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Preliminary views for the AEMC

Understanding of the requirement

I understand that, as described in the AER's proposals, there are four broad areas that make up the overall work that the AEMC is doing:

- Capex/opex forecasts - the discretion/powers the regulator has in coming to a determination of the allowed ex ante capex/opex, with a specific focus on the weight to be placed on the proposals of the regulated firms;
- Capex incentives - what incentives can be placed on the regulated firm to spend no more than an efficient level of capex or opex, and to what extent a revenue determination should be permitted to be reopened mid-period;
- Cost of capital;
- Regulatory decision making process.

At this stage of the process, the AEMC is seeking assistance with the first two of the areas, capex/opex forecasts and capex incentives, although it is recognised that comments on cost of capital issues may be relevant to the extent that there are implications for the first two areas.

The AEMC is initially seeking a short, overview paper as an input into work on its Directions Paper, which is intended to set out first whether there is a problem with the regulatory regime which needs to be addressed, and second the AEMC's initial thinking on what possible solutions there are to any perceived problems. The overview paper is required to consider and assess the problems raised by the AER in the areas of capex/opex forecasts and capex incentives, focusing on the principal, general issues (e.g. the overall balance between prescription and discretion in the arrangements), whilst also taking note of proposals relating to some narrower, specific, smaller issues, such as the treatment of shared assets, related party margins, and contingent projects. Within this context, the overview paper should consider approaches to the forecasting and incentives issues that have been employed in comparable regulatory systems in other countries, and, in part drawing on this experience, should consider what might be appropriately inferred about the merits of alternative frameworks for assessing solutions to the relevant problems.

Approach

The remarks that follow are guided by the duties and powers of the AEMC, which are restricted to rule changes that promote efficient investment in, and efficient operation and use of, electricity network services for the long term interests of consumers of electricity (the National Electricity Objective). The remarks also reflect the four broad questions that the AEMC has raised in the consultation process (because, in my view, that those four

questions go to the heart of the principal issues, and therefore provide a good framework within which to address those issues[1]):

- **The problem** - Do you agree with the extent of the problems with the framework for economic regulation of electricity and gas networks as characterised by the AER?
- **Prescription and discretion** - Have the proposed Rules achieved the right balance between prescription and discretion?
- **AER's use of its discretion** - Could the AER instead achieve the same outcomes through greater use of the discretions it currently has, avoiding the need for expanding these discretions?
- **The solution** - On the basis of the problems raised by the AER, are there any more preferable solutions to those problems?

Rather than simply jumping in to the issue of how the AER's specific proposals might appropriately be assessed, however, I think it may be of assistance to the AEMC, at least at this initial stage, for me first to stand back from them and to consider (a) one or two of the general problems of regulating network monopolies, and (b) some of the general features the regulatory designs that have evolved to address them. Within this latter category of regulatory designs, I include the 2006 reforms in Australia.

Level of investment

Two general problems of regulating monopolies concern incentives for (a) investment and (b) efficiency generally (i.e. both operationally and in relation to capital expenditure/ investment). Indeed the modern technical literature might be said to start with the Averch & Johnson paper on the effects of rate of return regulation, which rests on the proposition that price control is liable to lead to biases in investment incentives (specifically, in case of rate of return regulation, if the allowed rate of return exceeds the cost of capital, it leads to a bias toward over-capitalisation).

Looking at investment first, then, and notwithstanding the Averch-Johnson result (which assumes prices will be set by a methodology that *rigidly* links prices to costs, including a designated rate of return on capital, the most basic problem is one of potential underinvestment, at least in a context of regulation of privately owned or financed networks by a regulatory agency with discretion to choose its preferred, price-setting methodology. If

[1] Although I would strongly recommend words such as 'ways forward' or 'responses' (in the face of identified problems) to the word 'solutions'. It is rarely possible to 'solve' major regulatory problems, and the language insinuates the feasibility of a degree of precision and success that might well give rise to unrealistic expectations, which subsequently will necessarily be confounded. *"The curious task of economics is to demonstrate to men how little they really know about what they imagine they can design"*, Hayek, *The Fatal Conceit.*

government, whether directly or via delegated regulation, controls (i.e. has the discretion to set) prices, investors will necessarily be wary of investing large amounts in specific assets (i.e. of incurring sunk costs).

Various regulatory designs have been developed to mitigate this problem of potential for regulatory opportunism, which is associated with the existence of regulatory/political discretion in relation to price fixing. US style rate of return is perhaps the leading example, with its legal protections against expropriation of capital. In the UK, Ofgem has considerable discretion in making regulatory determinations, but these are subject to rights of appeal to another administrative body, the Competition Commission, whose decisions may in turn be challenged in the courts. I interpret the 2006 reforms in Australia to be an aspect of regulatory design aimed at mitigating the under-investment problem, based on a modestly greater degree of reliance on *ex ante* constraints on price-setting discretion, and a modestly[2] lesser degree of reliance on *ex post* constraints on such discretion than, say, in the UK procedures.

Finally, public ownership itself can be seen as a response to the underlying issue (although in practice such ownership it is likely to be motivated by a range of other factors as well). Thus, for example, if a political system cannot find ways of providing credible guarantees to private investors, it may seek to provide the relevant services itself and to finance investment from taxation or general government borrowing.

Variety in institutional responses to a common problem cannot, and should not, be taken as a sign of policy failures. Economic issues do not present as single spies, but as battalions, and contexts can differ in many of the details that can influence the effectiveness of different responses, even among jurisdictions that share common political and legal traditions.[3] Indeed, institutional diversity, including in disequilibrium (when institutions are not very well adapted to the relevant socio-economic-political environment), is potentially beneficial. It is a necessary accompaniment to experimentation and discovery in times of change. As in statistics, without variation in underlying observations, it is difficult to learn.

These observations lead to a first, general conclusion of relevance when the AEMC is assessing submissions. The fact that Australian arrangements are different from those in the UK and US, for example because they afford a lesser degree of discretion to the regulator, is not, by and of itself, indicative of a potential problem. The Australian arrangements may simply be a better adaptation to Australian conditions, or they may be superior in the sense of representing the discovery of a better way forward – unbundled rule-making, and greater reliance on *ex ante* (rather than *ex post*) checks and balances on

[2] There is no doubt that there are differences, but my own view is that their extent can easily be exaggerated. Common problems can lead to a degree of convergence in practice that may not be obvious on the face of the relevant legislation.

[3] See Elinor Olstrom, *Understanding Institutional Diversity*, Princeton University Press, 2005.

regulatory discretion – in what is always an uncertain policy making process. Put another way, an observation of difference does not itself constitute *diagnostic* evidence, the gold dust of effective assessment.[4]

Public ownership

One of the ways in which the Australian context differs from, say, the UK is in the prevalence of public ownership of electricity networks. As Chris Decker and I have had reason to confirm relatively recently, in the course of conducting a fascinating 'micro' study of regulation on the island of Guernsey[5], the existence of public ownership can have major implications for the conduct of delegated regulation by specialist regulatory bodies (in the case of Guernsey, the Office of Utility Regulation).

On Guernsey, what might be classified as a version of the standard UK regulatory design worked reasonably well for the privately owned telecoms sector, but exhibited significant weaknesses (judged by the criterion of long-term consumer interests) in the publicly owned postal and electricity sectors (gas on the island is supplied by a private company and is deregulated, and the sector therefore did not comprise part of the study). This outcome is hardly surprising in that (a) the standard regulatory design was developed to address privately owned monopolies and (b) the incentive effects of any given regulatory approach to price setting – such as Beesley-Littlechild indexed price capping (RPI/CPI-X) – will be influenced by the governance arrangements for public utilities, and in particular by the effects of those arrangements on incentives.

The second of these points is the more important one in the current context, since it is an example of a much more general point: the incentives faced by decision makers in utilities are *jointly* determined by a range of factors, of which regulatory price determinations are just one sub-set. Thus, the effects of any significant change in the market rules can be expected to depend, *inter alia*, not only on their immediate implications for the AER, but also on how the market rules inter-act with governance arrangements for public utilities. The effects of changes in market rules cannot therefore be properly be assessed without giving some attention to public utility governance arrangements, and to the relevant interactions with regulatory arrangements. In practice, once some parts of a sector have been privatised, public utility managements in mixed-ownerships systems come to be supervised via two different *public sector* processes – the general regulatory process and (most usually) relationships with a sponsoring government department – and can therefore be vulnerable to the effects of intra-government conflicts and inconsistencies.[6]

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[4] See Decker and Yarrow, "On the discovery and assessment of economic evidence in competition law", *Studies in Regulation,* NS 1.1, Regulatory Policy Institute, 2011, available at www.rpieurope.org

[5] *Review of Guernsey's Utility Regulatory Regime*, States of Guernsey, 2010.

[6] I have quoted it many times, but will do so again here: when Sir Peter Parker became Chairman of British Rail (then a public corporation) he said of the appointment that it was the first time in his life that he had

In the Guernsey case, our own conclusions in relation to the (publicly owned) electricity sector was that there was need for greater clarity in the division of responsibilities between the various parts of government (Treasury, Commerce and Employment, Regulator), and that the Regulator was, in effect, exerting too much control over business conduct. That is, the standard UK design was leading to over-regulation of publicly owned (although not privately owned) enterprises. Our recommendations, in the event of rejection of the option of further privatisation, was for greater separation and unbundling of powers within government, which, if implemented, might be seen as a move in the direction of Australian arrangements (where the AEMC's functions as guardian of the rules are unbundled from those regulatory functions that sit with the AER).

The difficulty for the AEMC, of course, is that the same set of rules is applicable to regulation of both privately owned and publicly owned networks.[7] Thus, what might be most appropriate for private utilities will not necessarily be most appropriate for public utilities, and the end result will likely reflect compromise. As implied above, compromise and approximation are invariable features of regulation, and it desirable to acknowledge this explicitly, if only to mitigate a possible temptation to 'tilt at windmills' (i.e. pursue impossible 'optimal' or 'ideal' arrangements). However, if intra-governmental processes are badly aligned, compromise arrangements may simply contribute to a wider muddle.

I end this detour on public ownership by noting that, when a regulator has discretion to set prices for a publicly owned enterprise, the determination necessarily has implications for the distribution of the burden of financing utility expenditures between consumers and taxpayers in the relevant jurisdiction, and hence for that jurisdiction's fiscal stance. This is potentially a major source of conflict between the agents for the ownership and the agents for the regulatory functions of government, and emphasises the importance of not assessing the consequences of rule change within an overly narrow framework.[8]

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taken on a job where it was impossible to fathom out the criteria by which his success or failure in the post would be judged.

[7] It might be possible that there could be some differentiation as between types of ownership in the ways that rules are developed and applied (and the WACC proposals contemplate this in relation to debt), but the extent to which this can be done may be highly constrained by the practical difficulties of establishing that any differences are not discriminatory.

[8] This 'who pays' question (customers or taxpayers) was a problem in the UK in rail regulation, even when the network infrastructure was privately owned, because the ability of train operators to pay regulated access rates was dependent upon public subsidies. Other things equal, higher access charges implied higher subsidies and hence either higher taxes or higher government borrowing. When (privately owned) Railtrack collapsed, the government declined to allow the Rail Regulator (Tom Winsor) discretion to set higher access charges, which would have generated more revenue and arguably kept Railtrack solvent. Winsor reports that, in a subsequent discussion with Robin Cook, Leader of the House of Commons at the time, he was told *"Tom, in the 17th century Parliament fought a bloody civil war to gain control of public expenditure, and we were not about to give it up to you."* See Tom Winsor, *"Effective Regulatory Institutions: the Regulator's Role in the Policy Process, Including Issues of Regulatory Independence"*, Discussion Paper 2010-21, Joint Transport Research Centre, OECD and International Transport Forum, 2010.

Cost efficiency

All regulatory designs tend to have problems in promoting cost efficiency (and unregulated monopoly also leads to limited incentives to reduce the costs of sustaining given levels of economic activity – whether of an operational or capital nature – since it lacks the existential threats that are faced by suppliers in competitive markets, which arise from the fact that failure to keep costs down, innovate, etc. may be fatal in circumstances where one or more rivals are doing those things).

In relation to opex, RPI/CPI-X is widely regarded as best general approach available, at least for privately owned network companies and at least when regulatory interventions are kept relatively simple and broad; and it is relevant in the context of current issues to note that the chief argument for the approach is that, because the allowed price path is *pre-determined* for a period (i.e. cannot be influenced by the actions of management), the (privately-owned) regulated firm has incentives to reduce costs, because any reductions achieved will go straight into the bottom line for a period. That is, it is *not* central to this (cost-reduction) incentives argument that the price path be set on the basis of projections of fully efficient costs[9], although clearly, if the price path is set higher than such projections would suggest, the effect would have adverse implications for consumers within the period for which the prices are determined.[10]

I make this point because it may be highly relevant to understanding what it is that the AER is arguing, which might be that:

- Current arrangements lead to inefficiently high costs, and hence to excessive prices, or
- Current arrangements do not lead to cost inefficiency, but they do lead to insufficient sharing of the benefits of lower costs with consumers (i.e. prices are higher than they should be), or

- Both of the above.

I suspect it is the last of these, although it can be noted that, so far as I have been able to determine thus far, the general argumentation about the AER's inability to determine cost forecasts is much more geared to the second bullet point than to the first (for the reason just given: determining a higher cost forecast, and hence higher allowable prices, does not eliminate the incentives for cost efficiency).

[9] The argument referred to is based on fairly standard, textbook economics. Proponents of loss aversion theories might say that things are not, in practice, symmetric and that incentives to reduce costs are themselves affected by the *level* of a price cap.

[10] The usual argument is that, if prices are discovered to lie significantly above costs, downward adjustments can be made in the next price review period.

The qualification concerning private ownership is of some importance in all this, and should be noted. There is some commonality between the Decker & Yarrow findings in Guernsey and the Littlechild & Mountain findings in relation to electricity networks in Australia. In both cases, the evidence suggested that the regulatory arrangements (different in the two jurisdictions) were found to work better for privately owned utilities than for publicly owned utilities. As noted above, I think that this observation can be generalised to other economic sectors in the UK.

If there is a common finding here, however, it is also important to note that it is common to different approaches to regulation. More specifically, in Guernsey and the UK the regulatory approach is based on the delegation of considerable *ex ante* discretion to the regulator, with very little prescription, which is, of the course, the direction in which the AER's proposed rule change would take Australia. The commonality in effects in the different regulatory context points, I think, to the importance of distinguishing in assessments between:

- Identifying that there may be a problem in the performance of a specific combination of governance arrangements (delegated price regulation of publicly owned utilities), and
- Identifying particular sub-elements of the arrangements that, if changed, might be expected to lead to a significant improvement in performance.

Thus, the Littlechild & Mountain evidence appears to have much more relevance (i.e. more diagnostic power) in relation to the question "Would things be better if state-owned utilities were privatised?" than to the question "Given the existence of a pattern of mixed ownership, which of two sets of regulatory rules is likely to prove the better?"

The underlying problem of inference is akin to the general 'Quine problem' in the social sciences.[11] Theories are constructed from a set of assumptions, propositions and sub-hypotheses (just as utility company incentives are built up from sets of rules and governance arrangements), and, while these can be tested as a set (just as the effects of the combined governance arrangements can be observed), if the theory fails to fit the evidence in some way or another (performance is deficient), that in itself tells us very little about how to go about building a better theory (identifying a better set of rules and governance arrangements). A change in some or other component of the theory/rules *might* do the trick, but then again it might make the failure worse. The general evidence will typically be inadequate to reach a conclusion.

In short, finer diagnostics are required to assess the implications of changing sub-sets of regulatory arrangements in circumstances where economic incentives are determined by a wider set of factors.

[11] See Decker and Yarrow, *op cit.*

Rate shock, its mitigation and the politicisation of regulation

Empirically, the under-investment problem arising from the potential for regulatory opportunism has tended to have been at its most intense in periods of rate-shock, when underlying, upward cost pressures are strong. It is in such periods that rate-setting tends to become more politicised, because of the impacts of rate shock on income distribution, and when the independence of regulators, entrusted with what are intended to be largely technical tasks, tends to come under most threat.

Notwithstanding the legal protections against expropriation of capital, US regulation has been far from immune from the problem[12], and indeed the classic case studies of the tendency are focused on US electricity regulation in the 1970s and early 1980s.[13] Energy regulation in the UK today has also been significantly re-politicised, although it may be important to note that this has taken a rather different form from the interventions that were most typical in the past.

More specifically, in the 'blame game' that now often passes for regulatory discourse in the UK, it has been the *retailing* and *generating* activities of the major energy companies that have been the target of political and regulatory finger pointing. The network activities – transmission and distribution – have, for a variety of reasons, tended to be only mildly affected. Among these reasons is that investment in new infrastructure is seen by those most enthusiastic about the climate change mitigation agenda to be a Very Good Thing, and consequently some political, regulatory and media criticisms of performance have been to the effect that companies have been *too slow* to raise their capital expenditures in the face of the new challenges.[14]

The bottom line here is that re-politicisation of the sector in the UK is manifested in the fact that today, the principal considerations in making investments in power *generation* are political, and that it is in *generation* costs, rather than in distribution and transmission costs, that the unravelling of the UK system of electricity regulation is having its most adverse consequences.

Pulling these points together, I would say that a big question for the AEMC is whether the major aspects of the current proposals would, as argued by their proponents, be an appropriate response to identified problems arising from inadequate regulatory discretion, or whether, in contrast, they would likely lead to the implementation of inappropriate forms

[12] As the fictional Mr Dooley put it, analysing matters from his Chicago South Side pub, "No matther whether th' constitution follows h' flag or not, th' Supreme Coort follows th' election returns", F.P. Dunne, 1901.

[13] For a brief overview, see R.R. Geddes, "A Historical Perspective on Electric Utility Regulation", *Regulation*, Winter 1992.

[14] Although the evidence to back up this criticism is weak: capital expenditures have been increasing significantly, and the major delays in projects that have occurred are correlated with difficulties in obtaining governmental planning permissions for the necessary works.

of rate-shock mitigation. This reduces to the question of whether a convincing case has or has not been made out that there is a *causal link* between the rule changes proposed and expected increases in economic performance, as judged using the relevant criteria that the AEMC must apply.

Has the AER clearly identified major problems that require to be addressed?

Opex and capex forecasts

My initial response to this question is: not on the basis of any evidence produced to date, though the negative judgment here is heavily governed by the words 'clearly' and 'major'.

That there is a general problem of increasing electricity prices, and that increases in transmission and distribution costs are major contributors to price hikes, appears to be beyond contention. That, however, takes us very little along the way to answering the question of whether a material contribution to price increases is reasonably attributable to those aspects of the rules identified by the AER as warranting change. The AER's submission asserts a relationship between the relevant subset of rules, but nowhere actually provides evidence or convincing reasoning in support of the assertion.

Thus, it is stated that *"While it is difficult to quantify the extent to which price rises have exceeded efficient levels, inflated forecasts have been a factor in the price rises faced by consumers."* Without disagreeing about the difficulties of quantification or the necessity of approximation, this is exactly the sort of technical task for which specialist regulatory agencies were developed; and it is difficult to see how the conclusion in the second part of the sentence can be reached without some good faith attempt to establish whether, relative to the proposed alternatives, the rules can be expected to have had a *material*, upward effect on prices. On this basis, I would have expected to have found, at least in the supporting documentation, just such a technical cost/price attribution analysis (and not simply a legal opinion).

By way of further example of the difficulties with the arguments as they presently stand, consider the argument that the current 'propose-respond' process precludes the AER from substituting 'impartial' forecasts of costs for what are claimed to be the biased forecasts of costs that are submitted by the companies. This argument begs a fundamental question. As discussed above, the working presumption in the relevant economics[15] is that a regulator with unconstrained discretion to set price controls will be tempted to opportunism, and that the temptation will be particularly great in circumstances of rate-shock. That is, at bottom, there is an underinvestment problem associated with the regulation of private monopoly.

[15] Many economists would probably not share this presumption, and the AEMC might note that the word 'relevant' excludes what Ronald Coase has called 'blackboard economics'. As Coase pointed out, the issue is not that this economics is wrong (it is usually logically consistent) but rather that it is irrelevant, because it assumes that policy makers have knowledge and powers that they cannot possibly have.

On this basis, it would be irrational for capital markets to believe that regulatory decisions will always be 'impartial'; particularly in periods of sharply rising costs. Put another way, regulatory discretion comes with biases of its own.

Suppose for the moment that allowing companies powers of proposal (the 'first move') does introduce a bias or tilt into the price determination process. Removing such a bias will not necessarily lead to improved outcomes in the presence of other biases, most obviously when the bias to be removed was specifically constructed to counteract and offset another, major potential bias (as my reading of the history suggests may have been the case in 2006, although I hasten to add that this is not a matter that I have explored in depth).

What I think the AER would need to demonstrate, to substantiate its argument, is to show that taking account of the realities of regulatory practice – and not, therefore, relying on an implicit assumption that a regulator to be afforded more discretion is sufficiently above the fray, sufficiently uninterested in what the media might be saying about its decisions, etc. that it will make 'impartial' decisions – there are convincing reasons for thinking that its proposals in relation to the determination of opex and capex forecasts can indeed be expected to lead to better outcomes.

The evidence cited by the EURCC, relying on the work of Mountain, comes closer to the type of analysis required than does the AER's own submission. However, this evidence leads to something of a puzzle. The substantially increased costs that are identified appear to relate to publicly owned networks, but, if the AER arguments are correct, and the aspects of the 2006 rules that it is proposed should be changed have had a materially negative effect on the ability of the regulator to do its job, then it should be possible to identify material, adverse effects on performance of privately owned utilities in Victoria (which are subject to the same rules). At the moment, such evidence seems to be lacking, and, in its absence, it seems to me to be difficult to attribute any performance changes that have occurred amongst publicly owned networks to the relevant rules.

Thus, whilst Mountain's later work certainly gives grounds for concern about the possible effects on performance of the totality of current regulatory arrangements, taken in conjunction with the totality of public utility governance arrangements, much more specificity in the identification of causal links is required, even to begin start to pin down the elements of the wider system of relationships that might usefully be considered to be candidates for reform.

I think that there is a general sense of vagueness in many of the arguments, of a type that is more typically associated with political discourse than best practice regulation (which tends to be more technical and precise). In relation to capital costs for example, it can be asked: if there is a tendency for networks to over-forecast, why do a number of utilities then tend to over-spend relative to such inflated forecasts? (I note that this is a point raised in the

joint experts' report submitted by the networks association, and I think it is a question worth asking.)

More fundamentally, what does the AER believe the main aspects of over-forecasting to be, and why? Is it that utilities simply take on too many projects, or that they over-engineer projects? Or is it that utilities undertake the wrong projects? Or then again, is it just that whatever they do, they do it at a higher cost than necessary? None of this is very clear.

At this point I also note the tension between (a) the fact that, when considering the impact of the 2006 rules on electricity prices, the AER baulks at any quantification, even very rough quantification, and (b) the implicit claim to be able to identify an impartial forecast for utility costs which is convincingly, rather than arbitrarily, different from a utility's own proposal.

These evidential points are not eased by the presentation of compelling, 'in principle' arguments for change, even in relation to the regulation of publicly owned utilities (although I think the position in relation to 'in principle' arguments is different in the context of capex incentives – see below). The best available evidence draws particular attention to the performance changes of publicly owned utilities over the past few years. It may, therefore, be worth the AEMC considering some of the 'in principle' arguments surrounding public ownership more generally.

For example, it is widely recognised that public ownership can be highly inefficient. On the other hand, there are examples in the empirical literature of very good performance by publicly owned utilities, and consequently one of the arguments that has developed from this work on comparative performance is that empirical observations of higher average performance under private ownership may, in large part, reflect the characteristic of public companies that they do not face solvency constraints that are anywhere near as tight as those faced by private companies. That is, the normal 'selection' mechanisms of bankruptcy or takeover consequent on deteriorating performance are absent, and the result is a tail of poorly performing entities which nevertheless survive when, if they had been privately owned, would not have survived. The 'red ink' in the tail can be copious, and can have significant effects on average performance, even when the number of entities in the tail is relatively modest.

I mention these points because one way of looking at the propose-respond mechanism is that, recognising the validity of the argument that it is pointless to expend significant resources in seeking to be *exactly* right when making forecasts of future costs (because exactness cannot be determined *ex ante*) and that impartiality is hard to attain in practice, it nevertheless provides a capability to eliminate obviously excessive forecasts; and, in this respect, it mimics one of the properties of a competitive process. Thus, even in competitive markets, firms with differing levels of efficiency may survive for quite long periods (see, for example, inter-company variations in Tobin q statistics, and their persistence over time),

whereas firms whose performance is *very* sub-standard will be driven to exit relatively quickly.

Here then is another puzzle. If utilities, and particularly publicly owned utilities, have made ambit forecasts – for example, on the kind of scale that might (rightly or wrongly) be inferred from a *prima facie* inspection of Mountain's numbers, why did the AER not simply reject such forecasts? *Prima facie*, the lack of action in the face of allegedly ambit forecasts would, if the allegation of over-forecasting is correct, point more toward a failure to enforce existing rules, than to a failure of those rules themselves.

Finally in relation to the propose/respond aspects of current arrangements, I note that recent Ofgem decisions indicate a shift in Britain *toward* giving companies more influence at the first stage of the cost evaluations, which can be interpreted as a small step toward the philosophy embodied in the NEM rules. This is most obvious in the 'proportionality' aspect of the RIIO reforms (see the RIIO[16] Final Decisions Document, October 2010), which calls for less intensive regulatory supervision of business plans that are judged to be well formulated and that meet certain criteria in relation to matters such as customer engagement. This leaves the 'first move' with the regulated companies, and encourages the companies to seek to induce less challenge from the regulator by submitting well thought through plans (i.e. establishes an incentive structure with at least some similarities to that of a propose/respond system).

Slightly less obviously, the IQI (Information Quality Incentive) capex arrangements allow companies whose views on capex requirements differ substantially from the views taken by Ofgem (on the basis of advice from appointed consultants) to proceed on the basis of allowances higher than those in the Ofgem projections, but at the cost of damped, benefit sharing incentives around a slightly less favourable 'zero point'. The scheme is designed to inhibit ambit forecasts as well as excessive capital spending. Again, the point of relevance here is not that these arrangements provide anything like a full solution to the underlying problems, but rather that, compared with what went before, they leave a little more of the initiative and influence in developing cost forecasts with the companies. *Capex incentives*

On the basis of the evidence as it currently appears from the submissions (and it may, of course, develop as the assessment proceeds), I think that the AER has a significantly stronger case when it argues that there is a problem surrounding capex incentives, than when arguing that the propose-respond mechanism is problematic. One reason for this is that capex incentive weaknesses may be more likely to show up in differences in

[16] RIIO stands for 'Revenue = Incentives + Innovation + outputs', and is an example of a poor use of metaphor in the 'marketing' of regulation.

performance between privately owned and publicly owned utilities, of the sort set out by Mountain (and earlier by Littlechild and Mountain).[17]

A private utility might be expected to argue for a generous forecast of capital expenditure requirements in order to induce higher regulated prices, but once those prices are set it has obvious incentives to keep costs down, including capital costs. The typical pattern in basic RPI-X regulation, therefore, is for over-ambitious forecasts to be followed by lower expenditures than forecast. This, for example, is what was observed in earlier stages of British electricity regulation, and the pattern was one of the motivations for the subsequent development of more sophisticated capex arrangements (not so much because of any cost or investment inefficiencies that resulted, but rather simply because, as a result of inflated forecasts, consumers ended up paying more than they should have over the relevant price control period). I note in passing that this outcome occurred in arrangements in which the capex forecasts were made by the regulator, not by the companies, which again indicates the lack of any clear empirical link between the problem and the propose-respond mechanism (relative to alternatives, such as leaving matters to the discretion of the regulator).

I am not familiar with the detail of the governance arrangements surrounding public owned networks in Australia, but the general tendency in publicly owned companies is that incentives for capital cost reduction are weaker than under private ownership. Whilst this may reduce the incentives to over-forecast (since the benefits of subsequently beating the forecast are smaller), it may also lead to higher-than-efficient, planned expenditure. The differentials in performance noted by the EURCC between private and publicly owned utilities might on this basis be interpreted as exhibiting a classic pattern, although even here there are at least two qualifications:

- Differences in ownership might be expected to be correlated with differences in *levels* of performance (which appears to be observed), but not necessarily with *changes in levels* of performance (which also appears to be observed, and upon which most of the argumentation for rule change is based). Thus, public enterprises may have softer budget constraints than private enterprises, but changes over time in the 'degree of softness' need specific explanation.

- The cost causation analysis (i.e. the attribution of cost/prices to causal factors) to date is relatively crude, and there is much more to be done. This is the kind of exercise that should be meat and drink in a well functioning regulatory system – as stated above, it is the kind of technical analysis for which delegated regulation was created – but, from observation, it is also often the kind of analysis that regulatory agencies tend to avoid, or tackle in more cursory ways, when the drivers for the

[17] For example, international benchmarking of pre-privatization electricity generating costs in Britain indicated that relative (to comparators) capital costs were significantly higher than relative operational costs.

relevant exercise become more political in nature. Needless to say, I would advise the AEMC to encourage the former approach, and to discourage the latter. There is more to be discovered on these matters.

Although the puzzles in the available evidence, and the lack of detail in available attribution analysis, imply that there is more to be done in investigating the evidence, the AER case on the existence of capex incentive problems is reinforced by some rather general economic reasoning. In particular, the existing rules appear to leave a 'supervision gap' in relation to capex above the forecast levels that determine prices in the relevant pricing period.[18]

Regulatory supervision of capex tends to be based on either an *ex ante* or an *ex post* assessment, or some mixture of the two. The US has leaned a little more toward *ex post* supervision than the UK, relying more, for example, on prudency tests and on backward looking assessments at the time of rate hearings. The approach in the UK has been to engage in very detailed assessment of *prospective* capital programmes, and, although the regulatory arrangements allow the regulator also to look back to past performance as part of this exercise, and although they also allow for possible disallowances of expenditure (i.e. exclusions from the RAB), Ofgem has been very reluctant in practice to make any disallowances (which I believe has been a wise use of discretion).

Five points might be noted at this point:

- *Ex post* adjustments are not completely ruled out in the UK system.
- They *have* been made in practice, but only as an exceptional measure. The only significant example that I know of was a disallowance of capital expenditure by National on the gas transmission network (Ofgem's Final Proposals, December 2006).
- That disallowance was very modest relative to the total scale of the capex programme that was under assessment in the relevant capital control. The position is well summarised in Ofgem's final proposals document:

  2.11. The outcome of our review of historical capital expenditure is that we have allowed some £3.4 billion of expenditure to enter the RAV in respect of the period up to and including 2005/06. This amount includes £321 million of overspend incurred by NGET and some £126 million of capital expenditure for NGG in respect of a new gas pipeline and major network reinforecement to connect a Liquified Natural Gas (LNG) terminal at Milford Haven.

[18] Although I also note that there are some incentives to avoid capex above forecast levels arising from lags in the inclusion of such expenditures in the regulatory asset base. It seems to be generally agreed that these incentives are variably and arbitrarily linked to the timing of investment, and that there is scope for improvements here.

2.12. Our Final Proposals for NGG exclude £19 million of some £75 million expenditure relating to the delivery of baseline capacity at St Fergus where we believe that NGG has not provided adequate justification for this investment in the light of indications of demand for capacity arising from the long term entry auctions. We considered whether this expenditure should be excluded in its entirety but have concluded that, since this project was initiated in the early days of the new entry regime when the potential implications of operating under an auction regime may have been uncertain, it would be inappropriate to do so.

- The gas transmission disallowance was made in the context of a new capex incentive scheme (based on capacity auctions) which allowed the network operator the opportunity to make returns on new investment that were significantly in excess of its cost of capital. In other words, the *ex post* adjustment was made in the context of a 'balanced' incentive structure that had an upside, as well as a downside, for the company.

- Whilst much larger *ex post* disallowances have been made in the USA, it can be noted that the largest numbers were associated with nuclear generating plant. Lyon and Mayo (Rand Journal, 2005) estimated that, of the $19bn prudency-related rate recovery disallowances they calculated for generating plant in the US in the 1981-1991 period, over 95% was related to nuclear plant construction delays and cost over-runs.[19]

The Australian approach is close to the UK approach, but does not feature the residual element of *ex post* incentives (arising from the risk that imprudent investment will be partly disallowed). Since what is evaluated is the *forecast* capex programme, it is a feature of current arrangements in Australia that *actual* expenditure in excess of the forecasts is not subject to any regulatory supervision at all.

It is difficult to see any obvious rationale for this outcome (although, as stated earlier, I have not looked in great detail at the discussions and arguments surrounding the 2006 reforms, and the issue may have been explicitly covered – for example, it might have been decided that the effect was not likely to be sufficiently material to worry about); and, in the absence of such a rationale, there would appear to be a clear case for closing the gap. This could be done, for example, via the introduction of more formalised capex incentive arrangements.

Taking these points in conjunction with the performance evidence, I would, on a provisional basis, say that the AER is probably over the line (i.e. has done enough) in establishing a capex incentives problem, although the AEMC will no doubt want to explore matters further before reaching its own provisional conclusions.

[19] Although it can be noted (a) that there were also some significant disallowances on fossil-fuel and hydro plants, and (b) these figures are based on prudency assessments only, and do not include disallowances arising from application of 'used and useful' tests.

Prescription and discretion

In some respects, I think expressing the arguments in terms of giving more discretion to the AER is possibly a red herring. All 'discretionary' regulatory activity is subject to scrutiny and supervision (whether by courts, tribunals or by other administrative agencies), and the greater the discretion at the decision stage the greater tends to be the *ex post* supervision (by courts, tribunals, etc.). All regulators tend to welcome more freedom (i.e. power over the market) to make their own decisions (i.e. exert market power), just as all company executives do; but well functioning economic and political systems will tend toward establishment of appropriate checks and balances (e.g. judicial supervision, competitive markets).

If what is being questioned is the Australian approach to rule-making, my view is that the appropriate question to ask is whether the current arrangements are an obviously inefficient way of supervising the decision making of a regulator?

The arguments for unbundled rule-making, with its prescriptive and constraining effects on the use of regulatory discretion, potentially include greater stability and lower levels of *ex post* judicial supervision (and I note that the latter can be very resource intensive in situations where new law is being developed). This is often expressed as greater regulatory certainty, which I would define as a situation in which regulatory decisions are contingently (or conditionally) predicable. That is, knowing the relevant economic circumstances, the decisions of the regulator can be predicted with reasonable accuracy. (Note that this is different from regulatory inertia or from unconditional predictability of regulatory decisions, which is necessarily severely limited by the factors that limit all unconditional forecasting of the future.)

The argument against prescription is usually centred on potential loss of flexibility in responding to new circumstances. Other things equal, this would be a powerful argument; but in practice other things are usually not equal. If the rules are a partial (*ex ante)* substitute for (*ex post)* judicial supervision of regulatory decisions, then a rebalancing away from prescription will likely 'crowd in' greater judicial supervision. The point I would make is that legal processes can become slow and cumbersome, and it is not immediately obvious that any such rebalancing would necessarily lead to an increase in the flexibility and adaptability of the system as a whole. At a minimum, this is an issue that needs to be addressed.

My initial advice on the point is that, when considering any rebalancing arguments (between prescription and discretion), the AEMC cannot safely assume that other things will be equal. Rebalancing might give rise to adaptation in other parts of the legal and political framework, the effects of which should be factored in to any assessment exercise.

AER's use of its existing discretion

I note from the submissions that the AER's arguments concerning the limits on its powers – for example, in relation to the substitution of its own cost forecasts for those of the companies, the development of capex incentives, the use of benchmarking, etc. – have been strongly contested. Although this may ultimately be a legal issue concerning the proper interpretation of the rules, my general impression is that the AER's arguments are relatively thin, and that the objections to them are substantive.

By way of example, consider the issue of benchmarking. The evidence indicates that the AER has and does adopt benchmarking approaches, so the argument must be that the regulator would like to make greater use of the approach but is precluded from doing so by sections of the rules that indicate that assessments need to be made which reflect the *actual* circumstances of the regulated firm.

I cannot, however, see how any regulator could not be focused, in a particular decision, on the particular, specific context of that decision (the *particular circumstances*). Academics may be free to solve abstract problems; regulators are not.

This does not mean that information from benchmarking cannot be used. In fact, benchmarking information has value only insofar as it contains information relevant to an assessment of performance in particular circumstances: the greater its implications for assessment of the particular circumstances, the greater its value for the *specific* purpose at hand. Benchmarks that are uninformative for the assessment of the performance of a particular utility, in its own particular context, are, in fact, valueless, and should not be used, even when the regulator has discretion to use them. It is therefore not clear to me that, even on a relative narrow interpretation, the rules do anything other than preclude uninformative benchmarking.

If, however, it is concluded that the existing rules do *overly*-constrain the AER's use of benchmarking, the appropriate remedy is to remove the relevant restrictions. I do not think a case has been established to go further than this, for example by mandating certain types of benchmarking. The assessment of relevant information in a given case is a technical exercise, and it would likely prove difficult to provide sensible guidelines, in a set of general rules, on the relative weights to be given to the different pieces of information that might be available (and see footnote 1).

A similar point can be made about capex incentives. The ENA joint experts report makes the good point that there can be different ways of developing incentive arrangements that end up having the same or similar economic effects, and use that point to argue that much can be achieved under the provisions for benefit sharing arrangements in the current rules. As stated earlier, this type of issue may ultimately be a matter for legal determination, but, in

terms of the economics, the flexibility encompassed by the notion of benefit sharing is, in my view, substantial. It would appear that the AER could have done rather more than it has done to date in terms of developing incentive arrangements; and, to the extent that the rules do not allow for benefit sharing schemes in relation to some activities, that anomaly could be corrected by rule change that eased the restrictions.

Most obviously in terms of things not done, if there have been cost forecasting problems on the scale claimed in some of the submissions, the AER could manifestly have done more, under the existing arrangements, to challenge company forecasts.

I suspect that the AER has been under some media and political criticism for its actions to date, and would speculate, from my own experience of how regulatory systems operate, that an 'our hands are tied' argument appears to have some attractions. However, maintenance of such a position in the absence of evidence of material effects carries risks all round. On the one hand, responsive rule change may create expectations that the AER would not, in the event, be able legitimately to meet. On the other hand, maintenance of the position in the absence of rule change could lead to over-passive regulation. The most famous case in the UK exhibiting this latter phenomenon is *Albion Water*, concerning access arrangements in the water sector in England and Wales. Ofwat, the water regulator (which I occasionally advise), has consistently claimed that its hands were tied by legislation in the way that it had to take account of costs in its determination, despite external legal opinion to the contrary, including from the appellate body, the Competition Appeal Tribunal; and the regulator has held out for primary legislation to make the position clearer. The result has been the most disproportionate legal case in modern UK competition law; the legal costs have been many, many times higher than the value of output at issue.

Are there preferable solutions/remedies/responses?

Since I don't think that the AER establishes the existence of a problem in relation to cost forecasting, the question is moot in that case.

In relation to capex incentives, my view is that the answer is a definite 'yes'. The AER proposal to introduce a rule that would disallow 40% of any capex in excess of forecast is crude, arbitrary and is the sort of precise 'parameterization' of an incentive scheme that should have no place in the rules (there may be a case for bounding parameter values in rules, but specifying a particular value, here 40%, goes way too far). As has been pointed out in submissions, such a rule would exacerbate the information-revelation problem in relation to forecasting (there would be higher incremental payoffs from upward bias in forecasts), and it is easy to construct credible scenarios where it would discourage efficient investment. In some circumstances the rule would amount to expropriation of capital, and I would expect the courts to be busy.

A similar case can be made against the proposed, automatic disallowances of third party margins on capex above forecast levels, although in this case there is potentially a more substantive argument for the existence of policy concerns, arising from the fact that cost attributions across regulated/unregulated activities boundaries tend to be a persistent source of regulatory problems (companies tend to have incentives to load costs on to regulated activities in order to induce higher allowed prices/revenues). Again, however, I think it would be better to address the issue via a more general development of capex arrangements, which could consider and 'balance' incentive effects on a wider basis, than by writing very specific disallowances into the rules – a rigid and piecemeal approach that seems to me to greatly increase the risk of unintended consequences.

On the basis of the submissions, there appears to be relatively wide agreement that there is scope for further development of such capex incentive schemes, and this again is the kind of technical matter that should be a normal task for regulators. Ofgem has been a pioneer in this area and, as its experience indicates, the tasks are not easy. GB schemes have gone through several iterations, as more has been learned. The issues are complicated, and I will not rehearse them in this overview paper. Suffice to say that the continuous process of development indicates why such incentive arrangements should not be hard wired into the rules. They are better negotiated and, as Stephen Littlechild has advocated, such negotiations are not necessarily restricted to the regulator and the regulatees: there is scope for customer and consumer engagement.

Frequent change in incentive schemes is itself a potential problem in that, if simply mandated by the regulator, the effect can be uncertainty and instability in financial returns that undermines the very incentives that it is intended to create ("a constantly changing rule is no rule at all; it is just another name for arbitrariness"). This makes it important that the process works via bargaining, rather than by mandation. It can be noted, therefore, that the general direction of travel in the UK, toward the development of stronger incentives, has been accompanied by *reductions* in the degree of regulatory *control* over capex forecasts (the two things have gone together). This has been reflected, for example, in the use of menu regulation, the new fast tracking of convincing business plans (arguably a step toward the Australian approach to cost forecasting), and an increasing emphasis on customer/user inputs when assessing plans and forecasts.

In relation to the AEMC's current tasks, therefore, it seems to me that the emphasis can be quickly shifted away from the AER's capex incentive proposal toward the question of whether there are any aspects of the rules that tend to hinder the kind of development process described above.

Other issues

I am not sure there is much to be said at this stage on some of the smaller issues that have been raised, since much here depends on fine detail. For example, where assets are shared between regulated and non-regulated activities, there is a strong case for making an appropriate adjustment to costs or revenues for the regulated activities by, for example, adjusting the value of the asset in regulatory accounts to reflect the other use or deeming a transfer price for use of assets in unregulated activities (except where the effects are sufficiently small to justify neglect on grounds of administrative expediency). The detailed issues concern how the valuation estimates should be made, and what materiality thresholds to set).

In relation to the treatment of contingent projects, it can be noted that the underlying ideas have been used widely in the UK in seeking to promote capex efficiency, and not just in electricity. Thus, price controls in the energy sector refer to "income adjustment events" (IAEs); the Civil Aviation Authority makes use of capex "triggers" in its assessments; and water regulation has provisions for "notified items" (NIs). Interestingly, in a recent water charge determination[20] (on an appeal against an Ofwat determination), the Competition Commission gave warning about the over-enthusiastic adoption of NI's in the following terms:

> *6.19 We noted the role of an NI as a safety valve, so that a company can return to Ofwat if it turns out that its costs increase significantly for reasons beyond its control. This can reduce volatility in companies' profits by transferring risks to consumers, but this may be appropriate in certain circumstances. Our view of these circumstances is set out below.*
>
> *6.20 Accordingly, we were sympathetic to Ofwat's view that an NI was not appropriate to address a 'normal business risk', which we saw as a risk that could be managed by the company and was not an appropriate risk for customers to bear. We thought that NIs (and two-way NIs in particular) should be used sparingly.*
>
> *6.21 Our view was that a one-way NI is appropriate to deal with circumstances where:*
>
> *(a) Bristol Water's costs might increase significantly;*
> *(b) the costs would increase for reasons beyond the Bristol Water's reasonable control;*
> *(c) reasonable management action could not substantially mitigate the effect of any such increase;*
> *(d) there was a high degree of uncertainty about the resulting level of costs that the company would incur, or when they would occur; and*

[20] *Bristol Water*, August 2010.

(e) RPI did not adequately capture those costs.

The following points may be worth noting in the AEMC context:

- The Competition Commission's reasoning rests on a notion of the desirability of linking benefit sharing parameters to the 'controllability' of costs, which itself derives from propositions in principal-agent (incentives) theory in economics. The existence of such an accepted, general framework of thinking is a point made by the authors of the ENA's Joint Expert Report, who (in my view correctly) criticise the AER's 60/40 capex proposal as arbitrary.

- The Competition Commission's characterisation of circumstances in which NI's may be appropriate is not dissimilar to a set of criteria that could have been incorporated into *ex ante* rules. This illustrates my earlier point that, if a regulator's discretion is not bounded *ex ante*, it may come to be bounded *ex post*, through the appellate route.

- The particularising of 'two-way NIs' illustrates recognition that the risk of regulatory opportunism is ever present as an underlying problem. A one-way NI refers to events/items that can lead to a (partial) re-opening of a cost assessment at the discretion of the regulated company, whereas a two-way NI allows for re-opening of an assessment by either the firm or the regulator, so that, for example, the regulator can reduce cost forecasts, and hence allowed charges, in the defined circumstances. The effect of the particularisation is to imply that there should be a bias or tilt in the use of NIs, by implication (though not explicitly stated) to avoid the increase in opportunities to engage in regulatory opportunism that two-way NIs potentially introduce.

Finally, I have been asked to comment on the possibility of specifying 'outputs' in the rules; and my immediate response is that, whilst specification of outputs can be of great assistance in developing incentive structures for better performance, for reasons given above in relation to the determination of parameters for capex incentives, this is a matter best left to negotiation. I am sceptical, for example, about Ofgem's enthusiasm, in its RIIO reforms, for specifying very detailed lists of desirable outputs Not only does this lead to regulatory micro-management of regulated utilities – which is more or less the opposite of the original policy intention in the UK – but, more fundamentally, since outputs change significantly with circumstances, embedding them in rules implies constant rule change. And rules are supposed to bring stability, not instability.

If the AEMC does wish to consider this option, I would suggest that it (the option) be restricted to the consideration of outputs that are both well defined and likely to be stable enough over historical periods that constant rule change will not be necessary as market

conditions change. Whether such outputs exist, I don't know; but there can obviously be no objection to asking the question.

In (provisional) summary

The AER is not currently convincing on cost forecasting.

The AER is probably across the line on capex incentives, although more on the basis of *a priori* argumentation – above forecast capex is subject to neither *ex ante* nor *ex post* supervision – than on the basis of any evidence of economic effects.

The balance between prescription and discretion is more toward the former in Australia than in the UK and US, but there is nothing very solid to suggest that the current balance is inappropriate.

At first reading of submissions, there appears to be evidence that, at a minimum, if the identification of problems by the AER were correct, the regulator could have done significantly more, under the current rules, to mitigate them.

For the problem that is most convincingly established – weakness of capex incentives – there are possible responses that are clearly superior to the AER's proposal (and this is the aspect of these provisional views to which I would attach the highest degree of confidence).

To the extent to which there may be anomalies in the existing rules (e.g. inconsistencies as between distribution and transmission – e.g. in the treatment of depreciation in cost forecasting) or ambiguities in the limitations placed on AER discretion (e.g. in relation to the use of benchmarking information), there is a potentially useful clarification and tidying up exercise to be done, if only to reduce the probability of costly, *ex post* litigation.