
Appendix V – AA2 – Report On the ERA's Draft Decision by Professor George Yarrow and Dr Christopher Decker, 1 September 2009

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**REPORT ON THE ERA'S DRAFT DECISION ON
PROPOSED REVISIONS TO THE ACCESS ARRANGEMENT
FOR THE SOUTH WEST INTERCONNECTED NETWORK**

Professor George Yarrow and Dr Christopher Decker

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1. TERMS OF REFERENCE AND STRUCTURE OF THE OPINION

We have been asked to provide an independent expert opinion that addresses the following question:

Is the ERA's application of the NFIT provisions (sections 6.51A to 6.55 of the Electricity Networks Access Code 2004) and its reasoning for the proposed asset write down of 15 per cent:

(a) consistent with the Code objectives?

(b) consistent with good regulatory principles and practice, including having regard to other regulatory decisions in comparable CPI-X or RPI-X regimes?

In responding to this request, we first set out our understanding of the relevant background and context. We then turn to assess the role of *ex post* disallowances, typically associated with *prudence reviews*, in regulatory principles and practice, including by reference to decisions in regulatory regimes that are comparable to that in Western Australia. Finally, on the basis of this material, we explicitly address the two questions asked.

Our qualifications are set out at the end of this report.

2. BACKGROUND AND CONTEXT

2.1 *The Code and its objectives*

We understand that the South West Interconnected Network (SWIN), which is owned and operated by Western Power, is regulated under the Electricity Networks Access Code 2004 (the Code) by the Economic Regulation Authority (ERA). The Code contains a New Facilities Investment Test (NFIT) which must be satisfied for new facilities investment to be added to the capital base (unless section 6.51A(b) of the Code is satisfied).

As stated in its Introduction, the Code establishes a framework for third party access to electricity transmission and distribution networks with the objective of promoting the economically efficient investment in, and operation and use of, networks and services of networks in Western Australia in order to promote competition in markets upstream and downstream of the networks.

2.2 *Forms of price control allowable under the Code*

Section 6.1 of the Code specifies that an access arrangement may contain any form of price control provided it meets the price control objectives set out in section 6.4. Among the objectives of section 6.4 is the requirement that the form of price control gives the service provider an opportunity to earn target revenue, and it includes provision for adjustments to the target revenue for: unforeseen events; technical rule changes; service standard adjustments; and finally, an amount that reflects any difference between the actual new facilities investment that occurred during the

access period and the forecast of new facilities investment made at the start of the access arrangement period (the so-called ‘investment adjustment mechanism’).

In our view, the general attributes required of the price control arrangement under the Code are not radically dissimilar to those to be found in other, comparable jurisdictions. Although textbook treatments of regulatory regimes sometimes draw a sharp distinction between rate-of-return/cost-of-service and CPI/RPI-X approaches to price control, in reality most regimes are hybrids, based on mixes of elements drawn from ‘idealised’ models (such as rate-of-return systems without regulatory lags or price-cap arrangements without regulatory reviews), adapted to address specific issues arising in the particular jurisdiction. As Armstrong, Cowan and Vickers¹ have put it, the differences “... are ones of degree rather than of a fundamental nature”.

By way of illustration of this general point, and as an indication that some close similarities are to be found at the level of fine detail, as well as more broadly, it can be noted that the UK regulatory arrangements for electricity transmission, which are generally regarded as a prime example of the CPI/RPI-X approach, currently encompass arrangements that automatically adjust allowed revenues, *within the price control period*, to remunerate certain types of investment that are demand driven (i.e. the UK arrangements currently include what might, in the terminology used in Western Australia, have been termed a form of ‘investment adjustment mechanism’).²

2.3 The NFIT provisions

The terms of reference refer explicitly to the New Facilities Investment Test (NFIT), which is set out at 6.51A to 6.55 of the Code, and which is required to be passed by capital expenditure associated with new facilities³ before it can be included in the capital base. The test applies:

- retrospectively, in relation to capital expenditure incurred from the start of the current access arrangement period to 30 June 2009; and
- prospectively, in relation to forecast capital expenditure expected to be incurred during the next access arrangement period (from 1 July 2009 to 30 June 2012).

Detailed aspects of the NFIT are set out at 6.52 of the Code:

“6.52 *New facilities investment* satisfies the *new facilities investment test* if:

¹ Armstrong, M., Cowan, S., and J. Vickers, *Regulatory Reform: Economic Analysis and British Experience*, MIT Press, 1994.

² See Ofgem, *Transmission Price Control Review: Final Proposals*, December 2006, where it is explained (at para 2.14) that: “*In the light of significant uncertainty regarding the level and timing of investment necessary to accommodate new loads, we have proposed adjustment mechanisms which flex revenues automatically as the transmission licensees respond to the needs of users. For the purposes of determining the fixed “baseline” revenue allowances for each licensee, we have therefore excluded those uncertain user-driven investments.*”

³ A new facility is defined as any capital asset developed, constructed or acquired to enable the service provider to provide covered services including assets required for the purpose of facilitating competition in retail markets for electricity, and new facilities investment as the capital costs incurred in developing, constructing and acquiring a new facility.

(a) the *new facilities investment* does not exceed the amount that would be invested by a *service provider efficiently minimising costs*, having regard, without limitation, to:

(i) whether the *new facility* exhibits economies of scale or scope and the increments in which capacity can be added; and

(ii) whether the lowest sustainable cost of providing the *covered services* forecast to be sold over a reasonable period may require the installation of a *new facility* with capacity sufficient to meet the forecast sales;

and

(b) one or more of the following conditions is satisfied:

(i) either:

A. the *anticipated incremental revenue* for the *new facility* is expected to at least recover the *new facilities investment*; or

B. if a *modified test* has been approved under section 6.53 and the *new facilities investment* is below the *test application threshold* – the *modified test* is satisfied;

or

(ii) the *new facility* provides a *net benefit* in the *covered network* over a reasonable period of time that justifies the approval of higher *reference tariffs*;

or

(iii) the *new facility* is necessary to maintain the safety or reliability of the *covered network* or its ability to provide contracted *covered services*.

Sections 6.13 to 6.18 of the Code outline the application of an ‘investment adjustment mechanism’ under the price control. These provisions specify how any gain or loss arising from differences between the *actual* costs of new facilities investment costs incurred and the *forecast* of those costs associated with new facilities investment made at the start of the access arrangement period should be treated. In terms of the scope of application of the ‘investment adjustment mechanism’ it is our understanding that under the first access arrangement, it only applied to particular categories of new facilities investment, which were broadly categorised as being ‘demand driven’ in nature.⁴

We understand that Western Power submitted its revenue and expenditure proposals for its second access arrangement period to the ERA in October 2008. Western Power's submission provided information that was intended to demonstrate that the

⁴ Paragraph 552 of Draft Decision

NFIT had been satisfied - both in relation to actual and forecast capital expenditure. Further information was submitted by Western Power to the ERA in June 2009.

2.4 The ERA's draft decision and the required amendment

The ERA engaged consultants Geoff Brown & Associates Ltd and Wilson Cook & Co to review Western Power's actual and forecast capital expenditure, including the application of the NFIT provisions. Public versions of those reports are annexed to the ERA's Draft Decision. The ERA published the Draft Decision on 16 July 2009. The Draft Decision proposes to write down a substantial amount of Western Power's actual capital expenditure in the first access arrangement period and specifies the following amendment:

Required Amendment 26

The proposed access arrangement revisions should be amended to reflect actual new facilities investment in the first access arrangement period reduced to:

- *exclude investment to the value of \$63.5 million (nominal) for the transmission network in 2008/09 that comprises an overstatement of costs for 2008/09;*
- *exclude investment to the value of \$65 million (nominal in 2007/08 dollar values) for the distribution network that comprises an amount of costs that is not appropriately considered as new facilities investment; and*
- *exclude a further amount of 15 per cent of the new facilities investment (other than that comprising gifted assets) to reflect likely inefficiencies in the undertaking of investment.*

It is the third element of this amendment, which applies to investment in the access period to June 2009, which we are asked to assess.

3. GENERAL PRINCIPLES OF PRUDENCY REVIEWS

3.1 Development in rate of return regimes

Prudency reviews evolved naturally as a feature of the practice of rate-of-return regulation as it developed in the USA, under which a utility, in the course of serving its customers, is/was in principle entitled to recover prudently incurred costs, including investment costs, and earn a fair return on its investments. In the rate of return system, an *ex post* review or audit of a utility's expenses and investments is normally done when the utility files for a rate increase with the relevant public utility commission (PUC).

Investments that are judged not to have been prudent are disallowed from the rate base that will be used to calculate recoverable capital costs, implying that they must

be borne by the shareholders/owners of the utility concerned, rather than recovered from its customers. In assessing prudence, it is a generally accepted principle that judgments should be based on the economic circumstances facing the utility at the time the relevant decisions were made, and not on the basis of hindsight.

3.2 *Lesser role in regimes with more significant ex ante incentives*

Prudency reviews tend to be less of a feature in regimes that place a greater emphasis on providing *ex ante* incentives for the achievement of operational and investment efficiencies. CPI/RPI-X regimes are usually of this type, although precise regulatory arrangements differ, and in reality there is a spectrum of alternatives rather than any sharp division between rate-of-return and CPI/RPI-X approaches. Different jurisdictions tend to develop their own variants of regulatory systems, taking account of ‘local’ contextual factors.

3.3 *The relevant standard in prudency reviews*

Although the precise role of *ex post* assessments tends to differ from jurisdiction to jurisdiction, there is much more international commonality in the relevant standard against which prudency should be assessed, particularly in relation to past investment decisions (see section 5 below).

The antonym of prudent is reckless, and the traditional language here provides clear indication of the relevant standard to be applied when considering whether past capital expenditure should be disallowed from the regulatory asset base (RAB). To put it simply, the standard is one of ‘reasonableness’ or ‘non-negligence’ rather than of ‘best possible performance’ or ‘best practice’.⁵

There are a number of relatively obvious reasons for choice of a ‘reasonableness’ standard when assessing capital expenditures, including, but not restricted to, the following:

- Investment decisions are very often subject to considerable uncertainties, and ‘optimal’ courses of action are rarely well defined. There is scope for reasonable, well informed experts to differ on capex questions such as whether, what, on what scale, how, where and when to build new facilities. Regulation should properly allow for these realities, and recognise that approaches based upon the notion that unambiguously optimal capex decisions can generally be identified are (a) non operational and (b) amount to a pretence to knowledge that regulators do not and can not have.⁶
- Disallowances based on comparisons with hypothetical, best possible *outcomes* could, in practice, be expected to lead to severe disincentives for investment, *unless these adverse incentive effects are compensated for by some other aspect of regulatory decision making, such as a higher allowed*

⁵ Of course, best practice considerations may well be of interest when assessing the potential for performance improvements on a forward looking/*ex ante* basis.

⁶ Keynes described this type of approach to economics as “... *one of these pretty, precise techniques which tries to deal with the present by abstracting from the fact that we know very little about the future.*”

*rate of return on the (diminished) rate base.*⁷ If a utility could only earn a normal rate of return in conditions in which it was always making the best possible decisions – i.e. only if, in an uncertain and complex world it was always getting things 100% right – then, in effect, it could never expect, *ex ante*, to make a normal return on capital. We note that the adverse incentive effect here can, as a matter of economics, be expected to be larger the greater the uncertainties in the relevant decision making environment (e.g. worse in changing business/economic environments than in static economic conditions).

3.4 The meaning of ‘efficiency’

One of the things that has happened in regulatory discourse over a relatively recent period is that the older language of ‘prudence’ and, to a lesser extent, ‘reasonableness’ has been partly displaced in regulatory discourse by references to economic notions of ‘efficiency’. By way of illustration, Ofgem, the UK energy regulator has tended to refer to “*efficiently incurred investment*” rather than to “*prudent investment*”, and it is a stated object of the Energy Networks Access Code in Western Australia to promote “*efficient investment in ... networks and services of networks*”.

We conjecture that the shift in terminology has been chiefly influenced by the much greater, explicit emphasis placed upon *ex ante, incentive regulation* over recent decades, and the change need not be a problem provided that relevant distinctions are clearly made. There is, however, scope for potential confusion here, and a number of points might usefully be borne in mind:

- The concept of efficiency has multiple meanings in economics, and various dimensions of efficiency – allocative efficiency, productive or cost efficiency, dynamic efficiency – may exhibit trade-offs such that increases in efficiency in one dimension may lead to reductions in efficiency in other dimensions.⁸ It is therefore necessary to be precise about the way in which the term is being interpreted.
- The change in language does not change the underlying economic realities, which, particularly in relation to investment expenditures, involve decision making under uncertainty.
- Under uncertainty, the notions of optimality and best possible outcomes tend not to be well defined (i.e. tend to be non-operational). Thus, for example, in determining levels of capacity for projects in networks, account needs to be taken about the future evolution of customer requirements, technologies, and input prices, since incremental capacity over and above what might be required to meet immediate demand will typically have an option value. Estimation of such option values necessarily contains significant ‘subjective’

⁷ Such compensation has been a major factor in relevant US and UK decisions (see section 5 below).

⁸ This is part of the rationale for CPI/RPI-X regulation, which potentially gives up some allocative efficiency in exchange for an expectation of improved productive/cost and dynamic efficiencies resulting from stronger incentives. It is also the rationale for IPRs: patent protection and copyright sacrifice efficiency in the use of currently available information/content for enhanced incentives to discover/produce new information/content.

elements, such that there is typically scope for skilled and experienced experts to reach materially different views.

3.5 Consistency of the Code with the relevant standard for *ex post* assessment

The wording used in the Code in relation to the NFIT at 6.52(a) appears to us to be consistent with the ‘reasonableness’ standard. Whilst it specifies that investment should not exceed a certain “amount”, the relevant amount is not explicitly defined as, say, the lowest possible cost of providing the new facilities – which might be referred to as ‘frontier’ cost efficiency, and which is an outcome whose measurement is inherently uncertain, even *ex post* (see the above comment on the difficulties in estimating investment option values). Rather the “amount” is defined in terms of what “would be invested by a *service provider efficiently minimising costs.*”

Efficiently minimising costs is a description of a *process*, not an *outcome*; and the intended meaning is further clarified in the Glossary to the Code:

“efficiently minimising costs”, in relation to a *service provider*, means the *service provider* incurring no more costs than would be incurred by a prudent *service provider*, acting efficiently, in accordance with *good electricity industry practice*, seeking to achieve the lowest sustainable cost of delivering *covered services* and without reducing *service standards* below the *service standard benchmarks* set for each *covered service* in the *access arrangement* or *contract for services*.

The references to a prudent service provider, acting efficiently, in accordance with good (not best possible) practice, seeking to achieve the lowest sustainable cost of delivering covered services individually and collectively point to the assessment of an investment *process* in the round, based on normal standards of reasonableness and competence. This is confirmed by the Code’s definition of good electricity industry practice:

“good electricity industry practice” means the exercise of that degree of skill, diligence, prudence and foresight that a skilled and experienced person would reasonably and ordinarily exercise under comparable conditions and circumstances consistent with applicable *written laws* and *statutory instruments* and applicable recognised codes, standards and guidelines.

4. INCENTIVE EFFECTS OF PRUDENCY REVIEWS

As already stated, *in the absence of compensation via other elements of the regulatory bargain, ex post* reviews that lead to disallowances of capital expenditure on the basis of a failure to achieve unduly high performance benchmarks can be expected to have highly adverse effects on investment incentives, and hence on economic efficiency in the longer term. Investment will be discouraged in general, but the disincentive effect can be expected to be greater the greater the riskiness of the project. The chilling effects will therefore tend to be greater the more unsettled or dynamic is the economic environment in which the utility is operating.

Notwithstanding these potential problems, prudency tests based on traditional notions of ‘reasonable’ performance can have positive incentive effects, and, for this reason, cannot be discounted as one of the possible elements of an effective regulatory regime.

Prima facie it may appear that a reasonableness standard is too weak to encourage better performance on the part of a regulated utility; but complexity and uncertainty in investment projects and programmes combine to create conditions in which significant incentive effects can emerge. Briefly, it is a challenge to management to develop processes and procedures that reduce the risk of the occurrence of mistakes and failures on the part of some or other members of the relevant organisation which, *ex post*, could potentially be judged to be negligent/unreasonable.

Thus, although, in an effective organisation the occurrences of negligent or unreasonably poor performance should be infrequent, this does not mean that incentive effects are weak. The *possibility* of sanctions, combined with the ability of managements to reduce the risk of sanctions, can itself exert a consistent pressure toward better investment performance.

In this, prudency reviews are not unlike an incentive mechanism such as the risk of bankruptcy: even when the incidence of bankruptcy is low, the pressures to avoid it continue to exist and to exert an effect on business behaviour. Indeed, depending upon circumstances, it might be the strength of the incentive effect that itself helps keep the incidence of the outcome low.

The strength of the incentive effects can be expected to depend in part on the strength of the sanctions in the event of a finding of unreasonable conduct. In financial terms, an investment disallowance of given magnitude will have the same impact on any given utility, irrespective of the standard that has been used in the assessments that have led to the disallowance (although the same financial implications might have different impacts on different utilities, depending among other things on whether they are publicly or privately owned). However, the incentive effects of regulatory actions go rather wider than a simple, aggregate financial effect, and the standard for assessing prudency can itself have an impact.

Speaking broadly, an assessment standard based on notions of unreasonableness, recklessness or negligence can be expected, if breached, to have much more significant behavioural impacts than breaches of standards based on, say, best conceivable performance (e.g. ‘frontier’ efficiency). Failure to attain the latter can be expected to be an everyday, normal event; whereas a finding of unreasonableness signifies something less common, and a much more adverse judgment. Managerial careers might be directly threatened in consequence of such public judgment, whether the utility is publicly or privately owned.

5. PRACTICE/DECISIONS IN OTHER JURISDICTIONS

5.1 *The USA, and the significance of compensation*

The USA has the longest and most developed tradition of the application of prudence reviews as part of utility regulation regimes. A well known summary of the meaning of prudence in US law has been provided by Supreme Court Justice Brandeis:

"The term prudent investment is not used in a critical sense. There should not be excluded from the finding of the base, investments which, under ordinary circumstances, would be deemed reasonable. The term is applied for the purpose of excluding what might be found to be dishonest or obviously wasteful or imprudent expenditures. Every investment may be assumed to have been made in the exercise of reasonable judgement, unless the contrary is shown." (Southwestern Bell Telephone Co., 1923).

As Cope, Dismukes and Yeargain⁹ explain (and compare with reasoning in the Decision of the Irish Aviation Appeal Panel, 2006, discussed below):

"The prudence standard has been compared to the common law negligence standard for determining whether to exclude value from the rate base. In other words, the utility must show that it used a reasonable decision making process to reach a course of action, and, based on the facts known at the time, responded in a reasonable manner. This may be called foreseeability."

The historical evidence in the USA indicates that disallowances based on findings of imprudence were not a major factor in regulatory decision making prior to the oil price shocks of the 1970s. They also do not appear as a major issue in the leading economic textbooks of this earlier period, such as the 1970 edition of F.M. Scherer's *Industrial Market Structure and Economic Performance*, which includes a chapter focused on the theory and practice of rate of return regulation in the US. Pierce¹⁰ summarises the position as follows:

"A temporal analysis of disallowances based on imprudence provides a good starting point. When I researched this topic for other purposes in 1983, I conducted an exhaustive search for regulatory disallowance based on imprudence. The Federal Energy Regulatory Commission (FERC) and its predecessor, FPC, had never disallowed an investment on the basis of imprudence in the agency's fifty year history. I could find only a few cases in which state agencies had disallowed investments based on a finding of managerial imprudence. Even in those rare cases – about one per decade – the magnitude of the disallowance was relatively trivial. The aggregate amount disallowed in the history of utility regulation probably did not exceed a few hundred million dollars. By contrast, during the period 1984 through 1988, state agencies disallowed as imprudent significant portions of the investments in nineteen completed generating plants. The average amount

⁹ Cope R., Dismukes D. and J. Yeargain, "Reflections on the U.S. electric power production industry: precedent decisions vs. market pressures", *Journal of Legal, Ethical and Regulatory Issues*, July 2003.

¹⁰ Pierce, P. (1989). "Public utility regulatory takings: Should the judiciary attempt to police the political institutions?" *Georgetown Law Journal*, 77, 2050-2051.

disallowed per plant was \$610 million; the aggregate amount disallowed was \$11.6 billion. If these agency findings are to be believed – that is, if the findings of the past four years are something other than a guise for politically opportunistic exercises of the raw political power to redistribute wealth from a minority to the majority – then they suggest a startling trend in the industry’s management. Apparently, for decades electric utility managers were almost uniformly individuals with outstanding business acumen. At some point in the 1980s, this entire generation of exceptional managers was replaced en masse by a generation of bumbling idiots.”

The precise drivers of this shift in regulatory behaviour remain a matter of debate, but it is clear that substantially higher oil prices post 1973 led to political resistance to substantially higher regulated prices (‘rate shock’) and gave a boost to the construction of more nuclear power plant. The second oil price shock then, unexpectedly, reduced the growth in demand for new power plant in aggregate which, coupled with tightening regulatory constraints on nuclear plant arising from environmental/safety concerns, was a factor contributing to escalating construction costs and abandonment of projects which had already given rise to substantial capex. The sharp increases in disallowances in this later period are therefore particularly associated with nuclear power plant, *not with general investment in networks*.

Perhaps the most famous case is *Duquesne*, which ended in a Supreme Court decision in 1989 and which Kolbe, Tye and Myers used to motivate their economic analysis of the concept of regulatory risk.¹¹ These authors summarise the matter as follows:

“In 1967, Duquesne Light Company and four other utilities joined a venture (CAPCO) to construct seven nuclear generating units. In 1980, four of the plants were cancelled because of the economic and political impacts of the Arab oil embargo, the accident at Three Mile Island, and other intervening events.

The Pennsylvania Public Utilities Commission (PUC) approved the amortization of the investment in cancelled plants over a 10-year period through rate increases in 1983. However, about a month before the close of the rate case in 1982, the Pennsylvania legislature enacted a law that precluded inclusion of costs of construction of facilities in rate bases, prior to the time such facilities were ‘used and useful in service to the public.’”

A consumer group then sued Duquesne and the PUC under the new law. The PUC defended its decision to allow amortization of the relevant capex, but the Pennsylvania Supreme Court found for the consumer group, and the US Supreme Court subsequently affirmed that decision.

The US Supreme Court recognised that the State law had moved the regime away from a strict prudency system, since it found that the CAPCO decisions were, at each stage up to and including cancellation, reasonable and prudent. However, crucially, the Court noted that:

¹¹ Kolbe, L., Tye W. and S. Myers, *Regulatory Risk: Economic Principles and Applications to Natural Gas Pipelines and Other Industries*, Boston: Kluwer Academic Publishers, 1993.

“Pennsylvania’s modification slightly increases the overall risk of investment in utilities over the pure prudent investment rule. Presumably the PUC adjusts the risk premium element of the rate of return on equity accordingly.”

The Court’s reasoning, which was based on considerations of expropriation of property rights rather than on considerations of promoting efficiency, was, therefore, broadly as follows:

- *“Inconsistencies in one aspect of the methodology have no constitutional effect on the utility’s property if they are compensated by countervailing factors in some other aspect.”*
- The impact of the decision on investors was relatively slight: \$35m of investment in the cancelled plants was disallowed, which was equal to around 1.9% of the regulatory asset base.
- Such a loss could realistically be compensated for by adjustment of the allowed rate of return on the rate base, since a 1.9% adjustment in the allowed rate of return (which stood at 11.64%) was within the normal range of variation of regulatory determinations.

In effect, this suggests that, since the Court would not have found an allowed rate of return of $11.64\% - 1.9\% = 9.74\%$ unconstitutional, it could not find a disallowance that had an economically equivalent effect on the utility’s allowed revenue to be unconstitutional – since what mattered was the fairness/reasonableness of the end result (the allowed revenue), not the process by which such a route is reached.

We infer two principles at work in all of this:

- Disallowances are permissible, if accompanied by offsetting compensation when utility conduct has been prudent, which is simply a reaffirmation of the principle that prudent investments should be remunerated at a fair or reasonable rate.
- The Courts will not want to get involved if, in a relevant case, the economic effects are relatively limited – which appears to us be a statement about proportionality in assessment (don’t bring cases to the higher Courts based upon differences in numbers that fall within some reasonable range).

5.2 *The UK*

UK sectoral regulators have tended to have a strong aversion to *ex post* disallowances of capital expenditures, reflecting factors such as:

- A recognition that the regulatory asset base is the crystallisation of past ‘settlements’ between customers/consumers and investors which should not, in ordinary circumstances, be disturbed, and

- The focus of the (RPI-X) regulatory regime on forward looking approaches to capex evaluation.

In the energy sector, Ofgem has been no exception to this general tendency. However, in 2006 the Ofgem decided to exclude a total of £19m of incremental capex made by National Grid on the high pressure national gas transmission system. Whilst *prima facie* this might suggest a shift in policy toward greater reliance on a traditional form of prudence review – and it has been so interpreted by some analysts – the disallowance decision was made in a very specific context which, once understood, indicates otherwise (because it respects the compensation principle implicit in *Duquesne*).

Specifically, under the National Transmission Capacity Investment Incentive Scheme, National Grid auctions annual gas transmission entry capacity rights for periods between 2 and 16 years into the future.¹² The (policy) purpose of the arrangements is to encourage greater efficiency in the location of investment in new facilities, by allowing users of the system to secure rights in advance of future requirements and by providing National Grid with better signals of likely future requirements. A contextual factor that motivated the policy was the declining production of UK Continental Shelf gas fields, and increased uncertainty as to precisely where new sources of gas might be landed in the UK. For example, would there be major new flows from the Norwegian sector of the North Sea, or via increased interconnector pipeline flows from the near continent, or from new LNG terminals?

As part of the arrangements, National Grid enjoys incentives to adjust incremental investment around previously agreed, ‘obligated’ levels of capacity made available to network users, in the light of its views of changing customer requirements, informed, at least in part, by the information revealed by network users in the capacity auctions. In effect, National Grid was, in the relevant version of the incentive scheme, allowed to retain, for a period of five years, all incremental annual revenue that it could obtain from the sale of incremental entry capacity, subject to an annual cap (of 12.25% real) and collar (of 5.25% real). Thereafter, the investment, suitably depreciated, was allowed a rate of return of 6.25% real, being the estimated cost of capital and the allowed rate of return on ‘obligated’ capacity, up to the next quinquennial price review, at which point it was to be reviewed and, if judged efficient, incorporated into the regulatory asset base thereafter.

In effect, therefore, the incentive scheme allows for return of up to 6% above the cost of capital, for a period of between five and ten years, and it is against this generous ‘upside’ that the disallowance decision should properly be assessed.

In its Final Proposals document of December 2006, Ofgem explained its position as follows:

“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

¹² Pipeline capacity is sold on an entry/exit basis, with geographically differentiated payments for rights to enter gas into the high pressure, onshore pipeline network (the NTS), typically at beach terminals, and also to withdraw gas from that system.

overspend incurred by NGET and some £126 million of capital expenditure for NGG in respect of a new gas pipeline and major network reinforcement to connect a Liquefied Natural Gas (LNG) terminal at Milford Haven.

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 following points, all of which distinguish the decision from that relating to Western Power, are relevant:

- The effect of a disallowance of £19m is, approximately, equivalent to the *supernormal* return (6% per annum) that could potentially have been made on an investment of £75m over the five years of the incentive period. Crucially, it does not imply that, as would be the case for Western Power, National Grid was unable to earn *any* return on the investment in question.
- The disallowance amounted to about 0.64% of National Grid’s closing regulatory asset value for the relevant period and 1.9% of capex during that period (compared with 7.1% and 15% respectively for Western Power, figures that are roughly an order of magnitude higher).
- The disallowance related to a specifically identified part of the capex programme, connected to the delivery of capacity at one of the six major beach terminals (at St Fergus, in the north east of Scotland). Capex linked to developments elsewhere in the pipeline system, including at the other entry points where capacity was also auctioned and subject to the general incentive scheme, was allowed in full. Thus, unlike for Western Power, there was no across-the-board disallowance. Rather the disallowance was linked to the finding of a very specific problem.

This last point is an important one, since it is a feature of the reasonableness standard that it focuses regulatory attention on the question of whether or not there are specific and egregious failures of performance to be found. Where any such failure is discovered, attention can then be turned to the question of whether it is the result of an isolated performance deficiency, or of some more general deficiencies in the organisational processes.

5.3 Republic of Ireland

A recent decision in the Republic of Ireland may be of particular interest in the current context because it concerns a regulatory decision to disallow past capex by a publicly owned operator in circumstances of growing demand.

In 2005, the Dublin Airport Authority plc (DAA, formerly *Aer Rianta*) appealed against a decision of the Republic of Ireland’s airports regulator, the Commission for Aviation Regulation (CAR), to disallow a fraction of the capital expenditures, dating from 2001, made by DAA in the course of constructing a new pier – Pier C – at Dublin airport. The disallowance in question amounted to €13.4 million, or about 22% of the relevant capital costs, and the Decision was based chiefly on a consultant’s report that had concluded that the construction cost of the airport pier was higher than that of ‘similar’ buildings constructed in Dublin at around the same time.

In finding against the CAR’s Decision on this point, the Aviation Appeal Panel (of which one of the authors of this Opinion was a member) set out some of the principles that it considered appropriate to prudence reviews:

“6.4.11 The Commission decision to maintain the stranding of Pier C costs raises equally fundamental issues. Disallowances for imprudent investment were a feature of rate-of-return regulation as practised particularly in the USA. This was because of concerns that rate-of-return led to incentives for inefficiently high investment. On the other hand, economic analysis based on CPI – X regulation tends to emphasise the potential danger of under-investment.

6.4.12 In relatively new regulatory systems, where the relevant regulatory body has not had sufficient time to establish a firm reputation for respecting property rights, disallowances of capital expenditure from the RAB can potentially create material, adverse regulatory risk and uncertainty. The RAB reflects the future claims of investors on the income of the regulated company. Reductions in the RAB by the Commission amount to reductions in those claims, and unless such actions are guided by credible and legitimate principles they will be perceived as a form of capital expropriation.

6.4.13 The Panel considers that the circumstances under which RAB disallowances might legitimately be justified are similar to those discussed in relation to clawback. That is, they are only justified in the event of some manifest deficiency in the performance of the regulated company, such as would be considered to be outside normal commercial parameters. In the specific context of Pier C, the Panel can see no evidence of such conduct on the part of DAA. While we recognise that, with the benefit of hindsight, the Commission might have concluded that the costs of Pier C could potentially have been lower than the approved budget, that is not, in our view, anywhere close to providing sufficient grounds for disallowing what appears to be an arbitrarily determined fraction of the relevant expenditure. Given the uncertainties surrounding capital projects, there is scope for a variety of views about what is the most efficient way forward, each of which might be considered reasonable. Only if DAA can be shown to have strayed outside the bounds of reasonable conduct or made an unreasonable decision about the type of capital expenditure incurred

should there be any 'disallowance' issue for the Commission to consider.

6.4.14 The Panel finds it very difficult to understand how costs, legitimately incurred on Pier C, on budget and with the approval of the Minister (there then being no outside Regulator) can now apparently be permanently stranded. If this is because Aer Rianta did not formally appeal this aspect of the previous determination to the last Appeal Panel, this Panel does not believe that DAA are 'estopped' from contesting the decision to (apparently) permanently strand this expenditure now."

The panel therefore affirmed (at 6.4.13) a 'reasonableness' standard for *ex post* reviews, and found that CAR had come nowhere close to showing that that standard had been breached by DAA.

In relation to the 'clawback' issue, referenced in para 6.4.13 above, which involved a reduction to the RAB to compensate for allowed, within period income on capex that had been anticipated in relation to the Pier D project but that, in the event had been delayed, the Appeal Panel said the following:

"6.4.4 In relation to CAPEX, the allowances are set following an assessment of the company's capital investment programme (CIP) and its likely costs. On the basis of the 'standard' approach to CPI – X regulation, which the Commission indicates that it is seeking to follow, the projected expenditures allowed in calculating regulated charges are not linked to particular projects or project outcomes. The rationale for this is that, in general, things will not usually go exactly to plan. Indeed flexibility to adjust plans, as new information becomes available, is to be positively encouraged. Flexibility may mean some projects not going ahead at all, others being delayed or brought forward, and yet others being introduced into the investment programme for the first time.

6.4.5 It is also a key principle of the standard CPI – X approach that price or charge caps, once determined, are 'pre-determined' for the relevant period, meaning that, although the charges may be adjusted (e.g. to reflect inflation), they will be adjusted in ways that cannot be materially influenced by either the regulator or the regulated undertaking. 'Clawback' violates this principle, since it is equivalent in economic effect to retrospective, discretionary adjustment of charges that were intended, and promised, to be pre-determined. Given this, the Panel considers that 'clawback' should only be contemplated in circumstances in which there has been prior and manifest non-compliance by the company.

6.4.6 Given that the regulatory settlement between Commission and company is a relatively broad one, with performance requirements not spelled out in detail, the Panel believes that the notion of "compliance" must be given a similarly broad meaning. It does not

simply mean deviating from plan (it is very rare that the assessed CIP will actually be fully implemented), nor does it simply mean operating inefficiently (most companies in most markets operate in ways that fall short of maximum efficiency).

6.4.7 *The Panel considers that clawback could properly be considered legitimate if:*

- *DAA/Aer Rianta had deliberately misled the Commission. There is an obvious rationale for seeking to prevent a company from gaining benefit from such conduct. In the context of CAPEX, this might occur if DAA/Aer Rianta had included a project in its CIP that it knew at the time (but the Commission did not know at the time) would not be feasible in the relevant period.*
- *DAA/Aer Rianta’s performance can be characterised as being akin to negligence: conduct falling short of what might reasonably be expected. That is, the bar is set at a minimum acceptable standard of performance, not the economists’ ideal of efficiency, which is a “best possible” standard. Again, in such circumstances the case for compensation (in the form of clawback) is obvious, on basic principles.*

The defining feature of the circumstances in which clawback might be justified is some manifest deficiency in the conduct of the DAA, such that its performance falls to an unacceptably low level.

6.4.10 *In relation to ‘clawback’, the Panel also notes that the Commission appears to have applied this approach very selectively, to Pier D allowed CAPEX only. Whilst it is understandable that users might feel aggrieved that an allowance was made for investment activity that did not materialise within the relevant period, it is also the case that the earlier charge determination was based on projections of DAA commercial revenues that also did not materialise. These (inaccurate) projections were to the benefit of users. Again we have a concern that the Commission may, via retrospection that is focused only on investment activity, signal a rather negative regulatory attitude to CAPEX to the investment community.”*

We think the reasoning here requires no further elaboration, but there is one additional concern raised by the Panel that may be of relevance in Western Australia. It concerned the possible implications of CAR’s approach for incentives to the operator to provide accurate information to the regulator, and it arose in connection with a regulatory finding that DAA had ‘over-sized’ an investment project. The relevant reasoning was as follows:

“6.3.5 The Panel considers that the Commission should have properly considered allowing a cost for the Pier D proposal on the basis of a 29m Pier width, in accordance with the planning permission already

given and following the consultation process during which, so far as we are aware from the determination, there was no strong view in favour of the lower width suggested by the Commission's consultant. If, however, such a strong view in favour of a smaller facility did exist, the Commission should properly have taken it into account in its reasoning.

6.3.6 *In relation to the costings applied to a facility of given size, the Panel is of the view that the benchmarking exercise relied upon by the Commission is insufficiently robust to warrant a substantial adjustment to the DAA CAPEX plans.*

6.3.7 *The Panel has a concern, heightened by the abstract and theoretical nature of a discussion in the determination about the implications of "asymmetric information", that the Commission believes that DAA will always significantly over-estimate its investment costs, and that the appropriate regulatory response is to adjust those estimates downwards by a significant amount, no matter how limited the available evidence on the magnitude of the perceived bias in estimation.*

6.3.8 *Apart from the arbitrary nature of the cost adjustments made, there may be some confusion as to the implications of economic theory as it relates to the relevant issues. It is notable that there appears to be a procedure of making relatively arbitrary, downward adjustments to costs, with the implied intention of correcting for assessment bias. This necessarily implies a disincentive for good faith conduct by DAA and is out of line with best practice incentive regulation. If the Authority provides its best available information on projected costs, it can expect to earn less than a normal rate of return on investment, by virtue of the expected, downward adjustments that will be made. A more appropriate regulatory response to the information problem would be to seek more vigorously to verify the information provided, discuss and consult on alternatives and only substitute the Commission's own reasoned alternative when there is very clear evidence of assessment bias.*

5.4 *Other Australian States*

There is no requirement under the current National Electricity Rules - which apply to TNSP's in the Australian National Electricity Market - for the Australian Energy Regulator to undertake an *ex post* prudency review given the particular form of regulatory framework applied which is based on the setting of an *ex ante* capex allowance.

The decision to adopt an *ex ante* approach was specifically in response to concerns that had been expressed about the adverse effects of *ex post* approaches on investment incentives. For example, the ACCC's background paper to the Statement of

Regulatory Principles for the regulation of electricity transmission revenues identified two disadvantages of *ex post* prudency assessments of capital expenditure:¹³

“1. It creates uncertainty for investors that, after having invested, the ACCC could decide that the investment was not prudent and hence disallow recovery of the investment cost in regulated charges.

2. It is not clear that the threat of ex post prudency assessment provides effective efficiency incentives. If TNSPs do not think that the threat is credible, then they have no economic incentive to select the most efficient investment and develop assets at least cost. On the other hand, if they do think that the threat is credible, they may be inclined to inefficiently under-invest for fear that the ACCC will come to a different conclusion on the prudency of the investment they make.

More recently, the reasoning for adopting this approach was re-affirmed by the Australian Energy Markets Commission (AEMC) in its 2006 review of the operation of the National Electricity Laws, where it noted that:

“In general the criticism of the proposed ex post prudency review was that it undermined the incentives of the ex ante cap and contributed to the investment uncertainty that the remainder of the package sought to overcome. Submissions also raised the legitimate concern that ex post prudency reviews are, by their very nature, an intrusive form of regulation. An ex post review effectively requires the regulator to put itself in the position of a TNSP at the time that they were undertaking a particular project to determine if the project was undertaken efficiently. Previously, this process has been the subject of controversy when it has been applied to network businesses. For these reasons, the Commission has removed the arrangements for ex post reviews and instead focused more on improving ex ante incentives.”¹⁴

However, in setting the revenue caps that apply to the TNSP in each State during the current transitional period, the AER (and the ACCC before it) has been required to apply an *ex post* prudency test when determining the amount of capital expenditure which can be included in the opening Regulatory Asset Base.

A number of observations can be made about the manner in which the AER/ACCC have applied this prudency test in practice:

- The standard applied by the ACCC/AER appears, at least to some degree, to have recognised that in some instances it may be considered prudent to allow some ‘over-build’ in anticipation of expected demand growth or take account of economies of scale.¹⁵

¹³ ACCC ‘Statement of principles for the regulation of electricity transmission revenues – background paper’ 8 December 2008, page 44.

¹⁴ Australian Energy Markets Commission ‘Rule Determination: National Electricity Amendment (Economic Regulation of Transmission Services) Rule 2006, No.18, 16 November 2006, page 98.

¹⁵ In its 1999 draft statement of Principles for the Regulation of Transmission Revenues, the ACCC notes: “Concerning asset base roll forward, the approach adopted in the Draft Regulatory Principles provides that only capital expenditures deemed to be prudent may be added to the regulatory asset

- The general approach adopted by the AER/ACCC has been to examine a selection of large or significant capital projects and to employ external consultants to review and assess the efficiency of the projects.
- On the basis of a preliminary scan, we have only been able to identify one significant case of an *ex post* prudency adjustment. This is in relation to TransGrid's investment in the MetroGrid project. In this instance, the ACCC presented a detailed description of the underlying causes of imprudent investment, and more critically, outlined a methodology for assessing the proportion of the investment that was deemed to be imprudent.¹⁶
- In all of its recent determinations, the Australian Energy Regulator – for SP AusNet, Transend, Powerlink Queensland and Electranet – has made no significant *ex post* adjustment to past capital expenditure to reflect imprudent investment. This is despite concluding in some instances that oversight issues were identified with certain projects or that improvements in the capital policies and procedures could have been implemented. This is suggestive of a generally cautious approach to making such adjustments, and a reluctance to disallow capital expenditure in the absence of detailed and specific evidence of substantial flaws in the execution of that investment.
- Finally, we have been unable to identify any example of where a uniform percentage reduction has been applied to past capital expenditure in any of the regulatory determinations relating to transmission network assets in the other Australian States.

6. THE ERA'S DRAFT DECISION: ASSESSMENT

Given the above discussions of the background of the objectives of the Access Code; the purposes and effects of *ex post* prudency reviews; and the experience of the conduct of prudency reviews by regulators in comparable jurisdictions (including elsewhere in Australia), we now assess the decision of the ERA to disallow a proportion of past capital investments by Western Power in the first access arrangement period.

base. Clearly if the full amount of the investment is not required and is not prudent, the regulator should not add the full cost to the regulatory asset base. Where additional capability/ capacity is included to allow for demand growth, some overbuilding may be considered prudent given the quantum nature of expansion and scope for economies of scale. Where there is doubt that any overbuilding is prudent, a lesser amount will be added to the regulatory asset base corresponding to what would be considered clearly identifiable demand (including a margin sufficient to satisfy normal redundancy or safety requirements). In most cases, the bulk of expenditures will be included because economies of scale would mean that a smaller capacity addition to infrastructure would be at a higher unit cost". ACCC 'Draft Statement of Principles for the Regulation of Transmission Revenues' 27 May 1999, Page 6

¹⁶ ACCC 'NSW and ACT Transmission network revenue Cap TransGrid 2004-05 to 2008-09' 27 April 2005, pages 84 to 88.

6.1 *The ERA's general approach*

In the Draft Decision, ERA notes that it has discretion under sections 6.41, 6.51 and 6.51A of the Access Code as to whether to recognise costs in the total costs and the target revenue that underlie the price control. In this instance, the ERA notes that its ability to review the costs associated with new facilities investment in the first access arrangement period was hampered by a lack of necessary information:

“The inadequacy of information has been of particular concern in respect of actual new facilities investment in the first access arrangement period, which is required to demonstrate the amounts of new facilities investment that satisfy the relevant tests under the Access Code for addition to the capital base of the SWIN.”¹⁷

More specifically, the ERA concludes that the information submitted by Western Power *“has not demonstrated to the Authority's satisfaction that the actual and forecasts costs meet the relevant tests of the Access Code”*.¹⁸

Notwithstanding the inadequacy of the information before it, the ERA concludes that *“a degree of inefficiency in that part of new facilities investment that undertaken by Western Power”*.¹⁹ In reaching this conclusion, the ERA relies heavily on reports by Geoff Brown and Associates which, in the Authority's interpretation, are suggestive of deficiencies in the Western Power's planning and procurement processes in the first access period.²⁰ In so doing, ERA largely discounts the findings of another commissioned consultant's report which concluded that capital expenditure has been well planned and major investments have been subjected to detailed studies of options and alternatives.²¹

6.2 *Information provision*

As a first, background point, we note that the 'adequacy' of the information provided to a regulator can only be assessed in relation to the purposes to which that information is to be put, which in turn will depend, among other things, on the standard against which performance is being assessed. The traditional prudence standard, for example, will typically require rather lower information flows than would an attempt to compare with best practice across the board. It will also tend to put more of the initiative with the regulator (and advisors), since the exercise is more in the nature of an audit, based on sampling for the existence of egregious deficiencies.

We infer that the ERA's complaints about lack of necessary information are linked to the adoption of a relatively stringent performance standard (closer to 'frontier' efficiency than to prudence). However, the point here is that, since the relevant

¹⁷ Para 348 of Draft Decision

¹⁸ Para 350 of Draft Decision

¹⁹ Para 566 of Draft Decision

²⁰ Para 564 of Draft Decision

²¹ Wilson Cook & Co. "Review of Western Power's Expenditures for Second Access Arrangement Final Report" Report prepared for the Economic Regulation Authority, Western Australia May 2009

standard being used by the ERA in applying the NFIT itself appears to be obscure, *there is no clear basis in the Draft Decision for a judgement that the information available has been inadequate.*

As a general matter, it would be unreasonable – and *a fortiori* inefficient – for a regulator to expect a utility to offer up every piece of information that might possibly be relevant to capex assessment against every possible benchmark that might be adopted. Information provision is not a free good, and regulatory practice should pay due attention to the relevant costs and trade offs.

6.3 *Inadequacy of reasoning*

In our judgment, the ERA’s Draft Decision appears to be inadequately reasoned in a number of respects, including the following:

- First, the ERA appears to have concluded that because some aspects of the governance and planning *processes* of Western Power were deficient in the first access arrangement period, that this automatically allows for the conclusion that a proportion of the capital expenditure undertaken during this period did not minimise costs and that the *outcome* was therefore inefficient. However, as the report by Wilson Cook & Co correctly (in our view) recognises, a conclusion as to the efficiency of costs does not flow automatically from the assessment of the efficiency of planning and prioritisation process.²²

Processes and outcomes are, of course, linked. Speaking generally, better processes lead to better outcomes; but the linkages are neither mechanistic nor one-to-one. Thus, findings of process deficiencies are by no means sufficient to sustain a confident inference that performance (in terms of costs to serve) has been deficient, even against best practice standards.

- Second, the ERA appears at a number of points to substitute presumption for analysis and evidence. Perhaps the most significant of these occurrences is when the ERA appears to jump from a view that it does not have sufficient information to allow it to determine precisely whether or not new facilities investment during the first access arrangement was efficient (in an undefined sense) to a conclusion that the new facilities investment was inefficient by an across-the-board margin of 15%, without anything much in the way of intervening reasoning. As discussed in more detail below, this presumption and the magnitude of assumed inefficiency (i.e. 15%) is, putting it quite simply, unsubstantiated.
- Third, the approach of ERA in the Draft Decision appears to give insufficient weight to Western Power’s responsiveness to perceived weaknesses in its business practices. Reasonable conduct does not require that utilities get everything right, but it does require that companies respond when problems are identified (the ‘foreseeability’ point made by Cope, Dismukes and

²² Wilson Cook & Co. Report page 38, 88.

Yeargain)²³. We note that each of the consultants' reports commissioned by ERA stated that Western Power's management and board recognised that its governance and cost estimation processes were inadequate in the past, and that, in response Western Power had taken positive steps to address identified inadequacies in ways that could be expected to lead to improvements in these processes.²⁴

- Finally, no attempt is made in the draft decision to distinguish between the different potential drivers of cost variances and to examine how this might impact on, and complicate, Western Power's governance and planning decisions. In particular, both consultants' reports recognise that the first access arrangement period was a time of significant and unprecedented change for Western Power and for the Western Australian economy more generally. The reports go on to note that a significant proportion of the observed variance between forecast and actual capital costs in the first access arrangement period could be explained by unexpected increases in demand as a result of the 'booming' Western Australian economy. However, this factor appears to be largely ignored in the draft decision, or at least given relatively little weight.

6.4 Consistency with the Code

As noted above, the ERA concludes, at paragraph 597 of the draft decision, that it is not satisfied that the entire amount of new facilities investment satisfies the efficiency test of section 6.52(a) of the Access Code.

This conclusion raises two immediate questions:

- Is the standard (the acceptable level of 'efficiency' for the NFIT to be passed) being applied in the draft decision consistent with that contained in the Access Code?
- Is the evidence or analysis adduced in support of this conclusion consistent with the types/forms of evidence that would be necessary in order to draw such a conclusion?

For reasons set out below, we are of the view that the answer to each of these questions is in the negative.

²³ Op.cit.

²⁴ The Geoff Brown & Associates report, upon which the ERA relies heavily, notes for example: 'We consider that over the AA1 regulatory period the Western Power Board and management have aggressively tried to improve the governance within the organisation and have made commendable progress in this effort. This has been done in an environment where the organisation has faced many challenges including an unprecedented demand for new connections, rapidly rising equipment and labour costs and a legacy of underinvestment in the distribution network that persisted for at least a decade..... We have not seen anything in this review that would indicate that the progress made in the management of capital and operations expenditure during the AA1 period will not continue during the AA2 regulatory period and are confident that where weaknesses in Western Power's management and governance processes are identified they will be proactively addressed. Page 53.'

As regards the standard to be applied, we have already noted that the wording of section 6.52(a) of the Access Code refers to a standard of a ‘service provider efficiently minimising costs’, and that this is suggestive to us that the relevant standard refers to a process of seeking available cost efficiencies, rather than to a specific cost ‘outcome’ (such as the minimum possible cost). In any event the provisions of the sections of the Code dealing with the NFIT must be interpreted consistently with the higher level Code objective to promote efficient investment in networks. As already explained, an approach to *ex post* assessment which disallows any capex that cannot be shown to be the least cost of the alternatives available, estimated on a narrow, project by project basis, could be expected, in conditions of uncertainty, to have the effect of discouraging investment, such that investment in networks in aggregate would be at inefficiently low levels.

The draft decision is unclear about the ERA’s view of the relevant standard. However, the evidence adduced in the Draft Decision does not, in our view, support the ERA’s conclusions, even in the event that an inappropriately high standard were applied.

Two sources of inefficiency are cited in the Draft Decision:

- deficiencies in the planning and governance processes for capital works; and
- the systematic over-engineering of projects.

As discussed earlier, the identification of deficiencies in the planning and governance processes for capital works does not necessarily imply anything definitive about whether the service provider is achieving efficient cost outcomes. If findings of inefficiencies are made, and if capex is to be disallowed from the regulatory asset base, those conclusions should properly be supported by clearly identified inefficiencies in actual project outcomes. However, no supporting analysis and evidence on the point is offered by the ERA.

In relation to the evidence adduced to show systematic over-engineering of projects in the draft decision, which is used as the basis for a presumption of the existence of across-the-board cost inefficiency in new facilities investment, we note the following:

- The ERA concludes, in a relatively tentative way (indicated by the word “suggests”) at para 603 of the draft decision that the over-engineering of capital projects was ‘systematic’. This conclusion appears to differ in scope and to be much stronger than statements made earlier in the decision, which refer only to ‘instances’ of over-engineering of projects,²⁵ and which refer to material in two consultant reports, and to the ERA’s own determination in its review of a proposed Medical Centre expansion.
- More importantly, the conclusion that there is a ‘systematic’ over engineering of NFIT projects across the entire asset base does not appear to be consistent with the evidence referenced in support, particularly the two consultant reports of Geoff Brown & Associates. For example, one of these reports states that it

²⁵ Para 351 of the Draft Decision

was ‘unable to form a view on the exact amount of the expenditure on any project or program that meets the requirements of the NFIT.’²⁶ The uncertainties surrounding the estimates would therefore seem to us to preclude any clear conclusion of systematic over engineering (which would imply systematic cost inefficiency). Similarly, while the other of the two reports does identify some instances of where capital costs for specific projects could, in the view of the consultant, have been controlled more effectively, the report does not appear to us to reach any very definite conclusion to the effect that there was *systematic* over-engineering of projects by Western Power.

- The ERA’s determination to not approve Medical Centre investment involved a difference in expected costs of \$2.5 million (\$28.4 million versus \$25.9 million), or just under 9% of the expected project cost. Given normal uncertainties concerning the option value of incremental capacity installed (over and above the capacity that might be required in the immediate term), such a level of difference is arguably within the range that might be ascribed to normal and reasonable differences of view among experts. We do not, therefore, find this evidence at all convincing as substantiating material in support of a proposition that there was systematic over engineering of projects.

The claim at paragraph 603 of the Draft Decision that the ERA has project-specific information suggesting that there has been systematic over-engineering of capital projects resulting in inefficiencies in the design of network assets is therefore unsupported. No convincing evidence is offered in support of the claim, and the flimsiness of the information that is referenced indicates that the claim is speculative at best.

6.5 *The reasoning underlying the 15% reduction*

Finally, we note that the reasoning presented in the Draft Decision as to the magnitude of the alleged inefficiencies associated with new facilities investment in the first access arrangement period is extremely thin, and it is unsupported by any substantive analysis or other evidence. Given the absence of clarity about the relevant efficiency benchmark – i.e. about the zero point from which any ‘inefficiency’ in costs is to be measured – it is difficult to see how things could be any different.

The only reasoning that we could find in the Decision for the specific level of disallowance of new facilities investment (i.e. the 15% reduction) is that contained in the following two paragraphs:

“605. Taking the above factors into account, the Authority considers that the extent of inefficiency is likely to be more than a nominal amount, but less than 25 per cent of the total value of new facilities investment.

606. Taking into account the lack of information for this determination (refer to paragraph 345 and following) and the significant commercial effect that the

²⁶ Geoff Brown & Associates Ltd ‘Review of New Facilities Investment Test Compliance Western Power AA1 Projects’ 14 July 2009, page 15

determination will have on Western Power's business, the Authority considers that the extent of inefficiency to be taken into account in determining the value of new facilities investment to be added to the capital base should not be at the maximum of the possible range. On this basis, and having regard to the Code objective, the Authority has determined that the extent of inefficiency amounts to 15 per cent of the total amount of new facilities investment other than that amount of new facilities investment comprising assets constructed by other parties and gifted to Western Power."

The relevant judgments here are, self-evidently, arbitrary. There is no basis for the 25% figure, whose only function seems to be to make a 15% figure look reasonable (because it might have been higher). The lower bound estimate of 'inefficiency' is not quantified, and is simply referred to as being (in the judgment of the ERA, but in the absence of supporting evidence) more than a nominal amount. No reason is given for the particular choice of weighted average calculation that appears to lead to 15%. And, to put matters beyond doubt, that the determination lacks substantial, supporting information/evidence is explicitly recognised by the ERA in the first sentence of paragraph 606.

This approach is inconsistent with the careful and more cautious approach adopted by other regulators - such as the AER/ACCC and Ofgem in the UK - when determining the appropriate amount of capital expenditure that should be disallowed. In these cases, the regulator has presented in some detail the reasoning that underlies the estimate of the alleged inefficiency associated with a particular/specific capital investment.

6.6 Comparison with practice in other, comparable regulatory regimes

It will be apparent from what has been said in the discussion of practice in other jurisdictions regarding capex disallowances (in section 5 above) that the ERA's approach in the Draft Decision is out of line with approaches elsewhere. Four points stand out in this respect:

- The normal standard against which actual performance is compared is based on notions of reasonableness rather than best possible practice (or 'frontier' efficiency). The ERA reasoning appears to us to tend to rely on the latter notion, although it is impossible to be definite because the relevant standard is not actually discussed and specified (which is itself a significant fault in the reasoning).
- When they occur, disallowances in other jurisdictions tend to be based on findings of substantial failures relating to specific projects. They are not based on sweeping, across-the-board judgments about the efficiency of capex programmes as a whole.
- With the exception of US disallowances of investments in electricity power plant, particularly nuclear power plant, *ex post* adjustments to regulatory asset bases have tended to be much smaller, in proportionate terms, than the adjustment indicated by the ERA.

- It is generally recognised that *ex post* disallowances made in regulatory contexts where there is no source of compensatory payments in the regulatory system (such as a higher allowable return on capital, or capex incentive schemes that provide for the possibility of supernormal returns) are liable to lead to deficient investment incentives and hence to inefficiently low levels of investment. The ERA Draft Decision does not address the compensation issue.

7. OVERALL CONCLUSIONS

In response to the two questions asked, and on the basis of the reasoning above, we conclude the ERA's application of the NFIT provisions (sections 6.51A to 6.55 of the Electricity Networks Access Code 2004) and its reasoning for the proposed asset write down of 15 per cent is:

- (a) not consistent with the Code objectives.
- (b) not consistent with good regulatory principles and practice in other, comparable jurisdictions.

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George Yarrow is currently Chairman of the Regulatory Policy Institute, Oxford; Emeritus Fellow of Hertford College, Oxford University; Visiting Professor at the Newcastle Business School; an adviser to the UK Civil Aviation Authority; a member of the UK National Audit Office's academic panel on regulatory impact assessment; and an adviser to the New Zealand Commerce Commission.

Until April 2009 Professor Yarrow was a Board Member of the Gas and Electricity Markets Authority (GEMA, www.ofgem.gov.uk), the GB energy regulator and a body responsible for the enforcement of UK and European Competition Law in the energy sector. He also recently served on the Republic of Ireland's Aviation Appeals Panel.

After graduating from Cambridge University, he held appointments at the Universities of Warwick and Newcastle before moving to Oxford, where he spent most of his academic career. He has also had visiting affiliations with Harvard University, the University of California at San Diego, the University of Urbino, and Queen Mary and Westfield College, University of London.

His principal work has been on the economics of competition, regulation and privatization, although he has also written on: energy and environmental policies; corporate objectives and the market for corporate control; aspects of industrial organization theory; monetary theory; health economics; and the reform of social security. His best known works are "Privatization in theory and practice", *Economic Policy*, 1986, variously reprinted and translated, and, with Professor Sir John Vickers, *Privatization: An Economic Analysis*, published by MIT Press in 1988, and subsequently in Spanish and Chinese editions.

Among other things, during his period as a full time academic Professor Yarrow served as a nominator for the Nobel Prize in Economics, and was a member of the editorial boards of *Economic Policy*, *the Oxford Review of Economic Policy*, *the Journal of Industrial Economics*, and *Applied Economics*.

In the energy sector, Professor Yarrow has experience of virtually every major aspect of policy development over the past twenty years. He was economic adviser to the National Grid for the initial design of the transmission use-of-system charges for high voltage electricity grid, and later to British Gas for the development of similar entry/exit arrangements for gas pipeline capacity. Later, first as economic adviser to the energy regulator and then as a board member, he was involved in the full range of regulatory reforms introduced in the UK from the mid-1990s on, including: retail market opening, retail market deregulation, gas storage deregulation, the new electricity trading arrangements (NETA), the new gas trading arrangements (NGTA), the establishment of the first energy exchanges, the integration of the Scottish and England & Wales electric systems; and the enforcement of the Competition Act in the energy sector.

In telecoms he has been a member of expert panels set up to assist UK ministers in the development of the Communications Act 2003 and to assist EU Commissioners in the development of policy responses to technological convergence in the audiovisual and communications sectors. A theme of this work was the desirability of reducing, through improved policy strategies, the tension between the bureaucratic cultures typical of administrative agencies responsible for market supervision and the entrepreneurial cultures required for successful discovery and innovation in conditions of rapid change of knowledge.

Professor Yarrow has a longstanding interest in competition law and policy. Over the years, he has written reports and given evidence in a large number of competition cases considered by the Competition Commission, the Office of Fair Trading, the High Court and the Competition Appeals Tribunal in the UK, and the European Commission, the CFI/ECJ at EU level. Together with Peter Freeman, currently Chairman of the Competition Commission, he founded the Regulatory Policy Institute (in 1991) as a response to weaknesses and failures in the economic assessments of the UK competition agencies of the time. He has consistently argued for the importance of strong appeals mechanisms as the only effective vehicle for putting pressure on administrative agencies to improve their assessment procedures and performance.

Although he gave up university teaching in 1997, Professor Yarrow has continued to give lectures on competition and regulation. Examples include: The Enterprise Act: Pluses and Minuses for Competition Policy (London, Beesley Lecture), Electricity Market Reform (Sorbonne, Paris), The Changing Dynamics of Europe's Liberalizing Energy Markets (Amsterdam), Economic Assessment and the Modernization of EU Competition Law (London, for the Judicial Studies Board; and Stockholm), Economic Assessment in Competition Law Cases (Berlin, to the Association of European Competition Law Judges), EU Energy Policy (keynote address for the annual conferences of the Australian Competition and Consumer Commission (ACCC)), Energy Policy: A Time to Stop Pretending? (London, Beesley Lecture), Discovering the Value of Water (London, Beesley Lecture), Current Challenges in Regulatory Policy (keynote address, ACCC), and Environmental Aspects of Energy Regulation (ACCC).

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Christopher Decker is Research Director at the Regulatory Policy Institute, Oxford; an Associate Research Fellow at the Centre for Socio-Legal Studies, Oxford University; and a Research Member of Wolfson College, Oxford University. He currently acts as an economic advisor to the Australian Competition and Consumer Commission (ACCC), the UK energy regulator (Ofgem) and is a member of the panel of economic experts for the Commission for Energy Regulation (Ireland). Previously, Christopher was Principal Economic Advisor at the ACCC.

Chris's work is focused on economic regulation, competition economics and public policy. He has been involved in a range of research and consulting projects for both the public and private sectors, including for: the OECD; the European Commission

(DG Transport & Energy); the Australian Competition and Consumer Commission; the Australian Energy Markets Commission; ENARGAS (Argentina); the South African Competition Tribunal; and in the UK, the Office of Fair Trading, the Competition Commission, Department of Trade and Industry, Cabinet Office and Office of Gas and Electricity Markets.

Recent policy studies include: the review of RPI-X@20 (Ofgem); an assessment of the Intelligent Energy-Europe II Programme (for the European Commission); a review of International approaches to transmission access for renewable energy (Ofgem); the economic issues associated with the use of resets for regulating communications and energy networks (ACCC); a report on the impact of maintaining price regulation (AEMC); a study of next-generation access networks in communications (submitted to the Australian Department of Broadband, Communications of the Digital Economy); an assessment of the competitive and economic impacts of the introduction of the Single European Payments Area (submitted to the European Central Bank); and a study on the development of implementation rules of economic regulation within the Single European Sky initiative (for the European Commission).

In addition, he has recently presented papers on: 'Ideas on how to stimulate more energy network related innovation' at Ofgem's RPI-x@20 workshop (Imperial College, London); '100 years of government control over public utilities: An Australian perspective' at the ACCC Regulatory Conference 2009; and a paper on 'Regulation of Economic Infrastructure in the UK: Developments and Challenges'.

Christopher's academic research is focused on the application of economic techniques in competition law enforcement and in regulatory processes. His book on this issue, *Economics and the Enforcement of European Competition Law* is forthcoming in September 2009. He holds a first class honours degree in economics from the University of Melbourne (Australia) and a PhD from the University of Oxford.