

RIP RPI-X Regulation – OFWAT and OFGEM nail down the coffin

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RPI-X regulation has had a good run. It was a deceptively simple idea: fix the prices and leave everything else to the companies and the markets to sort out how best to maximise profits by minimising costs. That simplicity was its great strength, but also what has gradually undermined it.

Now that OFWAT and OFGEM have published their methodologies and frameworks for the next round of periodic reviews, RPI-X has come to the end of the road. It is now a fragment of what it was, so much so that the model that emerges is getting closer and closer to what it was supposed to replace – rate of return regulation.

That is not a particularly good place to be. It turns out that neither RPI-X regulation, nor rate of return regulation, provide satisfactory solutions to the monopoly and essential service problems. There are two other options: nationalisation as proposed by the Labour Party; and the system operator model. Nationalisation in itself solves very little, other than the headline issues around executive pay and dividends. It leaves open how the great monopolies would be run in the public sector. The system operator model combined public control of the systems with the maximum private competition in delivering them, and is in consequence a much better approach.

To start, let's sort out where OFWAT and OFGEM are taking their respective industries. What and why are there differences between them? Do either give good answers?

OFWAT versus OFGEM – why RPI-X is now dead

Both OFWAT and OFGEM have now set out their approaches to the coming periodic reviews. OFWAT has gone first, because its deadline is 2020, whereas for OFGEM it is 2021. OFWAT gave us 1000 pages of draft methodology and 3000 pages of “final methodology”. OFGEM gave us an altogether better written and digestible 159 pages. Both are miles away from the simplicity of the RPI-X regulatory approach.

Amongst all this detail and complexity, there are three fundamental departures from the RPI-X regulatory model which stand out. These are: the regulation of balance sheets; the capping of dividends and rates of return; and the diluting of the profit objective through licence changes. OFWAT leads on first, OFGEM has made explicit proposals on the second, and OFWAT again leads on the third.

(i) Regulating balance sheets

OFWAT sees the “aggressive capital structures” as a key reason for the lack of public trust. OFGEM by contrast is largely silent on capital structures.

The interesting question is why exactly the capital structure should concern the regulator at all. In the original design of the RPI-X regulatory regime, the job of the regulator was to mimic that of a competitive market, by setting prices. With these set, the companies would maximise profits by minimising costs. The rest was for the companies and their shareholders to determine. They had of course to deliver the outputs as per the licences. It was simple. The regulators had over time to work out how exactly to fix the prices, and to build up a picture of the efficient company’s asset valuation, cost of capital, OPEX and CAPEX, but this was all to inform the determination of prices only, not the financial structures of the companies.

This approach went wrong for two separate reasons. First, there was a serious technical error, which remains today. The regulators used the Capital Asset Pricing Model (CAPM) model to determine the Weighted Average Cost of Capital (WACC), and the WACC by definition set an average higher than the cost of debt

and lower than the cost of equity. This encouraged financial arbitrage from equity to debt, which is at the root of the financial engineering problem. Second, there was a fundamental mistake about the purposes of the balance sheets.

The defining feature of privatisation was a shift from *pay-as-you-go*, to *pay-when-delivered*. A key reason for privatisation was to create private sector balance sheets to carry investments not paid for by current customers. Indeed so central was this investment purpose that the water companies were given a green dowry at privatisation. No one at the time of privatisation thought that the purpose of the balance sheet was to extract monies for the shareholders by financial engineering, in effect mortgaging the assets. Yet as the pure RPI-X permitted and indeed encouraged this. It is what happened.

The massive regulatory mistake was made in the mid 1990s: the regulators did not stop the financial engineering in its tracks, but rather allowed a large scale wave of M&A, special dividends, buy-backs and even pension holidays to take place. The trigger was the defence by Northern Electric to a bid from Trafalgar House, which involved mortgaging the assets of Northern's networks to pay out £5 cash to every £2.40 share, privatised just five years' earlier. OFFER (the precursor to OFGEM) did nothing to stop this, and when the takeovers moved to water, OFWAT was similarly supine.

In theory, the argument was that the companies could and would be forced to put back the money in equity in the future, but that confused a neat and convenient theoretical argument with the practical realities a decade or two later. Interpreting the duty to finance functions as requiring investment grade credit ratings further compounded the mistake, instead of insisting on a *pro forma* balance sheet approach.

Pay-when-delivered requires direct attention to balance sheets, and OFWAT is belatedly trying to claw back some control. But it is not control to the *pro forma* balance sheet, which would represent the actual CAPEX not paid for by customers since privatisation, as represented by the regulated asset base (RAB),

which is the right answer, but to some notional efficient balance sheet from a corporate finance perspective, related to the credit ratings.

It is all the more important now for OFWAT to get this right, for two further reasons. First, the gearing has reached levels that call into question the ability to carry on using the balance sheets on a *pay-when-delivered* basis. Second, water companies are accounted for on a current cost accounting (CCA) basis, with capital maintenance rather than depreciation. The modern equivalent assets (MEA) are valued greatly in excess of current market values, because the companies were privatised at a value that capitalised the actual water bills at the time at lower levels than necessary to remunerate the full CCA value of the assets. In the long march towards the MEA value, the balance sheets are needed as the bridge.

The way to do this is to restate the balance sheets on this *pro forma* basis, and to make clear in the periodic reviews that the investment going forward follows *pay-when-delivered*, and if it does not, then the special administrator is there to enforce this outcome. In this, retained earnings form part of the funding for investment, to underpin the *pay-when-delivered* model in the longer term. To date there is a telling equation between profits and dividends: profits have all been paid out, and none has been retained, whilst equity has been replaced with debt, ahead of the need to use that debt to finance the investments not paid for by current customers.

OFGEM is by contrast very silent on these issues. In part this is because its privatisation was very different. It was on an historic cost accounting (HCA) basis, there was debt from the start, and in contrast to water the early days were not ones requiring significant investment (CAPEX). Indeed in the first period, the total for the then regional electricity companies (RECs) was relatively small in comparison to water, and the companies managed to achieve their outcomes for less than half of the allowed amount in this first period.

All this is about to change, as decentralised energy systems and electric transport take off. Going forward the electricity distribution company balance sheets are going to matter much more, and OFGEM would be wise to anticipate this before it becomes the headache it has for OFWAT.

To be clear, both OFWAT and OFGEM need to actively engage on the balance sheets and require a *pro forma* approach, and clear explanations and justifications for departures from these *pro forma* structures. In doing so, they will complete the killing off of this prohibition in the pure RPI-X model.

(ii) Capping returns

As with the absence of any interest in capital structures, the original RPI-X regulation approach took little or no interest in actual rates of returns or dividends. At periodic reviews, the prices would be set *ex ante* at a level which regulators thought would ensure the functions would be financed, and they would do this by making assumptions about the cost of capital, the asset valuations, OPEX and CAPEX. The companies were then left to earn what they could, and the higher profits would be a result of outperformance. They could be seen as a “good thing”. Efficient companies could and should make excess returns.

The public never saw it this way, and it quickly emerged that there were distinctions between exogenous cost shocks, regulators’ mistakes at periodic reviews, and genuine out-performance on variables within the direct control of management. It turned out that the first were very large and positive, largely related to the interest rates, the second were significant, and the third actually quite small.

The biggest gain to the privatised utilities after 1990 came from the unanticipated falls in the interest rates. These turned out to be lower than predicated at periodic reviews for every five-year period from 1990 – for a quarter of a century. This produced profits for the privatised utilities, further

encouraged gearing up the balance sheets, all for reasons that had nothing whatsoever to do with the management of the businesses. Privatised utilities could not set national interest rates, but they could and did benefit from their falls.

The mistakes on the upside by the regulators were considerable too. In particular, they repeatedly overestimated costs. Mention has already been made of the huge mistake in the first period on the electricity distribution CAPEX. But the mistakes have rolled on. In the current periods for the distribution networks (DNOs) and National Grid, I set out the excess returns and the reasons for them – assuming construction costs would go on rising, and overestimating demand – in my *Cost of Energy Review*.

As a result of these errors, both OFWAT and OFGEM have crossed another Rubicon: they have begun to direct their attention to the *ex post* rates of returns and dividends, and in doing so both have taken a decisive turn towards rate of return regulation.

There are several ways of going about capping returns. The first is to separate out the three categories above and to design a symmetrical cost pass through mechanism, introduce an error correction mechanism, leaving only the genuine outperformance undetermined and uncorrected. OFWAT want the dividends to be transparent (and indeed executive salaries tied to outperformance only on the third category, efficiency outperformance). The second route to capping is to home in on the actual rates of return. The third is to use competitive benchmarks for key exogenous costs – for example indexing the costs of debt, the cost of equity and construction costs, and tendering for competitive bids for OPEX and CAPEX where possible, including for complete large CAPEX projects like Thames Tideway and major grid connections.

The first two approaches are in line with the practice (rather than the pure theory) of much of US-style rate of return regulation. Both add extra layers of complexity, and depart from the simplicity of RPI-X regulation. Only the third

maintains a central role for sharp incentives and competition, and this is where the system operator model of regulation comes in, which is discussed further below. (Note that nationalisation is effectively rate of return regulation).

OFWAT's chairman has articulated the principle of "painshare and gainshare", that the companies should voluntarily moderate their returns when they outperform, and be protected on the downside. Its chairman sees this as all about "corporate governance". This could be described as a voluntary rough approximation to rate of return, leaving it to the companies to make gestures when things go well, and to be able to turn to the regulator for protection when things go badly.

(iii) Modifying the licences

Perhaps the most fundamental onslaught upon the RPI-X model comes from reforms to the licences. In the RPI-X model it is essential that the companies have the greatest incentives to maximise profits, and hence that they are normal private companies with directors beholden to the interest of their shareholders.

This idea of highly focussed capitalists in charge of what many regard as essential services has never been one the wider public has signed up to, and it is one of the reasons why privatisation has struggled to win public backing.

The reason for this public scepticism is one that goes to the heart of the purposes of these industries. Whilst in the RPI-X world, they are normal companies, others tend to doubt that the public interest can be determined entirely by regulators. An alternative view is that these should be public interest corporations, and their boards should pursue that public interest in their day-to-day decisions in managing their businesses and in investments (and voluntary painshare and gainshare in the OFWAT mode too).

The way this tension has played out is through repeated attempts to modify the licences and interfere in corporate governance. The objectives of the private

companies have been expanded, to include environment, social and universal service obligations (USO). Though these can be seen as contractual obligations, it is the lack of definition as to precisely what these wider objectives mean, and hence the delegation of discretion to determine them in practice, which creates the ambiguity about the boardroom conduct and decisions. OFWAT now proposes to go further with another round of major licence changes.

OFWAT has indeed already gone further on all this than OFGEM. OFWAT has directly intervened on the composition of the boards, wanting independent non-executives to be in a majority. Quite how someone can be “independent” on the board of a private company is quite hard to fathom, other than as independent representatives of shareholder interests to ensure the executives really do maximise profits. Should they decide that the public interest requires a sacrifice of profits to some other end for example? Or should independence be about protecting the licenced entity from a wider corporate ownership structure?

Trying to make independent directors of companies pursue the public interest was the model the senior Labour politician Herbert Morrison followed for London municipal utilities in the 1930s and which was then carried over to the nationalised industries in the 1940s. Morrison thought that the executives should be commercial and the non-executives should pursue the public interest. The problems here are obvious: it greatly matters who the non-executives are; and there is a democratic deficit when individuals decide what *they* think the public interest is.

The great appeal of nationalisation in the twentieth century was that it was supposed to close the gap between public and private interests, by eliminating the latter. But the problem with this is that the absence of private interests means that incentives are blunted, and the nationalised industries must rely on publicly-spirited individuals. It is the old problem of “knights” and “knaves”, and one which has never been fully resolved even in the health service. The question then arises: is there a better way of combining public interest with private

incentives? Fortunately the answer is yes, and this is where the system operator model comes in.

An Alternative Model: the system operator model and competition

The system operator model starts with two basic distinctions and assumptions. The first denies the basic premise of the RPI-X model: these are not ordinary industries on the way to becoming fully competitive commodity and service companies, but rather public interest monopolies with USOs and environmental responsibilities. The second is that these are *systems* and *networks*, which require the system to be determined over and above the individual decisions about each component (and each company). The coordination of these core systems is the natural monopoly.

It is a model applicable wherever these two conditions apply: to the control of the railway networks, to aviation, and to the broadband and communications systems, and system operators would in particular be carved out of Network Rail and Openreach, as well as in water catchments and electricity national and regional networks.

Before taking these points in turn, it is important to be clear what the system operator model is, and what it is not. Indeed the name itself can be misleading. It is about the regulation and control of the systems – and perhaps would be better called the system regulation and control model. It is not about the day-to-day running of the system, but its design and the delivery of the key investments and outputs. In consequence, this narrow definition means that it will be a small tight body and, as described in the *Cost of Energy Review*, it will take on a number of functions currently carried out by the regulators. In the system operator model, OFWAT and OFGEM would wither away, with residual functions transferred either to a general network regulator body or the Competition and Markets Authority (CMA). As a result, there would be a significant reduction in the overall regulatory burden, as explained in the *Cost of Energy Review*.

(i) The public interest

It is for the government to set out and determine the public interest, not private companies. Government can delegate the practical interpretations to regulators, but not to private company boards. In the RPI-X model, this distinction was made clear at the outset, but was never implemented. It was the companies that were left to propose CAPEX and OPEX, on the basis of their vastly superior asymmetric information. It was a decentralised model, in which the system as a whole played little or no part.

The companies produced business plans to meet their licence obligations, and then the regulators judged these largely on the basis of efficiency. There have been comparative efficiency exercises, yardstick competition proposals and in-depth probes into specific elements of the costs. What has been missing is the public bit. How should the companies tackle water or fuel poverty? What social tariffs should they use? How should they take into account natural capital asset management? How far should they go in cleaning up water supplies? Should the companies invest in underground cables? These are not decisions for corporate executives.

(ii) The systems

The privatised industries cover the main infrastructure systems – water, electricity and gas, roads, railways and airports, and communications. In all these cases the sum of the parts is not the same as the whole. Take electricity capacity. How much of a security of supply margin should be in place? Security of supply is a public good, not a private one, and it requires decisions at the system level. How much security any customer has is not an individual choice. It is a bit like nuclear defence: you either have it or you don't. Take the management of river catchments. Water quality depends upon the way the land is farmed (and subsidised), the way the river is managed, the flood defences in place, and the discharges along the river course. The catchment is a system, best considered as a whole, and then the various actors play their role, coordinated with each other.

Coordination does not and will not take place optimally in decentralised markets in these infrastructure systems. Rather each company takes the behaviours of the others as given, and acts like its own island. The results are patently inefficient, and this can be seen in the way catchment investments take place. In the case of energy, the system operator functions have been explicitly recognised for the national transmissions systems, and it is widely recognised that there needs to be system operators at the regional level for the coming more decentralised energy systems, as set out in my *Cost of Energy Review*. In energy, it is not a question of whether to have system operators, but rather whether these should be independent of the private companies, and whether they should be public or private.

(iii) Conflicts of interest and the public system operators

The problem with private system operators inside the existing companies is that they have inherent conflicts of interest in making what are public choices about the development of their respective systems. In the river catchments, water company profits come from the job of providing clean drinking water and disposing of sewerage as cheaply as possible. Their profits do not come from revenues for providing flood defences or from farming. The network owning electricity companies are conflicted which it comes to the choice of maintaining and enhancing their network assets versus new generation, storage or demand-side measures.

For these reasons there is a very strong argument for separating out the system operators from the incumbent network owners and operators. The remaining question is then whether these should be private companies or in the public sector.

There is always a tension when private companies make discretionary public interest decisions. Indeed, this is one of the reasons there is so much unease

about the pure private company model that RPI-X includes. In general, public interest decisions are best made by public institutions not private ones, full stop.

This principled separation is also practical. Consider the private company carrying out system operator functions. A private company maximises profits by fulfilling its contract efficiently. In other words, it needs a clear and well-defined contract, to minimise costs against. A moment's reflection tells us that the clarity and precision of definition cannot happen in system operation. Indeed it is one of the reasons the pure RPI-X model has been undermined. Discretion is at the heart of the system operator functions. A private company might easily find itself held responsible for decisions it has made *ex ante* in interpreting the role which turn out to be *ex post* less than optimal. It will be blamed because it took responsibility to exercise the discretion, and it will always be under the cloud of conflicts of interest challenges, especially when things go wrong.

(iv) Delivering the outputs and maximising competition

With the system operator in charge, it can set about finding the most efficient ways of delivering the outputs it has decided upon. The obvious way to get things done is to contract them out to the private sector. In other words, the system operator should where possible use competitive markets to deliver the outputs.

How does it do this? The first and crucial point is that simple fixed-priced bundled single five-year contracts are unlikely to be efficient. There is nothing magic about the number five, and there is nothing particularly desirable about bundling. There is also nothing particularly appealing about assuming that the optimal contract is fixed-price. The system operator should reject the crude periodic review approach, and in doing so get rid of one of the last bastions of RPI-X regulation – the fixed-priced, fixed-period approach.

Having broken up the requirements for outputs into appropriate and different contracts, the system operator should then where practical auction them, taking into account both price and non-price dimensions of the outputs to be provided.

This radically challenges the monopolies and their licence boundaries under RPI-X. The water companies can bid for floods defence projects and for wider land management under the “public goods” approach to agricultural subsidies – and they can be bid against for their current core water and sewerage OPEX and CAPEX. In the case of electricity, the *Cost of Energy Review* suggests that DNOs could bid for storage, demand side and generation options to meet requirements, and be bid against for their core distribution activities, and therefore that the distinction in separate licences between distribution, generation and supply can be abolished. Unbundling enforcement is no longer required under the system operator model, allowing markets to respond with new business models, especially in the context of rapidly changing digital and other technologies.

In this system operator model, there are no periodic reviews, only contracts. It may turn out that some more bundled contracts are deemed best, and indeed at the limit the current functions could mostly be contracted to existing water companies and DNOs (and Openreach and Network Rail). That might indeed be a sensible way of transitioning across to the system operator model from the periodic reviews. Over time the disaggregation of the contracts can gradually get going, as and when appropriate.

Practical considerations

The system model is an alternative model to rate of return and RPI-X. It differs from rate of return in maintaining and enhancing competition, and as a result maintaining very sharp private efficiency incentives. It differs from RPI-X in separating out system requirements, and ensuring that these are delivered through contracts. As with rate of return regulation, there is no good reason for the periodic reviews, and a lot of the current regulation can be withdrawn. Those 3000 pages from OFWAT will be largely redundant.

As an alternative model, some vested interests might argue that whilst the system operator model is an interesting theoretical construct, this is “not the

time” to introduce radical reform. This indeed is what the DNOs have argued in response to the *Cost of Energy Review*.

This convenient response is less than it seems. In the case of electricity, the system operator model is already widely accepted. It is the efficient way that security of supply can be achieved. Further, the capacity auctions conducted by the current system operator in National Grid have proved wildly successful, beyond almost all expectations. They have delivered the public system requirements at costs much less than anticipated. For the regional and decentralised electricity systems, virtually everyone in the industry accepts that there is a need for some form of decentralised system operator. The issue is about whether these should be inside the DNOs or not. Unsurprisingly the DNOs have moved to try to occupy this territory, and control the system operator functions to maximise their own interests. The conflicts of interests that result are already very obvious, and they are not sustainable.

In water, the initiatives on catchment system operators come up against deeply entrenched interests, this time in the regulatory structures and public institutions. The farmers do not want their subsidies opened up to competitive bidding from other parties under the new “public money for public goods approach” and they do not want the polluter pays principle applied to them (and hence responsibility for the nitrates and agrichemicals that run off with the silts from their lands into the rivers). The Environment Agency does not want its flood defence role taken over by a new catchment system operator. OFWAT does not want to concede control over the capital programmes of the water companies and give up the periodic reviews.

The obstacles in water are therefore much bigger than in electricity. Yet the inefficiencies of the current approaches will not go away, and as the natural capital approach gets applied to whole river catchments, as for example in the Cumbria pioneer, these will become ever more apparent. The 25-year environment plan requires a catchment approach, and the periodic reviews cannot provide these.

Conclusions

RPI-X is well and truly dying, and OFWAT and OFGEM have been hammering the nails into its coffin. The current periodic reviews bring in questions of balance sheets, of capping profits, and of the wider public interest issues – all of which are incompatible with the original model. Regulation has got incredibly complicated, with OFWAT's case which now requires thousands of pages of detail. There is every sign that the regulation is going to get even more complex, as OFWAT is particular is sucked into the internal decision making of the companies. (This time it even wants to create two new “consumer metrics”!)

Yet the results have not got much better. Indeed the results are now unacceptable to both the Conservatives and Labour. Michael Gove's recent speech echoed widespread public disquiet about salaries, dividends, financial engineering, offshore accounts and tax. The RPI-X model supporters could retort: “none of your business”. But it is, and Labour has articulated these problems even more starkly. We now have a competition between the political parties to be ever “tougher” on the privatised companies.

The “tougher” strategy is not going to work, because the problems are deep and structural, not superficial and about the behaviours of particular directors. The companies cannot easily be bullied into doing what the regulators and politicians want.

The system operator model provides a much better answer. Under this model, it is the system operator that is responsible for the system, and the private sector can do what the private sector does best. The system operator model cuts away the complexity of the periodic reviews, and indeed abolishes them. It replaces them with clear contracting which is not in the straightjacket of 5 year fixed-priced bundled contracts.

The system operator model is one that the incumbents should welcome. It does challenge them to meet genuine competition and where there is pain because of existing inefficiencies, they should reflect upon the alternative of “tougher” and more intrusive regulation that is not necessarily going to be gentler. Under the system operator model they will be able to escape the daily political and regulatory interference. They will have a wider domain, and all the new opportunities that go with this. Water companies can get into the flood defence and even land management business – or not. DNOs can do storage and demand side and generation. In a period of rapid technical change, it gets the government and regulators out of trying to manipulate boards.

For shareholders of the existing private utilities, it is worth reflecting what the alternatives to the system operator model are. One is a continuation of the current ever greater intrusions as represented by the OFWAT and Ofgem frameworks for these coming periodic reviews, and all the politics on top. That drove down share prices in some cases around 30% in the first quarter of 2018. This might turn out to be temporary, but it cannot be attractive to the owners in what is supposed to be relatively boring and predictable and low risk sector. The other is nationalisation, which the public appear to favour and which has already been making a comeback in transport. With RPI-X well and truly dead, buried and its coffin nailed down, it is time to reach for a better balance of public and private interests, and get the best from competitive markets.