etc.) through which passes the transmission medium adopted by a fixed network (copper, co-axial cable or fibre).

## *2. Implications of the new technological and market circumstances*

The years since 2005 have seen considerable clarification of the likely pattern of development of the local loop. Unlike in 2005, the copper loop is now clearly on the road to being phased out, at least in relation to the majority of premises in France served by fixed lines. At the same time far more attention than before has been focussed on the role of sharing civil works as a means of promoting competition in the fibre era.

One of the effects of these changes is to make the criterion of pricing inputs at a level which ensures equal terms of competition to some degree anachronistic. There is likely to be a time-limited arena of competition between offers relying on copper and offers relying on fibre, but such ‘dual sourcing’ will, because of its inefficiency, be a stop-gap rather than a long term feature. The second network component of principal interest is the civil works, including particularly ducts. These are unlikely to be replicated; so here too the criterion of creating conditions for fair competition is irrelevant.

We are therefore left with criteria of maintaining investment incentives and of fairness between consumers and investors. The former of these two objectives can be achieved by a policy of cost recovery, at least in an *ex ante* sense. This is sometimes referred to

as “financial capital maintenance, because allowing a firm the expectation of being allowed to earn normal returns over the lifetime of an investment provides it with the chance to preserve its ‘financial capital’ in real (not nominal) terms.”<sup>3</sup>

Fairness between end users and investors can be achieved by ensuring that investors do not over-recover their investments. Here the above-noted example of the England and Wales water sector is relevant. The issue at stake was whether it was fair to permit investors to make a substantial windfall gain by moving to a revised asset valuation which, when slotted into a standard cost-oriented price setting formula, would generate very large price rises. In my view, such a windfall gain, however caused, would be counter to the fairness criterion; nor is it required by the need to maintain investment incentives. Hence in the absence of a criterion of maintaining fair competition, windfall gains should be avoided.

### *3. Permissible regulatory discretion in valuations*

The above-noted 2011 ARCEP consultation document identifies several approaches to valuation and depreciation. A broadly similar set was referred to in my paper, where I concluded that “a wide range of [valuation] and depreciation profiles can deliver the full return to investors of their financial investment.”<sup>4</sup>

These variations do not necessarily require the same treatment for all assets or a uniform treatment of assets over time. For example, in UK regulated industries, certain pre-privatisation assets are valued and depreciated in accordance with their acquisition cost at the time of privatisation, and assets acquired after privatisation are subject to one or other version of current cost accounting.

It is also consistent with full cost recovery to change the valuation methodology. A simple example would be allowing a regulated firm, faced with temporary cash flow or ‘financeability’ issues, to accelerate the depreciation of some assets, thus bringing cash flows forward. A more complex one would to switch valuations from one basis to

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<sup>3</sup> This quotation comes from a document prepared by the New Zealand Commerce Commission, which was required to set out in advance so-called ‘input methodologies’ which it would employ in regulating certain firms, in respect of asset valuation, cost allocation etc. (I acted as an independent economic adviser to the Commission in this process.) *Input Methodologies (Electricity Distribution and Gas Pipelines Services)*, Reasons Paper, December 2010, p. 37. See also A Carey, M Cave et al. *Accounting for Regulation in UK Utilities*, 1994, pp 90-96, 115-118.

<sup>4</sup> (fn in original) see J Edwards, J Kay and C Mayer, *The Economic Analysis of Accounting Profitability*, Oxford University Press, 1987.

another. This is what Ofcom did in relation to BT's local loop in both 1997 and 2005. The first move, to CCA, was designed to furnish prices which could better achieve fair competition objectives. My 2005 paper said that the immediate effects on prices were expected to be small, and it was thought that when they would come into play, competition between operators would make regulation unnecessary. When that did not happen, Ofcom reverted to HCA for the pre-1997 assets.<sup>5</sup>

If it were contingently true that a revaluation had no impact on cash flows, there would be no need for an adjustment to revenues. However, when the goal is cost recovery on the FCM basis and when valuations do affect cash flows, the changes should be taken into account in setting allowable charges. In particular, revaluation gains should be treated as income and revaluation losses as negative income.<sup>6</sup> This is because a revaluation changes, via the price-setting mechanism, the cost-oriented revenue stream which will accrue to the firm. This means that fundamentally an upward change in asset values represents a form of income to the asset owner which needs to be netted off from revenue recoverable from the use of the assets. If this is not done, costs are over-recovered.

#### *4. The specifics of this case*

In summary, a number of different bases of valuation of FT's local loop have been adopted, in the period before and after the (partial) privatisation in 1997.

- 1) Initially historical cost accounting of a fairly rudimentary kind was applied.
- 2) Privatisation produced a valuation of company assets based on acquisition costs which was broadly consistent with the historic accounts.
- 3) From 1997 to 2000, ARCEP regulated France Télécom tariffs on the basis of historic cost accounts.
- 4) In 2000, ARCEP moved to a basis for pricing the local loop, which used a long run average incremental cost (LRAIC) approach using a bottom-up model.
- 5) ARCEP's 2005 valuation exercise involved a detailed reconstruction of FT's local loop investment history. A number of alternative valuation approaches were considered, but ultimately ARCEP adopted the current cost approach with tilted annuity

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<sup>5</sup> See *Valuation Issues Relating to the Local Loop*, 2005, pp. 8-10.

<sup>6</sup> See New Zealand Commerce Commission, *Input Methodologies (Electricity Distribution and Gas Pipelines Services)*, Reasons Paper, December 2010, pp. 43-45.

depreciation. This choice was governed *inter alia* by the desire to introduce stability in the prices of the principal access product of interest – the combination of copper wire and civil works which provides (unbundled) local loops or ULL. There was a concern that, absent an adjustment, ULL price would decline and then, following further investment by FT in the local loop, rise sharply:

*“[La méthode retenue] doit donc, dans la mesure du possible, être stable dans the temps et éviter les variations liées aux cycles des investissements dans les infrastructures. Dans ce cadre, l’Autorité s’attachera également à offrir aux acteurs la meilleure visibilité sur les évolutions du secteur afin de leur permettre d’engager leurs investissements dans un environnement favorable. ....*

*L’Autorité relève que [la méthode de coûts historiques] ne permettrait pas de modérer les l’impact tarifaire de variations marquées de taux d’investissements....<sup>7</sup>*

Given the change in relative input prices into the local loop over the period, it is inevitable that the revaluation associated with this choice had consequences running into € billions, and changed annually recoverable costs by correspondingly large amounts. In practice the expected growth in local loop investment does not seem to have eventuated on the scale expected.<sup>8</sup>

The question of what to do now is best divided into two parts – how to value the copper loop and how to value the civil works.<sup>9</sup> In relation to the copper loops, it has been suggested elsewhere by a consultant to ETNO that a valuation based on current cost accounting is a suitable ‘default option’, and that per loop prices can then rise to reflect the dwindling numbers of copper subscribers.<sup>10</sup> However, this long term forward looking valuation technique, though familiar, is not appropriate to a transitional situation, in which copper will certainly not be replaced; instead a coherent migration strategy should ideally determine the trajectory of prices, possibly subject to a cost recovery condition.<sup>11</sup>

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<sup>7</sup> ARCEP. Décision no. 05-0834. III. 1 and 3. The next section ( III.4) notes that my 2005 paper stated that the inclusion of economic depreciation had the advantage of making price close to competitive ones. On this see section 2 above.

<sup>8</sup> N Duffieux, *Presentation at ETNO seminar*, April 4 2011.

<sup>9</sup> This is done implicitly but inexactly in the current consultation document through the separate discussions of the whole copper loop in one part of the document and of the copper cables alone in the next.

<sup>10</sup> Plum Consulting, *Costing Methodology and the Transition to Next Generation Access*, Report to ETNO, March 2011

<sup>11</sup> This presents challenges, as shown below, but using a CCA valuation can be likened to the case of the car driver who, asked why he/she was looking for lost car keys under the street light, when they were lost in the dark elsewhere, explained that at least you could see under the street light.

One approach would be to choose the trajectory of copper loop prices which would best support the transition to fibre in areas where such a transition is feasible and desirable. This would probably encourage an increase in copper loop prices, either immediately or in the future. Devising it would involve creating scenarios in which both the take up of fibre and the date of closure of the copper loop were endogenous.

However, this might conflict with the objective of full cost recovery. I argued above that the ground for favouring current cost accounting based on competition is not applicable in the same way that it was in 2005. The simplest way to achieve cost recovery would be to revert to the HCA regime which applied before 2000.

HCA values could be rolled forward to 2011, and an accelerated depreciation regime could be set up which would deliver cost recovery on an *ex ante* basis. Alternatively a regime could be introduced which tracked the decline in copper connections over time and an adjusted the level of depreciation from one year to the next to ensure a more exact cost recovery.

In the case of ducts, the useful lives of which are threatened neither by foreseeable technological obsolescence, nor by competition, it is possible simply to revert to HCA accounting, which will ensure full recovery of costs (but no more) on an *ex ante* basis in the normal way.

However, this would not deal with the question of the revenue brought forward (compared with the previous HCA standard) in the period from 2000 to date. As noted above, this figure, suitably discounted, should be netted out from future revenue in order to ensure cost recovery, but prevent over-recovery. For policy reasons, it should not be applied to reduce copper loop prices, as doing so would extend the period of dual operation of copper and fibre networks. Instead, and for separate policy reasons set out in the next section, it should be used to lower duct prices.<sup>12</sup>

##### *5. Specific features of the fibre ladder of investment.*

My second 2005 paper discussed investment incentives within the context of the so-called 'ladder of investment'<sup>13</sup>, of which ARCEP was then apparently well aware and

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<sup>12</sup> Since the advancement of revenue will have been large, if it were all focussed on reducing duct prices it might make the latter low or even negative. In this case, the returned revenue could be put to use elsewhere, for example to subsidises fibre deployment in 'uneconomic' areas.

<sup>13</sup> *Investment incentives and local loop prices, 2005*

supportive.<sup>14</sup> It is recognised that the switch to fibre networks, with their different architectures, alter the nature of the ladder of investment. Figure 1, taken from an ERG document of 2009, sets out the options in diagrammatic form.

## The NGA ladder of investment

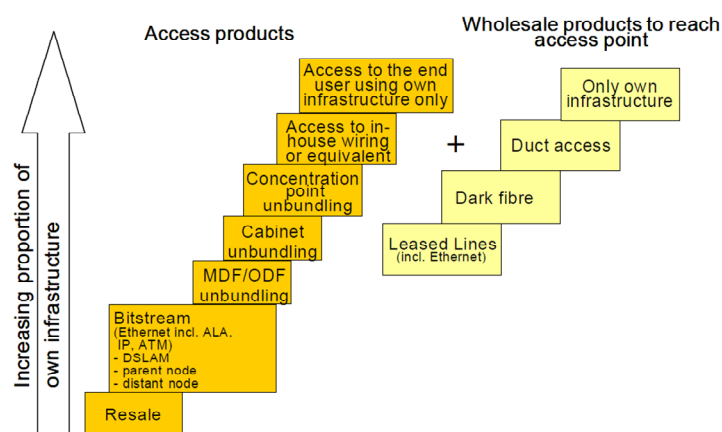


Figure 1 The NGA ladder of investment

Source: ERG, *Report on Next Generation Access- Economic analysis and Regulatory Principles*, ERG (09) 17, p. 17.

A key new element introduced into the situation is the focus on duct access as providing a means of maximising the degree of infrastructure competition.<sup>15</sup> This development, pioneered in France, provides in densely populated areas the opportunity not only to retain but even to expand the arena of network contestability.

The ladder of investment has operated predominantly via control of the relative prices of access products within the context of the copper ladder alone. It is a feature of the transition to fibre that there are in play both vertical moves on a single (copper or fibre) ladder and desirable horizontal shifts from the copper to the fibre ladder.<sup>16</sup>

<sup>14</sup> “ Le développement de la concurrence en France depuis 1998 illustre aussi parfaitement la thèse de “l’échelle des investissements”. ’ ARCEP, *Rapport public d’activité* 2006, p. 36.

<sup>15</sup> See also European Commission, *Recommendation on regulated access to Next Generation Access Networks (NGA)*. C(2010)6223/3.

<sup>16</sup> M Cave, ‘Snakes and ladders: unbundling in a next generation world’, *Telecommunications Policy*, 34 (1/2) 2010, pp 86-91.



The policy which flows from the analysis above – a reduction in the relative price of duct access - has the effect of both facilitating the shift from copper to fibre and of encouraging infrastructure competition.

## *6. Conclusions*

It is argued above that ARCEP's approach to the valuation of the copper loop and of civil works should take full account of the change in circumstances since ARCEP's 2005 Decision. Copper is being phased out as a delivery mechanism to the majority of French fixed subscribers; it is better regarded as an obsolescent technology than a long term competitor. The civil works which house both copper and fibre are not subject to significant competition. This means that the pricing motive relating to promoting efficient competition between assets is no longer applicable as it was previously.

The motives of maintaining investment incentives and achieving fairness as between consumers and investors do survive. These are best achieved by ensuring cost recovery. In the case of copper this can be achieved by reverting (as Ofcom has done) to HCA accounting, and assuring cost recovery over the remaining life of the obsolescent asset, via a process of accelerated or tilted depreciation.

In the case of civil works, a reversion to historic cost accounting would have the same desirable feature of approximating more closely the target of cost recovery. But this alone would not accomplish this outcome, because the period since 2000 has seen revenues advanced. By the principles of financial capital maintenance, such over-payments should be recovered for consumers.

We suggest that this can best be accomplished by reducing the regulated price of ducts – a policy which will both encourage infrastructure competition in accordance with the 'ladder of investment' and also further the desirable policy goal of hastening the transfer of subscribers from copper to fibre and reducing the period of dual network operation.