Whither Water Regulation?

Dieter Helm, Fellow, New College, Oxford

1. Introduction

As the water industry and its regulators prepare for the next round of price setting, there is an opportunity to set out a stable regulatory regime which will consolidate the achievements since privatisation, and provide for the continuation of a largely equity-based industry. Alternatively, the periodic review may reinforce the trend towards even greater debt, and accelerate the flight from equity, and, with it, bring an effective end to incentive-based regulation.

That choice lies in the background to the consultation documents and the preparations of the companies, the Office of Water Services (Ofwat), the Environment Agency and the Department for Environment, Food and Rural Affairs (Defra). The early stages have been taken up with setting out the capital programme and considering the scope for further efficiency savings. These are important steps, but the substantive issues are beginning to emerge.

In this chapter, the traditional approach to price-cap regulation will be outlined, and the main fault lines identified (section 2). The consequences of the way in which RPI – X has been applied, particularly at the 1999 periodic review (PR 99), have been to trigger major financial restructuring and these developments are set out (section 3), before turning to an analysis of the three main areas for reform: reforming capital expenditure (CAPEX) regulation; the cost of capital and financial structures; and the regulation of operating expenditure (OPEX) (section 4).

Finally, the chapter concludes by contrasting the two broad options: incentives and equity finance; or the debt model with rate-of-return regulation (section 5).
2. The Traditional Approach: RPI – X and its Problems

The traditional approach to the regulation of utilities was developed in the 1980s and 1990s with two broad objectives in mind: to provide incentives to drive out perceived inefficiencies; and to facilitate investment. These were responses to the perceptions of excess costs, overstaffing and gold-plating within the public sector; and the constraints on public expenditure limiting the ability of the Treasury to provide finance.

All utility regulation fixes prices. The innovation which RPI – X brought was to set prices for a fixed period ex ante and thereby incentivise the utilities to maximise profits by minimising costs, as they would in a competitive market. Investment would be financed by a combination of the efficiency gains, borrowing and customer bills. To facilitate borrowing, and thereby to ensure that current customers did not pay for future benefits, the utilities were privatised with little debt. In the case of water, they were actually given cash injections—the ‘green dowry’. The idea was that the balance sheet would then be geared up to match the capital investment requirements, and eventually rights issues would facilitate further borrowing once balance sheets were exhausted.

In the early years, a fortunate set of circumstances allowed the regime to work, despite the fact that the fixed-period contract approach was observed more in the breach than in the observance, with the Director General of Water Services intervening every year after privatisation, and bringing the fixed period down from ten years to five. The benign circumstances were: a relatively high allowed cost of capital; the recession of the early 1990s which reduced construction and operating costs; and the scale of the efficiency gains. So great were the returns to the companies as a result that new obligations (emanating mainly from Europe) could be largely absorbed and even a windfall tax could be financed in the 1990s.

By the end of the 1990s, however, the RPI – X framework was beginning to show signs of strain, and the 1999/2000 periodic review proved a decisive turning point. After 2000, the sector’s fortunes declined, with share prices falling back to the point where the market value was below the regulated asset base, and the exit of equity which began in the late 1990s gathered pace. Some companies opted to exit equity altogether, and Welsh Water succeeded by becoming a ‘not-for-profit’ company.

The RPI – X regime displayed a number of fundamental flaws in the water industry, which combined to create the circumstances described above. Its weaknesses with respect to CAPEX, the financial variables and OPEX were the main aspects.

On CAPEX, the fixed-price period was not matched by the investment horizons of the various individual projects that make up the aggregate CAPEX requirement. Some investments are spread out over very long periods. Others are much more short-term. There was then the problem
that not all investments could be decided at one point in time every five years. The EU schedule of Directives is not constrained to the periodic reviews, and similarly the Environment Agency and Defra are engaged in a continuous, rather than discrete, cycle of regulation and output specification.

Within the periods, circumstances are continually changing and it is for good reason that capital investment contracting across the private sector tends to include risk sharing and adjustment clauses to recognise the uncertainty at contract setting and the fact that some—sometimes many—of the changes in circumstances are beyond the contractors’ control. The regulators themselves will gain more information as they go along and benefit from the flexibility to change specifications; construction price indices are vulnerable to the business cycle (as they were in the 1990–93 recession); and external shocks can have a major impact. A fixed price, fixed period is an extreme solution to CAPEX contracting, and it is not surprising that it never really worked.

The fixed-price, fixed-period CAPEX approach had a notable effect on the financing of investment, too. By assigning the risk to companies, the cost of capital was increased. This effect was compounded by the ex post interventions, with the regulator using the high returns in the early period to finance additional CAPEX, thereby undermining the incentive properties of the RPI – X regime. Investors could not be sure that excess returns from extra efficiencies (an essential component of the system) would be bankable. Indeed, precisely because of the exogenous changes that inevitably surrounded the CAPEX programme, there was—and remains—little agreement as to what a CAPEX efficiency actually is. The result was a CAPEX system that could only ‘work’ for as long as the other variables—notably the rate-of-return outcomes—were big enough both to disguise what was going on and to still meet the overall (relatively high) cost of capital for the water companies. Once the rate of return was reduced in 1994–95 and, most significantly, in 1999–2000, the CAPEX weaknesses would become apparent.

The second difficulty with RPI – X related to the financial arrangements, and in particular the way in which the ex ante cost of capital was set. In early periodic reviews, the assumption was that prices would be set and that financial outcomes would be a consequence, not a determinant, of those prices. (Rate-of-return regulation, by contrast, works the other way around: from the rate of return to the prices.) The central idea was that competitive markets were characterised by price-taking behaviour; hence, RPI – X should mimic competitive markets.

It was soon realised that the differences between price regulation and rate-of-return regulation were less stark than the designers of RPI – X had assumed. To set prices, the regulator needed to provide for efficient OPEX
and CAPEX, and a return on the investors’ stake in the business. Thus an asset value and a cost of capital were required too.

The asset valuation exercise led to the establishment of the regulatory asset base (RAB) after a number of fudges were made over the flotation value. The RAB would then be upgraded by the (efficient) CAPEX ex post, after each period. Once the principle had been established, it was apparent that, provided the regulator had a duty to ensure that the utilities could finance their functions, and financing the RAB was part of that duty, then the RAB itself was very low-risk. It had little ‘equity action’ in it, in that there was nothing managers had to do to earn or protect the RAB, and hence it lent itself to debt finance. It was a short step to securitising the RAB-based component of the revenue stream.

With the RAB set, the separate question was the equity cost of capital in respect of the more risky aspects of the business—the CAPEX and OPEX. Here, managers could make a difference, and there were comparative competition and risks associated with assets in the course of construction. Compared with the RAB, a (much) higher cost of capital was appropriate. For as long as the cost of capital for both activities—the RAB and the rest—was set above the cost of capital for the most risky aspects of the business, it did not much matter. However, once the cost of capital fell between the two, investors had little incentive to leave equity in the business, and the flight from equity was encouraged, as we shall see below.

The third problematic area for RPI – X lay in the area it is widely perceived as having been most successful, namely OPEX. While RPI – X encourages asset sweating, not all asset sweating is desirable. Costs could, eventually, be cut too far. And as OPEX costs fall, there are increased risks to the security of supply and of proper (longer-term) maintenance. With one period, inadequate maintenance may not be apparent—only to appear in subsequent periods. (Experience in the rail industry with broken rails and in electricity distribution when a single short and predicted storm left some customers disconnected for 11 days are examples from outside the water industry.)

Comparative efficiency also encourages companies to focus on the measurement of OPEX, and there is evidence from a number of sectors that some OPEX was capitalised during the 1990s, creating the illusion of greater efficiency gains and boasting short-term profits at the expense of longer-term CAPEX costs. In the water industry, the use of current-cost accounting depreciation to provide for maintenance may also have encouraged companies to shift expenditure to future periods.

These three weaknesses provided the background to the companies’ broader regulatory strategy and partially explain the main shifts over the late 1990s and the first years of the 2000s. These in turn provide the context for the 2004 periodic review (PR 04). Fortunately, as we shall see below, each can be addressed.
3. The Consequences

During the second half of the 1990s—and coinciding with perhaps the greatest speculative bubble in equity markets in modern times—the utilities began to mortgage their assets. It began with Northern Electric, which found itself subject to a hostile takeover bid in late 1994. As part of its second defence document, Northern Electric proposed to—and eventually did—borrow a substantial sum from banks and handed it out as cash to shareholders. For every share which had cost £2.40 at privatisation in 1990, over £5 was paid out. The era of financial engineering had begun.¹

Since 1995, water companies have joined in—first through share buybacks and eventually with attempts to replace equity altogether with debt. Balance sheets, which had been specifically ungeared to facilitate the investment needed to modernise the infrastructure, became more highly geared, but *without the corresponding investment*. By 2003, most companies’ capacity to leverage their balance sheets had been substantially compromised.

The process which began in the 1990s accelerated after the second price-control review in 1999. Share prices fell sharply as a result of the review, with companies trading at market values below their RABs. This provided *prima facie* evidence that the regulator had got the periodic review badly wrong: under incentive regulation, and with the duty to ensure the financing of functions, the market values should *exceed* the RAB by the value of the extra efficiency savings that were expected relative to the allowed OPEX and CAPEX. Only if the companies’ non-regulated activities were negatively valued could the market values that emerged be consistent with a ‘correct’ cost of capital.

Given the share-price reaction, it was very surprising that all but Mid Kent Water and Sutton & East Surrey Water accepted the outcome and did not exercise their right to appeal.² Some had other corporate plans which might be delayed by a Competition Commission reference; others had new chief executives. Overall, however, managers must have believed that they could sufficiently outperform (that the capital market was making a mistake); that the Commission would not yield a better outcome; or they simply made a mistake. It is hard to conclude other than the latter.

For some companies, the outcome of the review required more radical action. Welsh Water was in difficulty as a result of the windfall tax and its relative treatment in the review, and was under takeover threats from both Western Power Distribution and a Nomura-backed private equity bid.

The Welsh model—Glas Cymru as it became—proposed a not-for-profit company without any equity. Various arguments were put forward by the backers of the scheme, including that a not-for-profit company would not have to pay dividends; that debt was cheaper than equity; that managers’ contracts could replicate the incentives provided by the capital market; and that, by acquiring the business for less than its RAB value, a contingency fund could be created.

Many of the arguments were spurious. Risks were transferred from shareholders to customers; the ‘reserves’ were accumulated from customers; and the fact that it was acquired for a value less than the RAB was to a considerable extent a reflection of the regulatory treatment at the periodic review and the failure of its management to appeal to the Competition Commission. Moreover, if managerial contracts could replicate capital market incentives then presumably capitalism itself could be abolished and the nationalised industries would have been a great success! To the extent that Glas ‘worked’ in the early years, this was at least partly a reflection of the interests of the new management who benefited from the conversion and had considerably personal reputations at stake. Their successors will probably be in a rather different position.

The Glas proposal rightly attracted criticism from Ofgem and the Treasury, and more muted scepticism from Ofwat. However, the powerful support of the National Assembly for Wales and the scope for Welsh ‘members’ to be appointed to control the company, as well as the support of the incumbent management, facilitated its success.

Kelda proposed a mutual structure—although it failed to get approval—and Anglian was to try a similar tact. Eventually, Anglian achieved a very highly geared structure, in turn to come under threat from debt-driven private equity houses and banks, as was Northumbrian when Suez, its owner, decided to sell in response to the perceived low rate of return.

The financial engineering behind these new structure was very much driven by the desire to securitise RABs through debt. However, water companies were integrated, incorporating not only the RAB assets, but also CAPEX and OPEX. To complete the financial engineering, the RAB needed to be separated from the altogether more risky CAPEX and OPEX.

---

The financial imperatives led to the idea that integrated water companies could be split into ‘assetcos’ and ‘opcos’, with the regulated entity letting OPEX and CAPEX fixed-price contracts to map the periodic review RPI – X assumptions. Risk would then be transferred to the operators. A further twist was that, while water companies were trading below their RABs—and hence at low price:earnings (p:e) ratios)—support service companies had a much higher rating (in the boom, p:e ratios were typically about 30). Thus, by splitting up the business, shareholders would not only benefit by securitising the assetco, but would also reap the benefits of a re-rating. This motivated the Kelda and Anglian propositions, especially after Anglian acquired Morrison, a construction company.

In all of this financial engineering, it was left to the regulators, Defra (as it became) and the Department for Trade and Industry to ponder whether this was in the public interest. Was there any evidence to suggest split companies would be more efficient? How could assetcos control opcos? What happened when things went wrong? Would the system as a whole be maintained and secure? No satisfactory answers were provided.

By the time the periodic review process began in 2003, the effects of the financial engineering were beginning to be felt on the companies’ strategies. Banks are primarily interested in getting the interest paid and their funds repaid. Their interest lay in the RAB, not in the higher cost of capital associated with CAPEX. Hence, unlike PR 94 or PR 99, the companies began to argue for low CAPEX, and to focus on risk-averse strategies towards OPEX. This behaviour reflects the lack of any serious interest in incentive regulation. Banks prefer rate-of-return regulation, and indeed are unable to participate in the profits from outperformance on OPEX and CAPEX. In the full not-for-profit company, outperformance is supposed to go to customers, although if the nationalised industry example is eventually replicated, managers may expropriate the revenues in pursuit of other objectives.

So, by 2003, a number of companies had exhausted their balance sheets. All had geared up considerably, reducing the room for using debt to finance new investment. The rates of return were too low for rights issues, and banks had little interest in CAPEX at the going rates. Some companies had greatly reduced their operating capabilities, and the efficiency incentives were seriously reduced. The scene was set for a further push towards rate-of-return regulation, unless the periodic review reversed the mistakes made in 1999/2000 and created a more equity-friendly world. To do this, however, required a rethink of RPI – X regulation, rather than simply trying to replicate the more benign circumstances of the 1990s. It required a new approach to CAPEX regulation, financial regulation and OPEX regulation to meet the weaknesses listed in section 2 above.
4. Regulatory Reform

Investors and managers respond to the regulatory regime as a whole, so that what matters is not the individual components themselves, but how they fit together to form the overall incentive and risk package. Only if the incentives and risks are disaggregated in a consistent way can the components of the regulatory package be isolated too. Regulatory reform therefore focuses on the overall package and the way it fits together and, in considering the separate aspects of CAPEX and OPEX regulation, the financial structure and risk sharing, this needs to be borne in mind.

(i) Capex regulation

As indicated in section 2, the fixed-price, fixed-period approach in traditional RPI – X regulation is a crude one, and for which there are fairly obvious improvements that could be made. The regulatory approach can be made to map the inherent structure of the CAPEX programme, with more flexible contract design.

Many of the mechanisms are already in place to create greater flexibility. The CAPEX contract can be a rolling one, with efficiencies kept for a period of time. There can be error-correction mechanisms, logging up and related adjustment procedures. Interim determinations (IDOKs) can be built upon to allow for more flexibility.

These elements of flexibility have three parts: clarifying which risks should be borne by companies and by customers, and between current and future customers; sorting out the timeframes for different projects; and allowing for changes in environmental requirements by distinguishing between base CAPEX and major additional items.

The allocation of risks should follow the principle of assignment to those best able to manage them. Regulatory and political risk is not something management can do much about, and there has been a sorry history of trying to shift such risk onto the private sector in the very high costs of capital for some Private Finance Initiative projects. In addition, there are exogenous risks which neither companies nor government can control, and against which customers cannot be protected. Risk allocation in water is still in a primitive state: the periodic review provides an opportunity to look again at the way in which IDOKs and logging up assign these risks, and to consider whether the mechanisms should be reformed accordingly.

The timeframe point is both obvious and neglected. Some investments span more than one control period, yet there is no guarantee beyond the existing period. Other investments within periods are affected by what else is done subsequently. At privatisation, a ten-year period was thought the appropriate timescale. There is merit in this approach, but only with respect to the overall framework. A better approach is to disaggregate the CAPEX programme with different contract periods according to the project characteristics, all within an overarching longer-term framework,
perhaps stretching beyond ten years. If new reservoirs, for example, are required, it will be necessary to provide for a much longer horizon. In other regulated utilities, such projects are treated as separate activities. Terminal 5, future airport runways, the West Coast Main Line upgrade and the Channel Tunnel Rail Link are examples.

Finally, as mentioned in section 2, environmental regulation does not obey the periodic review timetable, especially with respect to EU Directives. A pertinent example is the Water Framework Directive, for which the CAPEX total is as yet only vaguely known. In the gas industry, upgrading the gas network depends upon the speed with which renewables and new gas power stations are developed. A possible approach in these contexts is to abandon the attempt to define the total CAPEX for the new period, and instead set a base case, in the knowledge that more will probably be needed and then to define the contractual mechanisms for new requirements. The risk involved might also be recognised by a higher rate of return on additional CAPEX, as, for example, provided by Ofgem to Transco in the recent periodic review.4

(ii) Financial regulatory reform

At the heart of the financial engineering described in section 3 lies the central fact that the risk on the RAB is relatively low, and the risk on the CAPEX (and possibly the OPEX) is relatively high. By providing an average cost of capital that is high relative to the RAB risk, and low relative to the CAPEX risk, financial engineers have an incentive to split the companies into these two components and to securitise the RAB and minimise the CAPEX. This explains the apparent paradox that utilities complain that the cost of capital is too low (and share prices fall below the RAB), while there is considerable interest among banks and private equity firms in the sector. The raiders are not primarily interested in the water business; they are interested in the arbitrage between the cost of debt and the allowed cost of capital for the RAB.

Once this is recognised, the regulatory response can take one of two forms. The regulator could insist that assetcos must carry the responsibility and capacity to carry out the CAPEX, and hence banks would be exposed to the higher risks of CAPEX. The regulatory response in the integrated approach here could be to resist not-for-profit companies and require some equity in the business. The result, however, will be reluctant investors, unless the allowed cost of capital exceeds the risks of the CAPEX (and therefore overprovides for the RAB risk), as it did in the 1990s.

The alternative approach is to recognise the risk differential by allowing a lower cost of capital on the RAB and a higher one for new CAPEX. In effect, Ofgem made a step in this direction in September 2002 in the review.

of Transco, but only for non-base additional CAPEX. The suggestion here is much more radical—a split cost of capital allowing the RAB to be ring-fenced and securitised. The regulator would, however, have to follow through the logic of this approach, in allowing the revenues supporting the RAB also to be ring-fenced within the business.

The result would still be relatively highly geared companies, but what would matter would not be the level of gearing but the assignment of the debt to the RAB. To ensure that coherence was maintained, however, the regulator might combine the split cost of capital with an insistence on an integrated business. The formal split of the company into different entities would not be necessary—and, for reasons indicated above, it may not be desirable either.

Within this new regime, there would be a need for even greater clarity about the way in which new CAPEX is incorporated into the RAB, but this would be consistent with, and complementary to, the reforms of CAPEX regulation outlined above.

(iii) Reform of OPEX

The third area for regulatory reform at PR 04 is OPEX. While the focus to date has been on driving down costs, it is important to recognise that there is a trade-off between the cost, and the reliability and integrity of networks. Complete security of supply and safety are not desirable—the costs would be too great. However, it is reasonable to assume that customers are risk-averse, and this customer preference should be reflected in the regulatory regime.

There are two ways of addressing this problem, given the cost-cutting incentives in conventional RPI – X regulation. The regulator can get involved in ever greater detail, monitoring networks and performance at the micro level. In some areas, this is both inevitable and desirable. The Drinking Water Inspectorate, for example, provides such scrutiny because the consequences of failure are very great relative to the costs of compliance. However, more generally mapping the manager’s job is likely to result in failure, given the asymmetries of information and the duplication of costs.

The alternative approach is to put the responsibility more clearly on managers—to increase the penalties for failure. The obvious route is via individual director certification. However, such an approach raises the risks to managers, and they will require insurance, and hence the costs rise. In compensation, a higher rate of return will be required to balance the personalised performance responsibilities.
5. Conclusions

There are, then, two ways forward for the water industry and its regulation at and after the current periodic review. A repeat of PR 99, with an average cost of capital, a fixed CAPEX contract, and more pressure on OPEX, will accelerate the flight from equity and create many more Glas-type structures. Once debt is the dominant source of finance, the companies will lobby for rate-of-return regulation, and, in any event, incentives will be increasingly ineffective.

The alternative is to create conditions for a revival of the equity model through a judicious reform of the main regulatory components. This can be done, and would be in the public interest. Incentives can be preserved and enhanced, and rights issues facilitated.

At PR 04, the regulator has then a choice. The consultation process so far has tended to promote a modified version of that in PR 99. There is still some time for a more radical and bold approach. But the opportunity is time-limited, and if the review does follow its predecessor then there may be a further—and perhaps final—burst of financial engineering. The balance sheets will be exhausted rather than available to finance new investment, and a major objective of privatisation—to use private-sector balance sheets to modernise Britain’s infrastructure—will not be achieved, to the detriment of customers and the environment. Incentives, which require equity, will be severely blunted too.