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Water regulation

Access charges for common carriage in the English and Welsh water industry

By **Maurizio Conti**, *Europe Economics**

The Water Act 2003 allows new competitors to enter the water industry and provide supplies to large customers by paying incumbents, the licensed water companies, for the use of their assets and even for wholesale water supplies. The charges that incumbents are allowed to make for these services to competitors are to be regulated by the industry economic regulator, Ofwat.

Presumably to the considerable relief of the water industry, the methodology that Ofwat has proposed for the calculation of the charges that entrants should pay for access to the essential facilities of the incumbent water companies is designed more to avoid losses to incumbents than to create significant business opportunities for entrants. However, the methodology is novel in this context – as, indeed, is the idea of competing water suppliers – and there will be scope for argument between lawyers and economists acting for all sides.

This article outlines the Ofwat approach, contrasts it with the main alternative, and briefly discusses whether Ofwat is right on this matter.

Background

The Water Act 2003, by specifying a detailed framework for access to the water supply network, is intended to give new momentum to the development of product market competition through common carriage in the English and Welsh water industry. The proposals do not extend to the sewerage industry.

The provision of networks for the supply of water is a naturally monopolistic activity, as average costs fall as output expands. Consequently, the optimal industry structure involves only one water network company in a given area. Indeed, duplication of the network of mains and other assets would rarely be remotely convenient or economic, if only for the large capital expenditure and environmental disruption that would result.

A preferable option, once policy-makers have made up their minds that there has to be some degree of competition, is to consider the network as an essential facility and to require the vertically integrated incumbent operator to open it up to competitors on a non-discriminatory basis. This is, of course, the approach taken in other network industries in which policy-makers have sought to introduce competition.

From autumn 2005, the Water Act 2003 will allow large users to switch to the new operators that will have received a licence from Ofwat and will be making use of the assets of the incumbent operators in return for the payment of regulated access charges. “Large users” are defined as all non-household

customers with a consumption of more than 50ML/year. In all, there are estimated to be about 2,300 eligible customers, with a total expenditure on water of about £200m (€290m). The licensed operators could be “true” new entrants, or the retail branches of existing undertakers.

The Act permits two types of licences: a retail licence, which allows the licensee to sell to large users water that it obtains wholesale from the incumbent water operator, and a combined licence, which also allows the licensee to put its water – however obtained, even through wholesale supply from a different water undertaker – into the incumbent’s network.

The 50ML threshold was established mainly to try to limit cream-skimming behaviour by new entrants, as the heavy cross-subsides that characterise tariff structures in England and Wales could encourage new entrants to target customers that cost significantly less than average to serve, which would in turn oblige the incumbent either to raise tariffs for high cost customers (such as many rural households) or to apply for government subsidies to finance universal service obligations.

In addition, a lower threshold would have required a more complex regulatory regime to meet strict public health and safety requirements, increasing uncertainty and possibly leading to a higher cost of capital (*Defra, 2003*).

In October 2004, Ofwat published a consultation paper – *Water Act 2003. Water supply licensing. Access code guidance* – that should provide the basis for the secondary legislation demanded from Ofwat by the Act.

Both the Water Act 2003 and Ofwat’s access code guidance cover many aspects of access to the public water supply network, such as the relative obligations of water undertakers and licensees, the general terms to be included in the access agreements, the procedure to be followed for resolution of access disputes, the circumstances in which incumbent operators may refuse access, and the principles that water undertakers are required to follow for the calculation of access charges.

It is this last issue that is addressed in this article.

The issue of access pricing

Setting an appropriate price for access to the incumbent’s network is fundamental to the development of a sustainable and efficient level of competition in any network industry.

While too high an access charge would effectively prevent entry, charges that are too low would mean that the incumbent operator would not receive adequate compensation for network usage by the entrant. This would encourage inefficient entry, raising total industry costs, and might have the effect of reducing the incumbent’s incentive to invest in the network in

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the absence of offsetting regulatory arrangements. It is therefore not surprising that the “access price problem” has been a focus of attention for many years, as reflected in Ofwat publications (see e.g. MD 163, “Pricing issues for common carriage,” 2000).

The Water Act 2003 and Ofwat’s consultation paper on access code guidance require water undertakers to follow a well-defined methodology. The Act establishes that the access price should enable the water undertaker (*i.e.* the incumbent operator) “to recover from the supplier ... any expenses reasonably incurred” in providing access (*e.g.* administration costs) and “the appropriate amount in respect of qualifying expenses and a reasonable return on that amount.”

Qualifying expenses are defined as the expenditure reasonably incurred by the water undertaker in carrying out its functions (*s.66E, s.66D, Water Act 1991*), while the appropriate amount is the amount the undertaker would “reasonably expect to recover” from the customer that switched to the entrant but is “unable to recover” as a result of that customer’s decision to switch.

Further, the Act establishes that any expense that can be reduced, avoided or recovered in some other way, otherwise than from other customers of the undertaker, are not to enter into the determination of the access price.

These principles as set out in the Act are not altogether precise, so the Ofwat consultation paper sets out a more detailed methodology that water undertakers will need to follow in determining access prices.

The price formula proposed by Ofwat is a version of the well-known and, indeed, often controversial Efficient Component Pricing Rule (“ECPR”). According to the formula proposed by Ofwat, the access price should be set equal to:

- the incumbent’s avoidable costs (both operating and capital costs) of providing the access (*i.e.* avoidable distribution costs) plus
- the opportunity cost of providing that access, which is equal to the retail price that would otherwise have been earned by the incumbent less the avoidable costs (both operating and capital) of resource, treatment, billing and distribution

Together, these can be shown to be equal to the retail price less the avoidable costs of the part of the value chain subject to competition, *i.e.* resources, treatment and billing.

In cases where the incumbent also provides wholesale water supplies, the access price should be set equal to the difference between the retail price and the avoidable costs of billing. Ofwat then allows incumbents to add to this access price additional costs (if any) incurred by the undertaker as a result of providing access.

Alternative methodologies

A number of methodologies for the calculation of access prices have been discussed in the academic literature and implemented in other industries:

- The ECPR has been analysed extensively (see e.g. Baumol, 1983, Laffont and Tirole, 1996, Armstrong, 2001, Mason and Valletti, 2001). It was applied in the New Zealand telecoms industry, where it also received a final endorsement on an appeal to the UK Privy Council.
- In the EU and US telecoms industry, the EPCR has generally been rejected in favour of access charges set on the

basis of the estimated long run incremental costs (“LRIC”) of providing network access (an exception to this is the so-called “access charge contribution” in the UK which was used in the early 1990s and could be seen as a sort of ECPR – Mason and Valletti, 2001).

The idea underpinning the ECPR is to allow the incumbent to receive compensation for the costs incurred for providing access to the competitor, and also to recover the profits foregone as a consequence of the loss of a customer to the competitor. Proponents of the ECPR argue that it promotes efficient entry, as a supplier would find it profitable to enter only if its costs in resource, treatment and billing were lower than those of the incumbent.

LRIC calculations provide an estimate of the forward-looking long run costs that an efficient operator would incur in providing a defined increment in a particular service, thus giving optimal long run signals to potential users of the network. However, uniform mark-ups are often applied to estimates of LRIC in order to allow for the recovery of common costs between different services. This mutes the efficiency of signals provided by LRIC, as such mark-ups are not based on any sound economic reasoning (Mason and Valletti, 2001).

The ECPR has been criticised on several grounds. These are briefly discussed below with special reference to the situation of the English and Welsh water industry (see also Mason and Valletti, 2002, Armstrong, 2001, Baumol, 2001 and Hern, 2001).

Criticisms of the ECPR

The ECPR has been criticised for allowing the incumbent to retain monopoly profits as the access price is based on the retail tariff. In response to this point, the proponents of the ECPR (*e.g.* Baumol, 2001) argue that the existence of monopoly profits is not a failure of the ECPR *per se*, as it is the regulator that should curb prices through incentive regulation.

Another criticism is that, if there is slack and inefficiency in the distribution network, then the ECPR would be ineffective in reducing them. Again, it could be argued that the incentives provided by yardstick competition and incentive regulation in general should prevent the formation of slack and inefficiency in the distribution network.

A third criticism is that the ECPR could have perverse incentive properties as it could lead companies to inflate the calculation of network costs, thus reducing the estimated costs of the competitive parts of the value chain. This suggests that reliable estimates of the avoidable costs of the extraction and resource activity would be highly valuable, although objectivity may be difficult to achieve. The electricity industry provides a contrast, as the avoidable costs of generation can in theory be estimated by the market price paid in the competitive generation market.

A further criticism of the ECPR is that, as has been shown by, among others, Armstrong *et al* (1996), its theoretical basis assumes that the incumbent and the entrant sell a homogeneous product, the technology is a fixed coefficient one (*i.e.* the entrant needs one unit of access for one unit of final product), and no by-pass opportunities exist.

If the entrant were to provide different products, it could be shown that the tariff implied by the ECPR formula should be

revised downwards. Although the significance of this effect is not clear in the water industry, *prima facie* it seems likely that there is less scope for product differentiation than, for example, in the telecoms industry.

Finally, the ECPR has been criticised for its poor dynamic efficiency properties compared with other approaches.

Dynamic efficiency

Dynamic efficiency can be understood in terms of long run cost minimisation and the optimal introduction of new products and/or technologies. As long as entry is necessary to spur innovation – leading in the long run to lower costs and/or new products – then a methodology such as LRIC that can yield lower access charges than the ECPR may have advantages.

On the other hand, it might be argued that, if entry needs to be encouraged, this would be better done with instruments other than the access charge, since, as long as the lower access charge prevents the recovery of fixed costs, incentives to invest in the network by the incumbent could be blunted (*see above*).

LRIC estimates in the telecoms industry are usually applied with reference to an ideal up-to-date network. In theory, this should provide powerful incentives for the incumbent to innovate and increase efficiency. On the other hand, this approach often gives rise to disputes with the incumbent and to the necessity of reconciling the results of the bottom-up LRIC model with top-down models based on the incumbents' accounts (*see Europe Economics, 2002*).

Nonetheless, it is not clear how useful a concept dynamic efficiency is in the case of the water industry. In other words, it is not clear how much innovation might result from new entry. Although the scope for innovation can be difficult to assess, it is probably true to suggest that there is less opportunity for dynamic efficiency gains in the water industry than in sectors such as telecoms that exhibit rapid technical change.

A further consideration is that, in the water industry, a large share of value added is created in the distribution phase, which is bound to remain a natural monopoly. In the electricity industry, by way of contrast, generation accounts for a significant proportion of value added. For this reason, it is not clear how large the benefits from an increase in dynamic efficiency in resource, treatment and billing would be.

Wholesale supply from a secondary undertaker

A further point worth addressing, though not related to the ECPR *per se*, is the charge that the entrant should pay for wholesale water supply in circumstances where water is purchased from a secondary undertaker to serve a customer located in the supply area of another undertaker (the primary undertaker).

Owat has stated that, if the entrant requires a bulk supply that already exists (as the secondary undertaker is already transferring water to the primary undertaker), then the relevant price would be the existing bulk supply price net of avoidable costs of resources and distribution – although Owat notes that these are unlikely to be substantial – plus any additional costs. This appears to be a procedure consistent with the ECPR, as the entrant represents a substitute purchaser from the perspective of the secondary undertaker.

However, Owat's provisions do not seem to be as clear if a previous bulk supply does not exist. In this case the entrant is not displacing an existing customer of the secondary undertaker.

Owat says that, in this situation, the wholesale price should follow the cost principle stated in the Water Act, and that the bulk supply price will be based on the additional costs of providing the bulk water supply. A cost-based approach has to be applied in such circumstances because there is no foregone profit for the secondary undertaker.

Conclusion

While it is now well established in the academic literature that the ECPR will be the optimal access pricing rule only when certain conditions are met, it seems quite reasonable to argue that, in the context of the water industry, these conditions are not likely to be too far away from reality.

In addition, it is not clear how large the dynamic efficiency gains from competition can be, and there could be significant risks associated with leaving some assets stranded, which could harm the incentives for future investment in the network.

Of course, new entrants would be better off with a pricing methodology that might yield lower access charges. Indeed, Grout (2001) has argued that the ECPR could fail a price squeeze test in some circumstances, as the test is not meant to allow for full cost recovery as the ECPR does. This issue would require further research and, possibly, some appeals, as legal precedents on this issue have so far been limited.

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