

Pricing of Copper Networks during the Period of Transition to Fibre

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I have been invited by KPN to comment on OPTA's proposals in relation to the wholesale pricing of certain services provided on KPN's copper networks in a period when KPN (and other operators) are installing and offering services on a fibre-based network which replaces the circuit-switched copper networks with a packet-switched IP network. The wholesale services considered are ILL (leased lines) and MDF (copper connections).

I am a professor at Warwick Business School, specializing in regulatory economics, especially in the communications sector. A brief CV is attached.

OPTA's proposals

OPTA's proposal in respect of these matters is set out in Annex B.2.6. 'Stranded assets and underutilisation due to network modernization,' paras 36-40. (I am relying upon a translation furnished by KPN.) This sets out that:

- KPN may not take account, when setting the wholesale prices of copper-based products, of volume decreases caused by underutilisation of the copper network which is due to shifts to alternative KPN infrastructures (para 38)
- any cost reductions in relation to the old networks must be reflected in regulated prices (para 39)
- tariffs may not rise above the level applying the All-IP network was introduced the (para 40).

Implementation of these principles has the following consequences:

- in the case of ILL, where aggregate demand is rising for services provided over the old and the new networks, the volume and cost levels for the old network will be based on the 2007 levels (para 85);
- in the case of MDF, OPTA proposes to set prices based on the previous level of copper lines, *minus* the reduction in lines, *plus* the number of fibre-optic lines provided by the KPN network (para 96);
- in the case of voice services, OPTA has approved a method whereby a weighted average or 'blended' rate has been established for traditional and voice calls.

The combination of the above decisions seems to embody an *ad hoc* rather than a consistent approach. But the remarks which follow relate primarily to copper connections, or MDF.

The computation procedure

The logic of dividing the costs of MDF by the sum of KPN's copper *and* fibre connections appears to be as follows: KPN should pay the full cost of making an investment in any new network, and this includes any higher unit costs which are observed in the copper network as a result of the migration to fibre. The counterfactual question to which OPTA seeks an answer is thus: what would have happened to copper network subscribers, and hence unit costs, without the investment in the replacement technology? I consider the logic of this approach below, but focus here upon the way it is implemented.

If KPN had not built the fibre network, then current subscribers to its copper network would have the principal options of staying on KPN's copper network or moving to another network. This would quite likely be a cable network, either of the conventional kind or embodying the capability to provide high speed broadband, but it might also be a wireless network. The direct way to proceed might thus seem to be to examine recent switching behaviour to estimate how many subscribers would have switched in this way. The remainder, non-switchers, would be treated as the denominator in the unit cost calculation for KPN's copper network.

However, rather than go through this exercise, OPTA simply assumes an outcome in which those who have switched to KPN's fibre network would (in its absence) have stayed on its copper network. This is clearly a simplification of a complex process. There is no way of knowing whether it underestimates or overestimates the number of copper subscribers in the counterfactual. I understand that KPN have done some calculations on alternative assumptions, which produce a larger number. I do not comment on these numbers, but simply point out that the measure used by OPTA is almost certainly wrong. A more rigorous approach is required.

OPTA's approach also has some counter-intuitive consequences. For example, had KPN successfully attracted to its *fibre* network more customers formerly with the cable operator, its unit costs of *copper* would be lower.

The stranding issue

OPTA adopts the approach set out above because it is determined to prevent customers of the copper network from paying for copper assets which are stranded by factors which it says are within KPN's control. Hence the goal of the calculation above (imperfectly executed as it is) is to set a wholesale charge for copper loops at the level it would be if the KPN fibre did not exist. But is this an appropriate objective?

The emergence of technologies capable of meeting customers' needs for higher speeds and new services is a factor largely outside KPN's control. Nor, facing a competitor such as an upgraded cable operator, can it refuse to invest in developing its own network in the

long run. It seems more natural to me to acknowledge this and respond by recognizing that two consequences flow from it; firstly, that the expected residual life of the copper network is diminished, and second that the migration of customers to fibre has already partially stranded some assets, and this phenomenon can reliably be expected to continue and grow.

In relation to the first issue, I believe that the correct response is to allow the company to accelerate its depreciation rates to take account of the new circumstances. By recognizing the stranding, OPTA can limit the damage.

In relation to the second issue, it can be argued that some of the capacity of the copper loop is surplus to requirements; ie it is stranded. The OPTA approach estimates the value of the stranded costs by effectively assuming that the percentage of stranded costs is the same as the percentage of customers who have left as a result of fibre construction. However, in a network, the marginal and average costs of serving a customer are not equal. In my opinion, the stranded costs are that percentage of costs that could be avoided if a new network were built to meet the new level of demand. This should be estimated properly, and not by the probably inaccurate proportionate relationship assumed here.

Secondly, there is the question of who should bear the costs of stranding. OPTA claims that it has met its side of its regulatory bargain or implicit contract with KPN's investors by adopting a procedure for estimating the weighted average cost of capital (or WACC) of the copper network which takes account of stranding risk. However, I do not believe that the method employed does in fact take account of this asset-specific risk. What it does take into account is the departure of the actual trajectory of stranding from its expected level, as a result of systematic risk (ie general developments in the economy, as reflected in KPN's beta, or the covariance of its returns with returns to the broad asset class which makes up the market as a whole). But this takes no account of the stranding trend itself. This means that the cost of stranding has been imposed upon KPN. I do not believe that it is sound regulatory policy to impose this cost on investors, as to do so will deter future investment or increase the price which has to be paid for it. Thus, contrary to its assertions, OPTA has set the allowed return to exclude remuneration of stranding risk, and, secondly, this is likely to have adverse consequences for end users in the future.

The impact of OPTA's approach

Finally, it may be useful to place the issue of costing and charging for copper connections within a wider context. The replacement of the copper local loop, after about 100 years of service, with a next generation access network is a major development in the sector. Given that the transition now seems certain (even if will take place in a geographically uneven fashion), there is a strong public interest in achieving it efficiently. This will entail action to reduce the period of dual running of both networks. In several countries, governments are undertaking actions which address this question. In Australia, the recent proposed increase in the wholesale price of copper connections have been interpreted in this way. In the UK, the government has proposed a tax on non-fibre lines. This was intended to generate revenue to support the wider extension of next generation networks,

but it also has the effect of speeding migration to fibre networks when they become available.

OPTA's approach is likely to have the opposite effect. It will keep down the wholesale price of copper loops, and hence the retail price of copper-based services, via what appears to be the rather artificial method described above, and thus tend to defer the copper network switch off date. The extra resource cost to the Netherlands economy of running dual networks will thus be increased.

Conclusion

It appears to me that OPTA's proposed method for setting the wholesale price of copper connections is subject to a number of objections:

- it is implemented in a way which does not adequately produce what the regulator is seeking to capture;
- it appears to fail to recognize that stranding costs are not covered in the way it calculates the cost of capital; moreover, the costs are assigned in fact in a way which are likely to have adverse long term consequences for end users;
- its implementation seems calculated to lengthen the period and increase the costs of dual running of old and new networks, with its adverse effects on the economy.