Competition Benefits

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1. Introduction and summary

This paper begins with a brief review of the issues raised in the ACCC's present review of the regulatory test. It notes the policy aims that seem to underlie that test, namely to secure competitive neutrality and prudent investment in the matter of network investment. The outstanding issue at present is whether to extend the regulatory test to include competition benefits.

The paper looks at the contrasting approaches taken to these issues in two other countries. In the UK, great weight is attached to competition issues in assessing policy towards transmission investment. In Argentina, there is essentially no discretion to allow regulated investment, even without competition benefits. The reasons for the different approach seem to relate to different expectations about the state of competition and about the nature and effectiveness of regulation.

The regulatory appraisal problem is complex, with many different factors to be taken into account and the implications of different kinds of ownership. Important too are the problems of obtaining or estimating the relevant information about likely future developments, and the various pressures on regulatory agencies responsible for decision-making here. The complexity is particularly great when the full dynamic nature of competition is considered.

Will including competition benefits in the regulatory test on balance have a beneficial or harmful effect? This question cannot be answered in the abstract. The answer differs from one country to another, and from one time to another. The right answer for Australia depends on the particular conditions and problems in the Australian National Electricity Market (NEM) today. It therefore seems helpful to examine further the actual experience to date with the regulatory test, and to consider the main strengths and weaknesses of the NEM on which the competition benefits modification could impact.

2. The Regulatory Test in Australia

The ACCC sets the scene as follows.[2] Previously, the state-owned electricity companies did all the network planning. The creation of the NEM meant

- the introduction of competition across networks, and
- the introduction of private ownership including in the networks.

Network investment decisions needed to consider these factors, and there was a need for regulation. The main aims were to secure competitive neutrality and prudent investment (that is, investment that was both sufficient and efficient).

Initially, a Customer Benefits test was prescribed for certain transmission investments. NEMMCO, responsible for implementing it, perceived certain problems of inconsistency and measurement, found it volatile, and considered it difficult for an inter-regional augmentation to satisfy the test.

In view of NEMMCO's conclusion on one proposed investment, the NSW government required a resolution of these problems as a condition of commencing the NEM.

Ernst and Young, appointed to review the situation, accepted the case for a public benefits test -looking at the effects on everybody - instead of a customer benefits test. They commented that no one thought the customer benefits test appropriate, and wondered if it had been incorporated by accident.

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[2] ACCC, Issues Paper, Review of the Regulatory Test, 10 May 2002

The ACCC implemented the recommended public benefits test with emphasis on a cost benefit analysis. For example, it required that a project should maximise benefits across a range of alternatives, not just show a positive benefit. The regulatory test still emphasised the criteria of economic efficiency and competitive neutrality.

In practice, problems have since been perceived with the regulatory test too. As regards intra-regional investment, the ACCC says that it is "not in possession of sufficient information to comment on how the test has been applied".[3] It is unsure whether the test has been applied correctly. Concerns have been expressed that it may tend to favour reliability versus market-driven augmentations. Has there been an adequate assessment of investment proposals? The test does not seem to impede investment, but does it delay it?

As regards inter-regional investment, two main investment proposals have been approved, of which one (SNI) has been challenged through the National Electricity Tribunal and the Courts. A review group established by NEMMCO found that there was a slow process in assessing and approving projects, that the test did not include competition benefits, and that there was a difficult co-existence of regulated and non-regulated interconnectors. This group suggested an approach or test that acknowledged the benefits of interconnectors to competition, did not unduly favour non-regulated solutions, avoided a protracted process, and avoided abuse with respect to committed projects.

Electricity Code amendments have already been put in place that shift responsibility for carrying out the tests. The distinction between inter- and intra-regional augmentations was replaced by a distinction between small and large assets (capex under or over $10m). NEMMCO no longer applies the regulatory test. Network developers that wish to establish large network assets have to show that their recommended investment passes the regulatory test and consult on this. There is the possibility of appeal to the ACCC. [4] The present issue is whether to extend the regulatory test (for large and small investments) to include competition benefits. Precisely what this means is discussed later.

3. The Ernst and Young report

The stated aims that the test is intended to achieve seem to have remained constant over time, that is, to secure competitive neutrality and prudent investment following the introduction of competition and private ownership. However, thinking about the appropriate nature of the test seems to have changed over time, in the light of experience, and views about that experience and about the appropriate nature of the test are by no means unanimous.

What is competitive neutrality? The Ernst and Young report said

> "This criterion follows directly from the code objectives of competition, customer choice, and non-discrimination. It implies that the decision criterion should not favour one group of generators over another, nor should it favour (or disfavour) regulated transmission options over other investment options" [5]

The National Electricity Code required, inter alia, that potential entrants should not be treated more or less favourably than incumbents, that particular energy sources should not be treated more or less favourable than others, and that intrastate trading should not be treated more or less favourably than interstate trading.

What is prudent investment? Ernst and Young noted several references to this in the Code, and extended the discussion to include economists' concepts such as Pareto improvements and aligning costs and benefits by taking account of externalities. Not all of this made its way into the final wording of the regulatory test.

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[3] ACCC 2002 p. 4

[4] ACCC 2002 p. 6. For a more extensive summary and commentary on existing arrangements, see Bruce Mountain and Geoff Swier, "Entrepreneurial Interconnectors and Transmission Planning in Australia", Electricity Journal, March 2003 pp. 65-75

[5] Ernst and Young, Review of the Assessment Criterion for New Interconnectors and Network Augmentation, Final Report to ACCC, March 1999, p. 17

Ernst and Young actually proposed four criteria for evaluating the issues they were asked to examine. Competitive neutrality and efficiency were the first two. Their third criterion was the merit of having a decision criterion that is simple to understand and administer. This seems not to have been emphasised in later discussions, but their comment seems apt: "A decision criterion which was unnecessarily complex would be likely to suffer from interpretation inconsistencies and would likely add cost at all stages of the decision process - including formal review."

Ernst and Young's fourth criterion was regulatory certainty. They argued that " the main impact of any uncertainty is on non-regulated alternatives rather than on the regulated augmentation itself. … Increased risk will deter investors in generation and other non-regulated alternatives to regulated augmentation." Again, this argument has been less emphasised in recent discussions, and the main concern seems to have been the adverse impact of the regulatory test on proposed regulated investment. At the same time, others have claimed that experience of the test has been to the detriment of non-regulated investment. As suggested later, it would seem helpful to provide further information about actual experience.

Ernst and Young further suggested that benefits should only be accepted if they accrued equally to non-regulated alternatives. This presumably reflected a concern to ensure that the regulatory test did not operate to the disadvantage of non-regulated investment.

This recommendation was not included in the regulatory test, perhaps because it was thought that certain benefits could not easily accrue to non-regulated investments. However, the general point seems valid, and merits consideration in the context of competition benefits. If a transmission investment (e.g. in a regulated interconnector) is deemed to have competition benefits beyond the commercial benefits that would accrue in the market, would it be consistent with competitive neutrality to credit a regulated investment with these but not to make arrangements to similarly credit a non-regulated investment?

4. UK approach to transmission regulation

The UK does not have a regulatory test as such.[6] There is no mechanism for vetting and approving or disapproving specific network investments that might be made by the regulated transmission company or by another market participant. One reason is that the scope for a new entrant to invest in transmission (or distribution for that matter) is rather limited in the UK. This is partly because of the maturity of the network (almost everyone is connected and the growth rate is relatively low), and partly because the transmission and distribution licensees have a licence monopoly in their areas.

However, the underlying aims of the regulatory test still apply in the UK, and if anything even more strongly. The regulator has a statutory duty to promote competition and efficient operation, and the transmission licensee has a statutory duty to facilitate competition and to operate efficiently. There certainly have been concerns to ensure that network investment is efficient and consistent with a competitive market in generation and retail supply.

The main vehicle for incentivising efficient operation of, and investment in, the transmission system has been the RPI-X price cap. This gives the company the incentive to keep down operating costs and not to incur capital costs unnecessarily. At each re-setting of the control, future investment plans are discussed with the regulator and its consultants in setting the X value. There is active debate. Typically, the X value would be based on a capital expenditure programme about 10 per cent lower than the company argued for. The specific choice of investment is a matter for the company, but investment in excess of the assumed total is not reimbursed during the period of that control, and would be at risk in setting the next control if it were unjustifiable.

At the same time there is a strong emphasis on facilitating the development of a competitive market in generation and supply. In light of the statutory duties on the regulator and on the transmission company, allowance is made in setting X for investment required to discharge those duties e.g. to adapt the network to changing locations and operation of generation stations.

[6] Strictly speaking, the following applies to Great Britain, although I suspect Northern Ireland is not significantly different.

An early issue was whether the transmission company should set "deep" or "shallow" connection charges to generators. That is, how far should a new generator face the costs of adapting the transmission network to the implied new pattern of demand? Although deep charges might have been more cost-reflective, the eventual decision, agreed between regulator and transmission company after consultation with interested parties, was to use relatively shallow charges so as not to deter the development of competition in generation to the advantage of incumbent generators. A significant consideration here was the initial lack of competition in generation and the consequent need to facilitate new entry.[7]

There was early awareness of a possible tension between investments in the transmission network and investments in generation. For example, the transmission company proposed to install capacitors to deal with certain reactive power problems and the generators argued that they could provide such power at lower cost if they were properly incentivised to do so. With regulatory encouragement, the transmission company made more explicit offers for ancillary services support, and were obliged to choose the most economic alternatives. In one case a long term contract from the transmission company enabled the financing of a new generating station explicitly to provide reactive power.

For various reasons the cost of ancillary services increased initially after privatisation. One reason was the extent to which there was generation market power behind transmission constraints. It was decided to introduce an incentive contract for the transmission company, relating its allowed income to its performance in beating a specified target level of ancillary service costs. The transmission company soon found ways of reducing these costs by appropriate investment in the network, by revised operational procedures, and by encouraging a more competitive market for ancillary services. This approach has worked remarkably well, the incentive schemes have been renewed several times and the total costs of ancillary services have fallen to a fraction of their previous level.

Thus, although there is no regulatory test as such in the UK, these examples show that the active promotion of competition and of increased efficiency have been very important factors in the regulation of the transmission sector. This suggests that the principle of taking competition benefits into account in assessing regulated investment would not be an alien one in the UK. However, note that this is in the context of an active regulatory regime with regular and detailed appraisal of costs and investment programmes, and where a high priority is put on increasing competition.

5. UK regulation of interconnectors

In Australia, the regulatory test has been applied to interconnectors between the States. A main issue has been the relationship between regulated and merchant interconnectors. What has been the situation and experience with interconnectors in the UK?

There are two interconnectors into England, one from Scotland and one from France. Both were little used before privatisation, since the CEGB saw little need for foreign electricity from either country, but both interconnectors were fully used after privatisation.

An early issue was the assessment of a possible upgrade to the 850 MW interconnector between Scotland and England. It has been used to full capacity all day every day from the time of privatisation until recently, bringing cheaper electricity from Scotland to England. The question arose whether it would be economic to increase its capacity. In addition, it would bring much needed additional competition into England, which was an important regulatory objective. This would probably have been taken into account in deciding whether to include it in the regulatory asset base if a "regulated upgrade" had been considered. In the event, it was not necessary to make this decision because the two vertically integrated Scottish companies decided to finance the upgrade themselves with the prospect of the profits from the electricity they would export. They later financed several more upgrades on the same basis.[8]

[7] For the avoidance of doubt, neither the transmission company nor the regulatory authority was required to evaluate the impact on competition in any particular instance in considering how to set charges. Rather, the view was taken that shallow charges would be more conducive to competition than deep charges, and this approach was adopted across the board.

[8] Present capacity is 1400 MW, it is expected to be 1600 MW shortly, and 2200 MW by the end of 2003. An interconnector has also been built between Scotland and Northern Ireland.

What if a third party had proposed a merchant interconnector between Scotland and England? Quite apart from the legal question whether this was consistent with the licensing regime, this would presumably have raised questions about the obligations of the transmission companies at either end. It might also have raised tensions given the vertically integrated nature of the two Scottish companies. However, these two companies accounted for essentially all the generation in Scotland. This meant that there was no other source of generation that would be interested in using a merchant facility, so the issue of a third party merchant facility did not arise. Nevertheless, I like to think that, had such a merchant interconnector been proposed, the incumbent companies and the regulatory regime would have been able to accommodate it.[9]

A recent development in the UK is, in effect, a proposal to change the status of the interconnector upgrades from merchant to regulated status. This is in the context of extending the wholesale trading arrangement (NETA) in England and Wales to include Scotland (BETTA). This presumably reflects the view that uniform and regulated terms of access , and elimination of the bottleneck between England and Scotland, would facilitate the operation of the wholesale market.

6. EU Directive on interconnectors

New EU gas and electricity Directives, which must be implemented by 1 July 2004, will soon apply directly to all interconnectors within EU member states. These have caused the UK to consider what this means for its present regime for interconnectors, particularly in a context where more interconnectors are actively in prospect.[10]

At present, four new electricity interconnectors are at various stages of planning. National Grid Transco and the national grid operators in Norway (Statnett) and the Netherlands (Tennet) plan two of these. Two other projects - with the Republic of Ireland and another link to the Netherlands - are also under consideration. The status of these, whether the equivalents of merchant or regulated, is not yet clear, but the equivalent of merchant status appears to be actively under consideration

Briefly, the UK arrangements hitherto have not required interconnectors to be licensed. This is presumably because they are seen as being only a small part of the market, making a contribution to competition without threatening market power. Even so, there are conditions in the licenses of the owners of the interconnectors that make reference to open access and reasonable rates of return.

In the EU, there is increasing concern about the extent and terms of access to transmission networks and to interconnectors, especially where there are dominant vertically integrated companies with incumbent rights to first use of the interconnectors. Control of interconnectors can restrict competition. There is now a strong aim at the EU level to liberalise all EU energy markets, including via cross-border interchanges, as part of the aim to complete the internal market.

The new EU Directives require, amongst other things, that Member States ensure the implementation of a system of Regulated Third Party Access (RTPA) to gas and electricity transmission and distribution lines, based on published tariffs applied objectively and without discrimination. These tariffs, or at least the methodologies underlying their calculation, are to be subject to ex ante approval by the relevant regulatory authorities. An approved transparent and non-discriminatory auction procedure would meet these conditions. There are conditions on the use of revenues from interconnectors.

There is also provision for regulatory authorities to exempt new interconnectors from these RTPA and other provisions where certain conditions are fulfilled. Briefly

- the investment must enhance competition and security of supply
- the level of risk must be such that the investment would not take place without an exemption
- the owner must be a separate legal entity from the system operators in these areas

[9] I also understand that there have not been the kinds of disputes between entrants and incumbents in the US that there have been in Australia.

[10] LNG facilities and interconnectors: EU legislation and regulatory regime. DTI/Ofgem initial views, June 2003, p. 5

- charges must be levied on users
- the exemption must not be to the detriment of competition or the effective functioning of the internal market or of the regulated system to which the investment is linked.

In addition, no part of the costs of the interconnector should have been recovered by use of system charges in the systems linked by the interconnector.

The regulatory authorities can still decide on rules and mechanisms for capacity allocation on exempt interconnectors. Indeed, the Directives specifically require regulatory authorities to maintain a general duty to ensure non-discrimination, effective competition and the efficient functioning of the market which can be fulfilled using a range of instruments including setting rules on the management and allocation of interconnection capacity.

The EU Directives thus require the UK to introduce a licensing regime for interconnectors where there previously was none. The present UK concern here is to create more regulatory certainty. Part of this is to indicate that standard approaches for licence changes will apply to interconnectors too. The relevant regulatory authorities (DTI and Ofgem) expect to give early guidance for new interconnector projects on conditions for exemption. In the absence of exemption, default provisions will apply, as indicated above. (Non-discrimination, published tariffs or methodology and ex ante approval of these, which may include auctions.) Further measures are also envisaged including an initial offer of capacity to the market, secondary trading of capacity rights and Use it or Lose it (UIOLI) mechanisms.

The DTI/Ofgem paper provides a further discussion of the above conditions for exempting interconnectors. It identifies various relevant competition indicators, both quantitative (including market shares and ownership of alternative sources of power) and qualitative (including the extent of separation, Third Party Access, conditions of entry, liquidity, and the existence or otherwise of an established independent regulator with a duty to promote competition).

What is the significance of all this for policy in Australia? In some respects the EU approach is quite different from that in Australia. Hitherto in the UK, and presently in Australia, it is assumed that interconnectors may be built on a merchant basis and not regulated: it is only if the costs are sought to be recovered by compulsory use of systems charges that regulation applies. In contrast, the EU approach assumes that all interconnectors are to be regulated (with respect to terms for using them) unless certain conditions are fulfilled to the satisfaction of the regulatory authorities. The onus of proof is therefore different.

On the other hand, the UK and EU approaches both identify competition as a very relevant factor in deciding policy towards interconnectors and transmission investment generally, and they put great weight on the promotion of competition as a regulatory duty. To an extent, this is driven by the inherited market conditions in many of the EU member states, particularly those that have not adopted an active pro-competition approach to privatisation, restructuring and competition. They see the development of interconnectors as a means of bringing more competition faster than would otherwise happen. Policy therefore seems to encourage the greater availability of existing interconnectors and the building of new ones, with a view to increasing competition as an end in itself, over and above what might derive from a simple calculation of trading costs and benefits.

The priority at present seems to be to encourage new merchant interconnectors by exempting them from potentially restrictive licensing. (I understand that no less than 43 projects are under consideration for interconnection with Italy.) But if new merchant interconnectors failed to emerge it would be surprising if there were not more active encouragement to new interconnectors on some kind of regulated basis.

Against this, however, is an emerging view (in the US at least) that interconnectors of either kind are likely to be economic only to the extent that generation costs are and will remain significantly different between the markets at the ends of the interconnector. To the extent that such wholesale price differences reflect transient market power in one of the markets and excess capacity in the other, the economics of the potential interconnector are suspect. It might be more economic to deal with market power problems more directly. EU policy against market power in generation has not hitherto been aggressive, but there are indications that it might strengthen in future.

All these considerations could also be relevant in some Australian states and in the NEM as a whole. They impact on the case for the inclusion of a competition benefits test.

7. Policy and Experience in Argentina

Not all countries take the view that competition considerations are appropriately used to support new transmission investment. An example of a country with a quite different approach is Argentina.[11]

Privatisation in Argentina involved radical restructuring of the generation sector, selling each plant separately. In consequence, market power in generation was not a serious concern. The desire to reduce to a minimum the extent of any natural monopoly extended to the transmission sector. Under the regulatory framework adopted there, incumbent transmission companies are not even responsible for expansion of the transmission system. Major new transmission investments take place only where users vote in favour of them, and are prepared to pay the cost of the expansion.

There have been criticisms of Argentine experience with this approach, generally focusing on delay in securing investments. Some attribute this to limitations in the design of the Public Contest payment mechanism. Suggested flaws in that mechanism are the exclusion of consumers from the mechanism, the exclusion of market participants in the 'swing bus' (which happened to be Buenos Aires), the assigning of votes and fees based on usage rather than profit, and the possibility of strategic vetoes on expansion.

As ever, in evaluating any policy, the need is to look at what the alternative would have been or might be. In Argentina the context was very significant. Previous policy had led to a "tremendously distorted regulatory regime" with investments based on political decisions, and excessive investments in generation capacity and to a lesser extent also in transmission facilities. These were financed in large part through increased debts and transfers from the Treasury, with tariff increases delayed in order to control inflation, thereby encouraging further consumption growth. Meanwhile, distorted financial incentives favoured investment in new assets rather than incurring of needed operational expenses.

In these circumstances the priority was to stop all this, and to find a way of limiting transmission investment to the level that users wanted and were prepared to pay for. Some experienced participants in the process have suggested that, in many respects, the Argentine approach has worked quite well. For example, it did get lines built, broadly to the extent that users wanted, and it allowed effective competition to build them. Another participant confirms that "In spite of the inability to hedge benefits from transmission investments, the Argentine system of encouraging transmission investments did work albeit slowly." He welcomes the 'user pays' principle. He points out additional merits of the process – for example, it has incentives not only to use known methods to improve reliability but also to discover new opportunities for improving performance, with consequent improved information about the transmission system. The arrangement also facilitates financing of large projects.

There is general agreement that the Argentine mechanism is not perfect, and reforms may be needed. Moreover, it is not argued here that this is the most appropriate mechanism for Australia. But Argentine evidence suggests an important consideration. Even though the aim of policy may be to encourage competition, there may be circumstances in which it is appropriate not to give to a regulatory or transmission authority the discretion to attach weight to this issue. There may be advantages in, less discretion rather than more. It all depends on how that authority can be expected to use that discretion. In the Argentine context, it was judged that the net effect of giving discretion to the transmission and regulatory authorities would be adverse, and that there would be a real danger of excessive and inefficient investment, to the detriment of customers.

To use an analogy from a quite different area of policy, if the aim is to maximise the efficiency of road use without compromising on road safety, a fixed speed limit may be unreasonably restrictive. In some circumstances it may be sensible to allow traffic to use the roads subject only to an obligation not to exceed a reasonable speed. But in other circumstances, the costs of interpreting and enforcing such an

[11] The following is taken from my paper "Transmission regulation, merchant investment, and the experience of SNI and Murraylink in the Australian National Electricity Market", 12 June 2003, available on the Harvard Electricity Policy Group website. That paper contains more details and references to the work and views of others on policy in this country

obligation, including the associated risks and uncertainty, may outweigh the benefits of doing so. The challenge is to identify the right amount of discretion for each set of circumstances.

A question for Australia is thus how the regulatory test has so far been used, with a view to providing some insight into what the effect would be in future of including a competition benefits clause.

8. The complexity of the issue

What approach is best for Australia, and in particular should the appraisal of regulatory investment include an appraisal and quantification of the effect on competition? It is worth considering just how complex is the task is involved in any regulatory test, quite apart from any consideration of a competitive benefits test.

There are at least five main elements of the appraisal of a proposed investment in the NEM, each of which presents a significant challenge.

1. In a single isolated transmission system, regulation of a network investment programme involves assessing whether it comprises the right amount of investment of the right type at the right time in the right places. This in turn involves, inter alia, an assessment of what customers want, and of their preferred trade-off between cost or price and quality of service.
2. If, in addition, there is competition in services (generation and supply) across the network, the investment programme has to meet obligations with respect to non-discrimination and neutrality as to competition, and where necessary to consider the appropriate balance between the two. In many jurisdictions (including the UK) the regulatory authority and transmission licensee would need to consider how best actively to promote competition..
3. Where there are multiple networks in different regions, the appraisal has to take account of the interactions between these regions. In particular, it must consider the possibility of competition between the services (generation and supply) in the networks in all relevant regions.
4. The possibility of competition in the provision of network services themselves - that is, the possibility of competing to build or operate alternative transmission lines within the network - adds an additional complication. Restricting expansions to the incumbent transmission operator may secure economies of scale or scope, but the presence of a rival may stimulate efficiencies of operation. There are also obligations to new entrants to consider, within a framework that may or may not be well developed to consider and implement such obligations.
5. Network services can also be alternatives to services over the network. For example, as illustrated earlier from the UK, in some cases generation and transmission investments are alternatives for securing network stability and providing reactive power. Again, rules for dealing with this may or may not be well developed and adequate.

There are yet further complications in markets where ownership is a combination of public and private. It is necessary to frame and implement regulation to meet the problems posed by both types of ownership at the same time.

It used to be thought that the problems of regulation were associated only with private ownership, and that public ownership could regulate itself. It is now clear that this is a myth. Different kinds of ownership create different kinds of incentives, and all of these need consideration and regulation. The incentives of private ownership to restrict output, increase price and maximise profit are much debated (though private businesses sometimes point out that they can only make a profit if they build, sell and use assets that would otherwise not exist). The incentives of public ownership to expand output, cross-subsidise and allow costs to increase may be less well known or accepted, but that does not mean they are not real, and do not distort investment and operations.

Modern electricity markets are thus characterised not only by competition between private businesses in the product markets, but more generally by a struggle between all different interest groups to survive and succeed in all relevant aspects of the market. These interest groups will naturally use whatever regulatory procedures and opportunities are available. The regulatory authority needs to be alert to the aims and tactics of both groups, and one may be confident that any regulatory process such as the regulatory test, however defined, will be used by all market participants.

An additional consideration is the greater or lesser involvement of government. In the UK an important aim of the original privatisation was to reduce the role of government, and to "let the market and the regulator get on with it". With the change of government there has been a change of approach. The present government has been more pro-active, for example with respect to involvement in opening the competitive retail market and reforming the wholesale trading arrangements. Recently, the government has taken a decision to charge transmission losses on a uniform basis in the extended British market that is directly at variance with the regulator's decision to charge transmission losses on a locational basis in the England and Wales market. Government action can thus change policy and at the very least introduce or increase regulatory uncertainty.

There is no doubt that at least some national electricity market issues are of considerable interest to State and federal governments in Australia. Publicly owned corporations and regulatory authorities have been conscious of this.[12] How the various parties have responded to this situation is therefore a relevant question.

The point of stressing the complexity of the appraisal of regulated investment is to acknowledge that it is difficult to identify the best regulatory policy, even in the absence of a requirement to consider competition benefits. Any analysis depends crucially on future market parameters (e.g. prices, costs, rate of entry, technology, demand and supply conditions). Yet these parameters are not somehow given, they have to be estimated. Market participants will give different and conflicting views about them. The outcome is therefore a judgement. And the more scope there is for judgement, the more difficult it is to identify and follow a consistent approach, the less possible it is to provide regulatory certainty, and there more scope there is for a variety of influences on regulatory decisions.

Introducing competition benefits as an additional criterion would seem to allow yet more factors to be taken into account in the regulatory decision. This means greater scope to encourage or deny related investment, greater ability to respond to concerns deemed important by the regulatory authority, and greater scope to influence the development of competition. It thus means a bigger role and more influence for the relevant regulatory authority. However, it also means more regulatory uncertainty, and potentially greater costs to market participants from higher regulatory risks. This raises the question whether a greater role for regulation in this area would on balance be desirable.

9. Estimating competition benefits

The nature of competition benefits and how they relate to the present regulatory test seems to be a controversial issue. Some argue that competition benefits are not presently included in the test and ought to be, others argue that they ought not to be, yet others argue that they already are or could be included in the test. I am not able to assess these arguments here. The point I wish to make in this and the next section is that the competition benefits that are to be identified and measured (whether in the present test or a revised one) depend on the meaning that is attached to the concept of competition itself.

A conventional view is that competition means price equal to marginal (or average) cost, in contrast to monopoly which means marginal revenue equal to marginal cost hence price above marginal cost (and above average cost). On this view, the competition benefits of a transmission investment are primarily the advantages of having lower prices (which reflect less market power) in the wholesale generation market.[13] Set aside the resulting transfer of income between generators (investors) and consumers, which is presumably not considered in a public benefits test. The benefit of competition is then presumably the greater output that is induced by the lower prices, valued at the difference between price and marginal cost. This is the so-called welfare triangle.[14]

This of course is a rather simplified version of the story. The calculation needs to take account of time, and the potential savings from investment and output or avoided investment and output in each region. To calculate the competition benefit requires an estimate of what prices and output would be both with

[12] See for example the experience recounted before the National Electricity Tribunal.
[13] Cf. "Competition arises from increased competition between generators, and the reduction in market power, resulting from free flowing interconnectors." ACCC 2002, p. 38
[14] This triangle in the higher priced region may of course be offset by another triangle of reduced output in the lower priced region.

and without the transmission investment. This in turn requires an estimate of what generation costs would be and how generators would respond to changes in market prices, and also what consumer demand curves will be and how customers would respond to changes in market prices. If the investment has a life of say 15 to 40 years, then presumably estimates need to be made over such a period.

Such estimates are by no means impossible to make. Indeed, similar estimates have been made in several regulatory assessments already, including for the regulatory test in Australia. I later suggest that a further analysis and comparison of such assessments would be instructive. Generators too make similar decisions in considering whether to enter or expand in (or withdraw from) a market. But these decisions may be somewhat simpler insofar as they can take market conditions as given independent of their own outputs.

How accurate and reliable are the estimates made in a regulatory test is another matter. Views about the future can vary greatly. For this reason amongst others, decisions that depend on such judgements are left in the private sector wherever possible. Private sector investors whose own money is at risk have the greatest incentive to get these decisions right and not to take undue risks. They may not always succeed, and indeed they often fail. However, there is every reason to think that public sector decision-makers would fare even worse.

10. The nature of competition

In electricity markets, the welfare triangle may be very small. Even where price is considerably above marginal or average cost, the demand elasticity is so low that reducing price may lead to a very small increase in demand. If there is not much increased output, the total value of such increased output is very low. This raises the question whether it is worth bothering to include competition benefits in the regulatory test.

A possible argument is that the above calculation takes an unduly restrictive view of the nature and effects of competition. Surely more effective competition in generation should also force generators to seek efficiencies and reduce their generation costs more than they otherwise would? Surely it would allow retailers to compete more effectively too? They would be able to make more alternatives available than they otherwise would. This would result from their being able to buy directly through an interconnector, for example, but more generally as a result of generators now being keener to discover and meet the needs of their customers the retailers.

In principle, these arguments apply not only in generation and supply, but also in transmission and distribution. That is, in assessing the competition benefits of any investment, it is necessary to ask what effect it would have on the efficiency and prices of the transmission and distribution networks. In particular, would a regulated investment reduce the scope for competition from non-regulated investment? If so would this reduce the pressure on incumbent transmission and distribution companies to increase their efficiency and respond to the needs of other market participants?

In principle, all these arguments apply not only to prices and costs but also to quality and variety of service. They apply also to innovation. Generators and retailers (and transmission operators) do not compete merely by adjusting the prices and quality of existing goods and services; they also invent new ones.

This leads into a broader view of competition as a rivalrous process of discovery and change. More effective competition means faster adaptation to change and faster discovery and testing of new ideas. Customers stand to benefit from all this, but in ways that cannot be fully anticipated today. Indeed, part of the value of competition is that it discovers things that are not yet known, and part of the aim of the participants in the competitive process is to take their rivals by surprise. Another value of competition is that it tends to identify those people and organisations that are good at discovering information, and to weed out those that are not.

Personally, I am sympathetic to such a broad and dynamic view of competition, rather than a narrow view that looks only at prices and quantities in a rather static framework. The question I pose, however, is how far it is sensible to give a regulatory authority the responsibility to identify and quantify such a broad range of potential consequences of a transmission investment, in such a way as to add this into a

regulatory benefit calculation. For some regulatory authorities this may be straightforward, for others not.

11. Summarising the questions

As acknowledged, there is a question how far the present regulatory test already includes consideration of competitive benefits. To the extent that it does not, the foregoing arguments suggest that including competition benefits in the regulatory test will tend to increase the case for justifying regulated transmission investments, but it will also tend to increase the scope for regulatory discretion in the appraisal of such investments. On balance, will this be desirable or undesirable? What will be the likely net consequence of including competition benefits (or more consideration thereof) in the regulatory test in the particular circumstances of the Australian NEM at the present time? Consider two extreme scenarios that depend on the answers to the following questions.

Will the inclusion of competition benefits in the regulatory test enable substantial investments in transmission (including interconnectors) to go ahead that are prospectively economic but that are presently precluded by the restrictive nature of the regulatory test? Will such investments promote the interests of customers by protecting them against monopoly prices in certain states or geographical sectors or behind transmission constraints? Will the stimulus provided by these investments contribute to greater variety and choice, more decision-makers in the market and better opportunities for others to enter in future? Will there be better information for regulators and policy makers as a result of there being more sources of information available and more rigorous testing of proposals in the course of appraising them? In short, will this modification to the regulatory test tend to foster greater efficiency, competition and innovation, and generally enrich the operation of the NEM?

Or, alternatively, will including competition benefits in the regulatory test tend to give more scope to incumbent transmission operators, often still publicly owned, to expand unduly? Will the additional lines be those that respond to political or managerial pressures but are difficult to justify economically or commercially? Will the increased scope for transmission investments tend to restrict or discourage the growth of new entrants into both generation and transmission? For example, will they make life more uncertain and perhaps untenable for entrepreneurial interconnectors? Will there be a gradual tendency for market participants to seek the protection of regulated status? Will regulators gradually be bogged down in more and more lengthy and more controversial appraisals that could increase costs and divert regulatory attention from more productive activities? In short, will the modification to the regulatory test render it more subject to distortions that will tend to reduce efficiency and increase costs, increase uncertainty and discourage the growth of competition, and if anything tend to undermine the operation of the NEM?

One scenario essentially answers Yes to the first set of questions and No to the second. Another scenario essentially answers No to the first set of questions and Yes to the second.

I do not know the answer to these questions, but I suspect that the likely outcome is somewhere between the two scenarios described. That is, there will be some beneficial effects and some harmful ones. As I have indicated, the likely outcome will also depend on the particular circumstances of the NEM in Australia. The challenges are thus to work out which outcome is more likely there, and also to design any modification to the regulatory test in such a way as to maximise the beneficial effects and minimise the harmful ones.

10. Next steps?

How best to meet these challenges? I have two suggestions, reflecting points made earlier in this paper.

First, if the aim is to understand how a revised regulatory test would work, a useful contribution would seem to be to review in some detail the experience of how the present regulatory test has actually worked to date.

The ACCC has rightly invited views on this in its previous consultation, and it is clear that views differ quite sharply, as evidenced by submissions to the ACCC review[15]. Proceedings before the National

[15] ACCC Discussion Paper, Review of the regulatory test, 5 February 2003.

Electricity Tribunal and the Courts are also instructive. I have made some comments of my own[16] but others would doubtless see the picture differently.[17]

I am not aware of anyone having independently looked at how the IRPC, VENCorp, TransEnergie, IES and others have calculated benefits in their respective applications of the Regulatory Test. For that reason it would seem sensible for the ACCC to consider carrying out or commissioning its own independent research. Its comment last year on the experience with intra-regional investment is admirably frank[18], but a decision whether to significantly modify the regulatory test could usefully be based on more thorough information. The focus of such additional research might be the actual decisions made and the actual outcomes so far as that can be ascertained to date. This would include an attempt to assess how the decisions and outcomes are different from what might have happened in the absence of a regulated test, or with a different kind of test, and to assess whether the outcomes have been beneficial or not.

The second suggestion is to take stock of the present strengths and weaknesses of the NEM as a whole. What are the problems that really need attention, and where a modified regulatory test might have a beneficial or possibly detrimental effect? For example, are the main problems in the generation, transmission, distribution or retail supply sectors, or are some of these sectors developing reasonably satisfactorily? What is the nature of these problems? Are the problems associated with particular states or geographical regions? Or are the problems associated with particular kinds of ownership, or with particular regulatory bodies or institutions, or with particular government policies? In short, what is it important to worry about and deal with, and what is less important?

This then leads on to a consideration of whether a modification to the regulatory test is the best way to deal with the outstanding problems, or whether alternative policies might be considered. This is not to suggest that it is within the remit of the ACCC to make all these decisions. But it would be useful to know whether introducing a competition benefits test (assuming that it makes a difference) is the best solution to the outstanding problems, or simply a second-best solution given that other authorities have ruled out other and potentially better policies.

In the light of the results of these two proposed pieces of work, the ACCC would be better placed to decide on the pros and cons of modifying the regulatory test to include competition benefits. The analysis and assessment will not be easy, but it will be facilitated by better information of the kind suggested. In practice, there are likely to be several effects of modification, and tradeoffs will have to be assessed. These are evidently not questions where the answers are the same from one country to another. The answers might also be quite different in the NEM in the past or in the future compared to the NEM today.

12. Conclusion

I have suggested that in the UK, regulatory decisions concerning transmission do indeed consider competition benefits. This is in a context where the regulatory regime is strong and statutorily required to be active in promoting competition and efficiency, where competition was initially far from effective, and where it was not envisaged that entrants would make transmission investments on any significant scale. In contrast, in Argentina, regulatory decisions concerning transmission do not consider competition benefits. This is in a context where the regulatory regime is by design severely limited in its functions, where radical steps were initially taken to ensure strong competition, and where it was envisaged that significant transmission investments would and should be made by parties other than the incumbent transmission operator.

[16] See my paper referenced above

[17] See again Mountain and Swier as referenced earlier.

[18] "In respect of distribution networks, … [the Commission] is not in possession of sufficient information to comment on the experience of DNSPs applying the regulatory test … / In respect to DNSPs there is no information available to the Commission that would indicate whether the need to evaluate network augmentation proposals against the *regulatory test* has resulted in sub-optimal outcomes either in the timing of investment or the investment option chosen." ACCC Issues Paper, 10 May 2002, p. 5

The challenge is to assess the circumstances in the Australian NEM at this particular point in time. What is the state of the regulatory regime that would be responsible for implementing a regulatory test involving competition benefits? How important is it to increase such competition and is this the best way to do so? What is the actual and desired scope for non-regulated transmission investments that could be impacted by a change in policy? I hope that identifying these questions may be of assistance, even if I do not answer them here.