

OUT OF STEP?

THE REGULATION OF ENERGY NETWORKS

For 40 years, the European Commission has been aspiring to create a single energy market, with interconnectivity, security of supply and an overarching regulatory framework. The descriptor most commonly applied to the rate of progress is “glacial” – although the speed at which Europe’s glaciers are melting may make that too generous. Although the EC declared victory on its creation of an “energy union” in its 2019 report, the regulatory systems remain distinctly national. Britain was one of the first countries to implement a high-powered regulatory regime for its energy networks, and in terms of productivity and quality has chalked up some remarkable successes. Over time, other European countries have adopted similar but varied approaches, but incentives have tended to be slightly weaker and more limited. However, Frontier’s recent work with clients indicates a general strengthening of incentives in mainland Europe, aimed among other things at improving various dimensions of service, and making greater use of benchmarking. In proposing to power down its regime, therefore, the UK regulator, Ofgem, seems to be swimming against the tide.

Recent controversies over the level of profits earned by the energy networks in the UK are undermining the legitimacy and credibility of a regulatory system that has operated for over 20 years. Radical alternatives are mooted, from renationalisation to fundamental changes in the incentive arrangements that are currently being considered by Ofgem. And the UK is not alone in reviewing its regulatory arrangements from time to time.

Of course, we have been here before. Back in the 1990s, there was an explosion of anger at the level of profits and executive pay in the newly privatised UK utilities. Regulation was radically restructured. But is that what is needed again, or should Ofgem just do its job better? And in answering that question, can we focus on another all too rarely considered question: what would be in the best long-term interests of customers?

To do so, we need to start with the issue that is at the heart of the economics of regulation: uncertainty. Firms and their regulators are differently equipped to deal with it. So:

- the regulator may be uncertain about the prevailing cost level
- neither the regulator nor the firm may be well informed about the potential for innovation and efficiency gains in the industry, or the impact of events outside the firm's control
- the firm may have better information than the regulator on how to extract more efficiency from the current structure and asset stock of the business – so-called “productive efficiency gains”; however
- both the firm and the regulator are likely to be similarly uncertain about the extent to which changes to the culture, operations, investment strategy and management of the business might deliver greater efficiency over the longer term – so-called “dynamic efficiency savings”.

In the UK, the belief prevailing in the period after the Second World War was that uncertainty should be dealt with by internalising all these “information asymmetries” by bringing utilities within the public sector. The state would, for its part, maintain sufficient expert resources to scrutinise management actions, decisions and operations, and intervene when necessary.

This view was hardly unique to war-battered Britain: energy networks were, across Europe, normally owned by different arms of the state. But nationalisation does not deal with the information problem, and it led to managerial objectives in the businesses that were complex, contradictory and ad hoc in their formulation.

Nationalised businesses were often used as instruments of macroeconomic policy – through public sector wage and price policies, employment and investment policies, and so forth. Since there was no clear business focus for managers, they were able to devote their energies to other activities which did not have a clear business rationale, such as unnecessary expenditure on R&D, gold-plating of assets, and other rent-seeking behaviour. The consequence was very high levels of inefficiency in the energy sector, driving the argument for privatisation.

TIME FOR THE X-FACTOR

The energy networks in the UK were floated on the stock market in the late 1980s (gas) and early 1990s (electricity). Privatisation was accompanied by the development of a radical new approach to regulating monopoly networks known as RPI-X regulation, devised by Stephen Littlechild. This approach (fairly) simply required the regulator to set a ceiling on prices determined by the level of retail price inflation (RPI) minus a factor, X, that represented the regulator's best forecast of the productivity gains the business was expected to achieve in the specified period ahead, which was normally up to five years.

The price ceiling was intended to protect customers from overcharging, and the “X-factor” was intended to encourage the regulated business to make efficiency gains over and above those that were baked into the regulatory mechanism, since it could retain all the profit from these. At the end of the price control period, the regulator would reset prices based on information that had been revealed since the last review (so if it had underestimated what could be achieved it could capture these unanticipated improvements for customers going forward and potentially increase X for the next period), but it would not claw back the profits the business had earned from above-X efficiency gains in the past, since this would remove the incentive to try for extra efficiency in the future.

The new RPI-X approach to regulation, Professors Beesley and Littlechild argued in 1989 in their seminal work, “The Regulation of Privatized Monopolies in the United Kingdom”, required little, if any, information and expert analysis:

...RPI-X does not assume costs and demands are given or known: indeed, the problem is to provide adequate incentives for the company to discover them. The aim is to stimulate alertness to lower cost techniques and hitherto unmet demands. The emphasis is on productive rather than allocative efficiency.

This model owed much to the Austrian school of economics, which stressed the limits of knowledge, and the implications for governmental control. It also chimed with another growing body of economic literature, pioneered by the US economist Oliver Hart, which illuminated the nature of the “contract” between a firm and its regulator. Contracts could not cover every possible eventuality, so any attempt to try to write a “complete” contract through an ever-expanding regulatory rule book, or through ever-increasing regulatory oversight and intervention, would be doomed to failure.

SO WHAT WENT WRONG?

The original Littlechild model had great attractions in its potential to address the efficiency problems in the sector, but it also suffered from a fatal flaw. Regimes which were too “high powered” – that is, those which permitted firms to keep all the profits from their efforts – were essentially blind to the distributional effects, or “fairness”, of the price control settlement. This intentional design feature, when combined with the highly generous price formulae originally set post-privatisation, enabled the transmission and distribution power network operators to earn very high profits.

By the mid-1990s, the profits made by the transmission and distribution businesses alike, accompanied by large increases in remuneration for senior management, created such public disquiet in Britain that the regulatory regime had to be fundamentally reviewed. And not only in the energy sector, since similar excesses were being observed in other privatised utilities.

The lesson of the experiment with pure-form RPI-X regulation in Britain was that customers, the public, politicians and the media did not only care about efficiency. They were also concerned about the fairness of the distributional settlement between shareholders, the executives of the businesses, and customers. For regulators who had been roundly condemned for their willingness to allow the regulated businesses to earn excess returns, it was a lesson that was quickly learned. They jettisoned pure-form RPI-X regulation, and developed more effective methods of customer protection, while attempting to preserve the efficiency properties of the original Littlechild model.

**“A RADICAL
NEW APPROACH
TO REGULATING
MONOPOLY
NETWORKS”**

BACK TO THE BUILDING BLOCKS

From the mid-1990s onwards, a more balanced system of incentive-based regulation emerged. This was based on the recognition that a regulatory system is made up of a number of different components, and it is how the regulator puts those components together that determines its effects: on efficiency, on how the risk is shared between customer and shareholder, on the distribution of rewards and on the sustainability of the regime.

Over the quarter of a century that has passed since that last legitimacy crisis, this system of incentive-based regulation has evolved further, but still recognisably has the following key features:

- Commercial objectives are ring-fenced from public policy objectives, so that running the business is decentralised to the managers of those businesses, within a well-defined framework, free from day-to-day political interference.
- Incentives are provided for the business to accept cost risk, manage the associated uncertainties, and seek out efficiency savings against a set of transparent and justified cost targets.
- Credible and stable rules govern the remuneration of long-lived assets.
- The package as a whole is appropriately calibrated to ensure that the financial costs and benefits associated with under- or over-performance by the business are proportionate, non-distortionary, and consistent with wider public acceptance.

Together these ingredients created a stable commercial framework within which regulatory risk is minimised while maintaining strong incentives to outperform. It should enable customers to have confidence that additional profits are being earned by strong performance; and that they too will benefit in the long term from cost efficiencies and service improvements. But of course, this confidence depends on Ofgem doing its job properly.

BACK

IMPRESSIVE RESULTS

The model of regulation created by Ofgem and its predecessor bodies has driven considerable cost and quality of service improvements across all the four energy networks. Consumers have gained substantial benefits over the period since privatisation. A flavour of that success was set out in a speech given by then Ofgem CEO Alistair Buchanan in 2008, approximately 20 years after privatisation. Buchanan noted that:

...Since 1990 the electricity distribution charges for customers have been cut by 50% and transmission charges by 41%...in the 15 years to 2005 power cuts were reduced by 11% and the duration of those interruptions by 30%.

This combination of price cuts and quality improvements amounted to an impressive achievement over the period.

Ofgem has recently published a paper, *Productivity Growth in Electricity and Gas Networks since 1990*, which confirms that this strong performance has continued. Ofgem's academic research shows that each of the network sectors has performed markedly better than the economy as a whole. To give a feel for the magnitude of this outperformance, productivity in electricity distribution grew faster than in the economy as a whole, by 1% per year over a 26-year period from privatisation. In gas distribution, outperformance was 1.1% per year, although measurement was only possible over an eight-year period, from 2008-09 onwards, owing to a lack of data.

These values, as the authors of this paper point out, may materially understate the productivity performance of the energy networks, as they take no account of the potential effect of the energy transition. This follows because:

...if energy networks are making investments and incurring operating expenditures which facilitate the wider energy transition, this may show up as them exhibiting negative productivity growth, as the benefits of the transition (e.g. clean air and meeting environmental targets) are not part of their measured outputs.

This will be true for all network sectors, each of which face new challenges that were not accounted for by the researchers' model, but will particularly affect electricity transmission, a sector spending billions of pounds to facilitate the integration of renewables. While the authors do account for other dimensions of quality (e.g. interruptions) there is a need to make a full set of quality adjustments to productivity estimates, as discussed in our chapter on the water industry, where the productivity performance has also been impressive.

TO THE

Such outperformance by regulatory monopolies is all the more impressive in that it is sectors fully exposed to the fierce pressures of competition that one would expect to easily outperform the energy networks. It is an important corrective to the portrayal of the sector as fat and lazy by politicians of the right, and greedy and exploitative by politicians of the left – and of the complaints from all sides that regulation has failed. The evidence tells us exactly the opposite story.

The bulwark of regulatory success has been the mutually supporting pillars of a clear incentive-based model and a consistent approach to financing requirements, bringing stability and predictability to the regulatory and commercial framework. The focus has been on achieving two highly desirable outcomes: investor confidence, in order to keep the true cost of capital of investing in the industry low; and dynamic efficiency improvements, in large part due to a predictable approach to the remuneration of assets and performance. Those calling for regulatory reform, or the return of these assets to state ownership, may wish to pause and reflect on this evidence.

NOTHING TO FIX?

So does the industry have no case to answer? It is never easy to persuade public opinion of an important truth: that the profit incentive is a vital feature of regulation, needed to drive dynamic efficiency improvements. And therefore – a proposition even harder to sell – that some degree of “excess” profit should be welcomed, as indicating outperformance. (“Yardstick” regulation, under which companies have to “compete” with the best, may at least in theory be easier to sell to the public, and has had impressive results in other industries and geographies such as the Netherlands or Norway – but it is not always possible to introduce.)

The key question remains, however: how much “excess” is too much? How well has the regime been calibrated? Right now, there is a strong sense that returns have been too high, and that something must be done to ensure a better balance between business and consumer interests in the future. The report commissioned by Citizens’ Advice in 2017, titled *Energy Consumers’ Missing Billions*, reflected the extent of public concern.

BUILDING

Confidence has to be restored that additional returns will only be earned through unanticipated improvements, and are not “money for nothing”. Ultimately, a sense of fairness is essential to the legitimacy of a regulatory regime. However, any review of the changes needed in the sector should be placed in the context of the notable progress (in respect of cost, reliability of service and supporting decarbonisation) that has been made across the board since assets were placed in private hands.

Once the first post-privatisation phase was over, returns were broadly in line with what was expected – that is, until the most recent couple of control periods. During these, returns for most companies rose to the upper end of expectations. There seem to be two main explanations.

The past two rounds of price controls covered the period immediately following the global financial crisis. This unquestionably led to greater difficulty in forecasting the future path of the UK economy, which in turn created greater uncertainty in regulators’ forecasts of generic, sector-wide price control parameters. For example, real wages have grown at a considerably lower rate than predicted, economy-wide.

The first round of post-GFC price controls was set in anticipation of inflationary pressures arising from a more rapid economic recovery, followed by ongoing steady growth. Neither materialised as foreseen, although it is worth noting that real wages have now begun to pick up. Ofgem is on record as having admitted that, with hindsight, its allowances for real price effects (RPEs) for the gas distribution sector were set too generously, although the period to which they applied is not yet over. In short, Ofgem (in line with the vast majority of other forecasters) may well have failed to predict the full effects of the GFC. Nobody, from the Bank of England outwards, found it easy.

The second explanation, however, is that mistakes have clearly been made in setting the controls. The RIIO model (revenue equals incentives plus innovation plus outputs) made regulation more complex, and further regulatory innovations increased that complexity still further. That is not to say they were a mistake: indeed, it is widely recognised that some of these innovations were extremely beneficial to customers.

For example, there is near-universal agreement that the competition for business plans, boosted by rewards for their quality, extracted much more disciplined plans from the operators, increasing the information available to Ofgem before setting controls. Unfortunately, in implementing the new RIIO system, Ofgem miscalibrated the regime, embedding higher returns as a consequence. The lesson from that should be to remedy the faulty implementation, rather than discard a basically sound system.

BLOCKS

WRON

Q1 2024

HEADING THE WRONG WAY

However, these high returns have intensified media and political pressure on Ofgem, at a time when it is struggling to implement other new regulatory requirements (e.g. retail price caps). Ofgem's recent consultation papers on the future design of the second round of RIIO price controls set out how it contemplates addressing calls for change. The direction of travel is troubling.

Ofgem is proposing a radical recutting of some of the cornerstones of its regulatory approach. It is proposing to:

- weaken a range of fundamental incentive mechanisms, including the core incentive to reduce cost
- update targets for a number of incentives during the period covered by the price control, in order to limit the scope for outperformance
- make more use of volume drivers and “re-openers”, essentially leaving aspects of its decision open to be considered again later
- gather even more information on what a company plans to do, with the intention of going back once the price control period is over to check that all the actions committed to upfront have indeed been taken
- add a “safety net”, whereby additional returns will be capped at some given level.

All of these measures are clearly designed to ensure that going forward, returns will be far lower. However, taken together, Ofgem's proposals would amount to a substantial weakening of the incentives for cost and service improvement – yet it is these incentives that have led to the huge improvements in performance that we reported above. The risk is that the baby is being thrown out with the bathwater.

High returns would be a thing of the past, and this might relieve the pressure on Ofgem. But rapid improvements in cost and reliability may grind to a halt, ultimately leaving customers far worse off. And given the amount of investment needed in the networks over the coming years to support the energy transition, a plan not only to squeeze profits but also to claw them back may prove extremely short-sighted.

COULD DO BETTER

Ofgem's reaction to pressure may be understandable, particularly since the threat of renationalisation is greater than at any time since privatisation. But the direction of travel is mistaken. It is driven by defeatism: an implicit belief that it is impossible to calibrate a price control reasonably well. History tells us that this is not so.

With sufficient care and diligence a high-powered price control can be designed effectively: one that results in higher returns only where these are justified, and delivers strong cost and productivity improvement to the enduring benefit of customers. Regulators may, on occasion, be caught out by a major economic disruption, although this forecasting risk may be more symmetric than recent evidence suggests. Who is to say that the next forecasting error won't leave the companies picking up an expected bill rather than gaining from a windfall? But the destruction of performance incentives in order to prevent this ever occurring might prove to be not the least of the losses suffered by consumers as a result of the GFC.

The theory and practice of regulation lead to the very clear conclusion that the costs to the customer of encouraging efficiency-enhancing effort can be minimised if the regulator is diligent in the calibration of incentives and the setting of targets. It is now well understood by most stakeholders that in several important areas Ofgem misapplied a basically sound regulatory framework at the RIIO-1 reviews. The last legitimacy crisis in the mid-1990s prompted a thorough-going reappraisal of the regulatory model. In contrast, the present legitimacy crisis should be resolved less by restructuring a basically sound model, and more by Ofgem applying that model more carefully.

The greatest successes of regulation have been when it has provided a stable commercial framework within which businesses can find innovative and efficient solutions to problems – solutions neither the business nor the regulator previously knew were possible. As big (and uncertain) expenditures are needed to transform networks over the next 20 years, that freedom and incentive to innovate will be sorely needed by businesses, their customers and political leaders alike.