Comment on MCE Proposal for a 'Regulatory Test' Rule Change

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The comments and opinions expressed in this paper are those of Marsden Jacob Associates (MJA) and do not necessarily reflect those of the EUAA. No part of this submission is confidential to MJA. Funding was provided by the National Electricity Consumers' Advocacy Panel.

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Executive Summary

INTRODUCTION

1. This paper contains the results of a review of the background leading to a proposal by the Ministerial Council for Energy (**MCE**) to change the National Electricity Rules (**Rules**) in respect of the ACCC/AER regulatory test and provides recommendations in respect of that proposal.

2. Despite the reforms to the regulatory test that have been implemented progressively since 1998, the MCE has accepted that inefficiencies in transmission planning and investment remain. In its December 2003 report to the Council of Australian Governments (**CoAG**), the MCE adopted four principles to underpin transmission policy in the National Electricity Market (**NEM**). Using these principles, the MCE agreed to a package of reforms in electricity transmission, including reforms to the regulatory test, taking account of the Australian Competition and Consumer Commission's (**ACCC**) 2004 review of the regulatory test.

3. The MCE argues that the proposed Rule change is likely to contribute to the achievement of the NEM objective because it will:

    a. promote efficient investment though the provision of a robust and stable framework for the economic evaluation of network investment; and

    b. deliver long-term benefits to consumers by maintaining network performance requirements, enhancing the reliability and security of the national electricity system, potentially reducing region specific (generator) reserve requirements and enabling the identification and approval of a particular transmission investment option as the most effective means of facilitating competition (for example, by promoting competition between generators).

4. A critical aspect of the proposed Rule change is the continued support for application of cost-benefit analysis in the execution of the regulatory test.

5. We accept that, properly applied, cost-benefit analysis can assist in determining whether a particular action or project will make a positive contribution to the welfare of society. In the form of the regulatory test, the application of cost-benefit analysis seeks to determine whether a particular project relating to network augmentation should be undertaken or decision should be made that would lead to improved performance of the NEM. It is clear that this is an intention that underpins the MCE proposal. However, as we note in the paper, the practical application of cost-benefit analysis is not without challenges.

FOCUS OF THIS PAPER

6. A key focus of this paper is how the MCE proposal addresses issues associated with application of cost-benefit analysis in the regulatory test. Particular attention is focussed on issues identified – and discussed in considerable detail – during the National Electricity Tribunal (**NET**) appeal that dealt with the SNI proposal to construct a new interconnector from New South Wales to South Australia (and the subsequent Victorian

Supreme Court challenge to the NET Majority Decision). The primary reasons for this focus are that:

a. the appeal process identified a range of matters related to the way the regulatory test had been specified and applied that were subject to substantial criticism;

b. several of the above-mentioned criticisms are important, particularly in respect of formulating alternative options and in respect of the 'mechanics' of applying the principles of cost-benefit analysis; and

c. it is not clear that all of these matters were subsequently, and adequately, addressed by the ACCC in formulating the second version of the regulatory test. Nor is it clear they have been taken into account by the MCE in development of the Rule change proposal.

7. It is our view that issues relating to technical application of cost benefit analysis identified in the SNI appeal process are material and need to be addressed by requiring the AER to modify its regulatory test guidelines.

WHY THE REGULATORY TEST IS IMPORTANT

8. Our initial estimate, using the principles of auction theory and observed pool price outcomes, suggest existing transmission constraints have caused energy users to incur costs in the order of $0.9 billion/year since the NEM commenced in December 1998.

9. A primary point that is relevant to the commentary in this paper – and that appears incontrovertible – is that system constraints add a substantial burden to the wholesale electricity market by:

a. increasing output from less efficient generators;

b. increasing the cost of wholesale energy to electricity consumers by distorting 'efficient' pool price outcomes; and

c. distorting signals for 'efficient' investment in demand side response and new generation capacity.

10. It would appear that the MCE policy and the rule change proposal seek to redress these outcomes.

COST-BENEFIT ANALYSIS

11. Cost-benefit analysis is essentially a formal, prescriptive technique that seeks to inform decisions of the cost and benefits of actions or alternatives.

12. Cost-benefit analysis can be used to deal with issues associated with 'welfare transfers' between groups affected by the analysis. This is a critical aspect for the AEMC to consider in reviewing the MCE rule change proposal because the proposal essentially involves elevating key aspects of the regulatory test and the Statement of Regulatory Principles to the Rules.

13. The issue of transfers among groups is one of distributional policy; not one of economics. There is no conventional approach to the treatment of wealth transfers by economists. Hence, it is generally policy makers and/or courts that exercise judgement in respect of whether or not a welfare transfer is relevant one way or the other.

14. On the basis that application of cost-benefit analysis is appropriate in assessing investment options for electricity networks, we note that the AER has adopted a conventional economic approach by giving equal weight to the interests of consumers and those of producers. However, the economic theory that supports cost-benefit analysis would also allow greater weight to be given to the interests of consumers or indeed treat transfers from producers to consumers as a benefit.

15. Given the primary focus of the NEM objective is on the long-term interests of consumers, we believe it is appropriate for the AEMC to reconsider how welfare transfers should be dealt with in the regulatory test.

16. In cost-benefit analysis there are generally, three different standards that are discussed and applied:

    a. the *total surplus* standard;

    b. the *balanced weights* standard; and

    c. the *consumer surplus* standard.

17. The total surplus standard is equivalent to that currently adopted by the AER for the regulatory test. However, a public benefit test does not require adoption of the total surplus standard. An alternative approach is to assign different (welfare) weights to various groups encompassed by the cost-benefit analysis, reflecting the importance that policy makers attach to each group's welfare. As we discuss in section 3, this approach has been used in considering the impact of energy policy in Canada and mergers and acquisitions in Australia and other jurisdictions.

18. In the NEM case, the economic effects of proposed 'monopolistic' or regulated investments, even large ones such as interconnectors, may (in some circumstances) be small in relation to effects of the other market-based investments. Also, new investments, system modifications and consumer behaviours are constantly being mobilised right across the NEM that can affect the proposed investment and whether or not they are, in the terms of the current regulatory test, 'alternatives/options'.

19. Given these challenges, it is relevant for the AEMC and MCE to consider if there might not be a better way of facilitating the desired outcome – particularly given that we are not aware of any other example of cost-benefit analysis being used to discriminate between investment options in a highly market-dynamic situation such as the NEM.

WHY CHANGES TO THE REGULATORY TEST ARE ESSENTIAL

20. As the MCE notes in its Rule change proposal, application of the regulatory test has been the most disputed matter in the Code (before conversion to the Rules).

21. The particular issue of whether the regulatory test is consistent with the logic and public benefit arguments underlying cost-benefit analysis was identified in the NET Minority

Decision on SNI as a matter that rendered application of the regulatory test (by NEMMCo) as 'fundamentally flawed'.

22. We are concerned that criticisms of the way in which the regulatory test was applied may not have been adequately addressed by the ACCC in developing the current version of the regulatory test. Accordingly, we believe it is desirable that the AEMC review all issues associated with application of cost benefit analysis and ensure these are adequately dealt with in the Rules change (if appropriate) – or by the AER in implementing the changed rules.

23. We note that the NET Majority and the Victorian Supreme Court rejected criticisms in the Minority Decision (or ranked them of lesser importance) on the grounds that NEMMCo had followed the process specified by the ACCC and that the criticism were no more than a 'difference of view' about whether the cost benefit analysis had been carried out in accordance with generally accepted standards of cost benefit analysis as conditioned by the regulatory test.

24. MJA, as a specialist practitioner of the application of economic criteria has considerable sympathy with the NET Minority view. One could liken this argument to a situation where an (inexperienced) engineer utilised a form of calculation in the design of a major structure 'that modifies the usual dimensions of structural analysis'. If that occurred, the structure would either collapse or cost substantially more to construct than might otherwise be the case. Economics is held to have a rational, logically and 'scientific' basis. In that case, it is important to ensure the regulatory test is entirely consistent with the logic and public benefit arguments underlying cost-benefit analysis.

25. We note that Prof Stephen Littlechild expressed similar views. He concluded in his 2003 paper on the SNI Appeal outcomes that … *it is unfortunate that the Minority Decision did not establish more clearly that, not only were these potential deficiencies in the process, they had in fact led to a wrong decision; and a greater familiarity with, and sense of responsibility towards, the cost benefit tradition in economics could surely have remedied some of the more serious shortcomings in the process.*

26. Littlechild then went on to list 10 areas (summarised in paragraph 35 below) where aspects of the cost-benefit analysis reviewed by the NET and Supreme Court could have been improved.

27. The current version of the regulatory test would benefit by ensuring these matters must be considered. This would require the AEMC to provide appropriate instructions for the AER to modify its existing guidelines for application of the regulatory test. Accordingly, we recommend that the AEMC ensure this occurs as part of the Rule change process.

ISSUES FOR THE AEMC

28. The discussion is this paper allows MJA to suggest areas where focus is required by the AEMC.

DO WE REALLY 'NEED' A REGULATORY TEST?

29. As noted above, we accept that cost-benefit analysis, properly and reasonably applied, could assist in informing decisions about investment options in electricity networks. While it is clear that this is an intention that underpins the MCE proposal, we are not aware of any other example of cost-benefit analysis being used to discriminate between investment options in a highly market-dynamic situation such as the NEM.

30. Experience from the SNI appeal shows that the outcomes from modelling required to execute the regulatory test can vary substantially, and can produce 'reasonably' forecast outcomes that do not eventuate. Even where the modelling suggests an investment may deliver benefits to energy users, there is no mechanism to ensure that investment proceeds. Most importantly, these issues – and the deficiencies in application of the regulatory test - only came to light because Transgrid's decision to proceed with SNI was subject to appeal. There has been no comparable scrutiny of other investment decision based on outcomes from the regulatory test; and, therefore, no way to determine whether those applications were more robust.

31. At best, even a robust application of cost-benefit analysis techniques may achieve no more than assist in making a rational investment decision. It is unlikely to produce a 'right' decision alone and must be complemented by other decision criteria. Ideally, those other criteria should be linked to incentives for TNSPs to take actions and make investments that would be reasonably likely to lead to improved outcomes in the NEM. This suggests that there may be benefit to the NEM (and energy users) in adapting investment decision criteria and incentive mechanisms used elsewhere and abandoning the regulatory test as a 'regulatory instrument'.

32. The AEMC would appear to have the option of fundamentally reviewing whether or not the regulatory test is necessary at all. It is our view that it would be both appropriate and legitimate for the AEMC to deal with this question. It is entirely possible that the only reason Australia has a regulatory test is because we have yet to grasp the policy essentials needed to ensure our energy markets work effectively – and in the long-term interests of energy consumers.

33. However, we acknowledge that this is a matter that is beyond the powers of the AEMC to resolve in this Rule change process. For example, challenges in introducing an NGC-style incentive scheme (which link financial outcomes for NGC directly to market outcomes) are compounded substantially by the jurisdictional structure of electricity transmission.

34. Aggregating all electricity transmission assets into a single 'National Electricity Grid Company', as initially intended by CoAG, may well be required to address this 'regulatory problem'. Resolution of that particular policy issue is a matter for jurisdictional governments and the MCE. Accordingly, we recommend that the AEMC take this issue seriously and refer it to the MCE for resolution.

WE DO NEED TO ENSURE APPROPRIATE TECHNICAL RIGOUR

35. It is our view that any reasonable practitioner should be expected to consider each of the issues listed by Littlechild in a sound and technically rigorous manner during application

of the regulatory test, although we also accept that the level of detail involved in applying cost-benefit analysis must be appropriate to the circumstances.

36. Accordingly, we believe it would be entirely appropriate for the AEMC to alter the MCE Rule change proposal to require the AER to amend its Guideline for application of the regulatory test to include a requirement that practitioners:

    a) actively identify relevant alternative projects and scrutinise them closely;

    b) avoid an unduly restrictive approach to the screening of alternative projects;

    c) examine ways of making potentially beneficial projects commercially feasible instead of taking a premature judgement and eliminating them;

    d) be sensitive to the incremental costs and benefits associated with components or variants of particular projects;

    e) seek out, identify and highlight the possibility that particular components of a project could provide all or most ,or even more than all the benefits, associated with the project as a whole;

    f) actively explore the most economic configuring of submitted projects;

    g) explore in more detail claims of risks associated with the potentially most beneficial projects, including the sources of such risk, their probability or likelihood, and the expected costs associated with them;

    h) explore possible and economic ways of mitigating any justified risks, including by alternative network design and by means of contractual or charging arrangements, in the context of the statutory objectives on the parties in question;

    i) insist from the outset on a more explicit and accessible form of modelling, with wider and more informed discussion of results; and

    j) demonstrate understanding (and explain the impact of) relevant organisational incentives, as documented in the economic literature and as recognisable in practical experience, and their potential implications for the proposals, issues and decisions likely to arise in the context of the regulatory test.

THE ISSUE OF WELFARE TRANSFERS MUST BE CONSIDERED

37. One of the most divisive issues to be raised in the prolonged debates that have accompanied development of the regulatory test is that related to ‘welfare transfers’.

38. In our view, the ACCC has not dealt with this issue in a satisfactorily comprehensive or transparent way in development of the regulatory test. The ACCC’s view can be summarised into the general principle that competitive neutrality requires that a business is not unfairly advantaged against its competitors. It offers no advice on how to address the weighting of producer and consumer surplus. It can therefore not be used to justify equal treatment of all groups, nor how to weight certain groups, in particular when the two groups under scrutiny are either consumers or producers.

39. While economists are well equipped to analyse the consequences of any policy rule once that rule has been specified, they do not have a mandate to dictate which rule is appropriate. This is an issue of distribution and we do not attempt to provide a definitive answer to this question above. The main point we make is that the public benefit test currently applied in the regulatory test is one of series of tests that could be conducted and no attempt has been made to justify the current total surplus standard. Further, international experience indicates that choice of the appropriate standard is by no means a simple matter. Indeed, the orthodox approach would seem for policy makers to adopt a consumer welfare test where the policy objective is to promote outcomes that deliver benefits to consumers.

40. Given that this matter has not been directly addressed by the MCE, and – as we argue – is not a matter that should be decided by economic regulators, we recommend that the AEMC refer to the MCE a decision of whether or not welfare weightings (implicitly) assumed by the ACCC are both appropriate and consistent with achievement of the NEM objective to promote efficient investment for the long term interest of consumers of electricity.

A PARTIAL EQUILIBRIUM APPROACH

41. Another of the ACCC's assumptions that requires more comprehensive and transparent consideration is whether it is appropriate for the regulatory test to be limited to consideration of impacts within the NEM. Adopting a 'partial equilibrium analysis', which this assumption requires, means that certain economic effects may go undetected. There is therefore a risk that a project that appears to yield net economic benefits in a partial equilibrium analysis will result in net losses when investigated in a general equilibrium context or vice versa.

42. In our view, development of the current version of the regulatory test has not been accompanied by discussion of this issue. Nor has the ACCC attempted to justify whether a partial equilibrium approach is appropriate.

43. Although we acknowledge that the introduction of a general equilibrium framework would be more onerous and, almost certainly, too complex to implement in more general sense, the AEMC should carefully consider the extent of any effects that would not be expected to be included in a partial equilibrium framework. If it can be established that these are negligible, then we would accept that the current approach is satisfactory. However, if analysis shows substantial second order effects, then we would recommend that guidelines be provided to ensure that these, as a minimum, are captured in a qualitative manner

44. The key issue to evaluate is whether the investment project is small enough so that a partial equilibrium approach will suffice or whether it is of a size (in terms of impact) that will have general equilibrium repercussions on several markets.

1. Introduction

Marsden Jacob Associates (**MJA**) has been requested by the Energy Users Association of Australia (**EUAA**) to review the background leading to a proposal by the Ministerial Council for Energy (**MCE**) to change the National Electricity Rules (**Rules**) in respect of the regulatory test and provide recommendations in respect of that proposal. This paper presents the results of that review and provides recommendations for changes to the MCE proposals that are intended to ensure that future application of a regulatory test is executed with appropriate technical rigour. As the experience outlined in this paper demonstrates, improvements in execution of the regulatory test are essential. Without these improvements, it is unlikely that outcomes sought by the MCE will be achieved.

1.1. Development of the MCE policy framework

Despite the reforms to the regulatory test that have been implemented progressively since 1998, the MCE has accepted that inefficiencies in transmission planning and investment remain. In its December 2003 report to the Council of Australian Governments (**CoAG**), the MCE adopted the following principles to underpin transmission policy in the National Electricity Market (**NEM**):

- *The transmission system fulfils three key roles – it provides a transportation service from generation source to load centre, facilitates competition, and ensures secure and reliable supply.*
- *There is a central and ongoing role for the regulated provision of transmission, with some scope for competitive (market) provision.*
- *Transmission investment decisions should be timely, transparent, predictable and nationally consistent, at the lowest sustainable cost.*
- *The regulatory framework should maximise the economic value of transmission, including through the efficient removal of regional price differences in the operation of the NEM.* [1]

Using these principles, the MCE agreed to a package of reforms in electricity transmission, including reforms to the regulatory test, taking account of the ACCC's review of the regulatory test that was completed in 2004.

The covering letter[2] to the MCE Rule change proposal says the proposal is a request to the Australian Energy Market Commission (**AEMC**) to make a Rule to implement new regulatory test principles in accordance with s.91 of the National Electricity Law (NEL).[3] The proposal also says those principles, which are referred to as 'high level':

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1 p.2, Attachment A, Letter from Ian Macfarlane to Dr John Tamblyn, *National Electricity Rules – Rule Change Application, Reform of the Regulatory test Principles*, Undated,

2 Letter from Ian Macfarlane to Dr John Tamblyn, *National Electricity Rules – Rule Change Application, Reform of the Regulatory test Principles*, Undated.

3 s.91(1) of the NEL permits the MCE to request the AEMC to make a Rule change.

> *… are intended to ensure the regulatory test is promulgated in a manner which provides a level of certainty to NSPs in undertaking new network investment, while leaving sufficient discretion with the AER to promulgate the regulatory test and perform its role as regulator.* [4]

The covering letter also refers specifically to how the proposed Rule addresses issues consistent with the NEM objective, which is specified in section 7 of the National Electricity Law (NEL) as:

> *The national electricity market objective is to promote efficient investment in, and efficient use of, electricity services for the long term interests of consumers of electricity with respect to price, quality, reliability and security of supply of electricity and the reliability, safety and security of the national electricity system.*

An important issue to be considered by the AEMC is whether the specific emphasis on the long-term interests of consumers of electricity that is embodied in the NEM objective warrants reconsideration of the way that the principles of cost-benefit analysis are applied in the regulatory test. As we note in section 2.4, a similar policy focus on the interests of consumers has generally led to development of 'public interest tests' in other jurisdictions that place greater weight on outcomes that benefit consumers (the *consumer surplus standard*). But in this respect the MCE's rule change proposal specifies only that:

> *… the AEMC should draft Rules to capture the … policy intent (such that) the regulatory test must have as (one of) its purposes the identification of new network investment or non-network alternatives that … maximise the net economic benefit to all those who produce, consume and transport electricity in the market.* [5]

The MCE argues that these policy goals are likely to contribute to the achievement of the NEM objective because the proposed Rule change will:

- promote efficient investment though the provision of a robust and stable framework for the economic evaluation of network investment;[6] and
- deliver long-term benefits to consumers by:
  - maintaining network performance requirements;
  - enhancing the reliability and security of the national electricity system;
  - potentially reducing region specific (generator) reserve requirements;

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[4] p. 4, Attachment A, Letter from Ian Macfarlane to Dr John Tamblyn, *National Electricity Rules – Rule Change Application, Reform of the Regulatory test Principles*, Undated.

[5] p. 4, Attachment A, Letter from Ian Macfarlane to Dr John Tamblyn, *National Electricity Rules – Rule Change Application, Reform of the Regulatory test Principles*, Undated.

[6] The MCE proposal says : *The framework will be robust because the parameters and methodologies used in the analysis will be required to be clearly defined. The combination of principles, and guidelines will provide greater clarity for the application of the regulatory test and reduce the scope for dispute.* (p.5, Attachment A, *Op Cit.*)

We agree that the framework must be 'robust' to achieve the MCE's policy goals; but believe the AEMC will need to address the issues discussed in the paper so this goal can be achieved.

- enable the identification and approval of a particular transmission investment option as the most effective means of facilitating competition (for example, by promoting competition between generators), thereby promoting the long term interests of consumers of electricity in respect to the price of the electricity.[7]

The proposal itself refers to three distinct sets of 'principles'.

The first are the 'high level principles' that relate to the regulatory test. These 'principles' are specified by the MCE in the proposed wording to (the revised) Rule 5.6.5A,[8] which also says the principles are to ensure the regulatory test is promulgated in a manner which provides a level of certainty to Network Service Providers (**NSP**) in undertaking new network investment. Very briefly, these 'principles' may be summarised as requiring:

(a) the regulatory test to:
- identify options that maximise benefits or minimise costs;
- use analysis commensurate with the scale and size of investment;
- be based on principles of cost-benefit analysis;
- ensure all genuine and practicable alternative options are evaluated;
- reflect requirements to meet specified performance standards;
- be capable of consistent application;
- be consistent with the basis of asset valuations determined by the AER;

(b) the AER to follow a (typical, consultative regulatory) process to amend the regulatory test;

(c) the AER to publish guidelines for application of the regulatory test;

(d) the AER to ensure the regulatory test addresses (at least):
- classes of costs and benefits that can be included or must be excluded;
- the method for estimating costs and benefits;
- the method of determining inputs to estimates of the discount rate;

(e) the AER to address the extent to which results from the regulatory test will be included in the regulated asset base.

The second set are the four 'principles' adopted by the MCE to underpin transmission policy in the NEM (in its December 2003 report to the CoAG) that are presented at the beginning of this section.[9]

The last are the principles of cost-benefit analysis as a means of economic discipline (on which) the regulatory test must be based, which – as a minium – address factors relating to estimates of cost, benefit and discount rate that are specified in the proposed Rule 5.6.5A(d).[10]

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7 p. 6, Attachment A, *Op Cit.*

8 p. 7, Attachment B, *Op Cit.* The 'principles' are quite detailed and run to 2 pages. However, they appear to be consistent with requirements specified by the ACCC for execution of the regulatory test in its current form.

9 p. 2, Attachment A, *Op Cit.*

10 p. 8, Attachment B, *Op Cit.*

A critical aspect of the proposed Rule change is the continued support for application of cost-benefit analysis in the execution of the regulatory test. We accept that, properly applied, cost-benefit analysis can assist in determining whether a particular action or project will make a positive contribution to the welfare of society. In the form of the regulatory test, the application of cost-benefit analysis seeks to determine whether a particular project should be undertaken or decision should be made that would lead to improved performance of the NEM. It is clear that this is an intention that underpins the MCE proposal, which says:

> *The high level principles in the Rules and the regulatory test promulgated by the AER using those principles will provide the framework for the evaluation of proposed new regulated network investment.*[11]

However, as we note in later sections of this paper, experience has shown the practical application of cost-benefit analysis is not without challenges. This experience raises questions about whether the 'principles' specified in the MCE Rule change are adequate to overcome the challenges encountered so far.

In general terms, the principle challenge for application of an technique based on cost benefit analysis is that the economic effects of proposed 'monopolistic' or regulated investments, even large ones such as interconnectors, may (in some circumstances) be small in relation to those of the other market-based investments or behaviours.[12] New investments, system modifications and changes in energy consumption patterns are constantly being mobilised right across the NEM that affect assumptions used to assess a proposed investment being subject to the regulatory test and each of the 'alternatives/options' to that investment. A further issue addressed briefly in section 3 of this paper is whether it is reasonable to apply cost-benefit techniques to the NEM as a 'partial equilibrium analysis' when the impacts of an investment decision within the NEM clearly extend into the general economy. An assumption that this is appropriate appears to have been made by the ACCC (in formulating the regulatory test) but the reasonableness or relevance of this assumption has never been discussed, much less justified.

Given these challenges, we believe the AEMC should amend the principles proposed by the MCE to address all of the issues identified so far from experience with the regulatory test. While we accept that the principles of cost-benefit analysis can be used to assist in making judgements about alternative network investment options, given the experience to date we question whether:

- heavy reliance should be placed on the results of the regulatory test;
- there might be a better way of facilitating achievement of the NEM objective in respect of investment in transmission (as intended by the MCE).

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[11] p. 3, Attachment A, Letter from Ian Macfarlane to Dr John Tamblyn, *National Electricity Rules – Rule Change Application, Reform of the Regulatory test Principles*, Undated.

[12] As we note in section 2.1, failure to deal effectively with transmission constraints that existed when the NEM commenced has imposed substantial costs on energy users because of divergence of regional spot prices during periods when inter-regional networks are constrained. However, with continued increase in peak demand over the long term, achievement of efficient economic (and environmental) outcomes will require a balance between investment to remove network constraints and investment in new generation capacity (or new demand side response capability). In particular, and as demonstrated in the case of SANI, the economic impact of investment to remove network constraints can be substantially affected by investment in new generation (or demand side response) within a region that is negatively impacted by transmission constraints.

We believe these questions are directly relevant to the AEMC's consideration, particularly given that we are not aware of any other example of cost-benefit analysis being used to discriminate between investment options in a highly market-dynamic situation such as the NEM[13] - or any other examples where a process similar to the regulatory test is given so much 'regulatory weight'.

1.2. The focus of this paper

A key focus of this paper is how the MCE proposal addresses issues associated with application of cost-benefit analysis in the regulatory test, particularly those issues identified – and discussed in considerable detail – during and after the National Electricity Tribunal (NET) appeal that dealt with the SNI proposal and the subsequent Victorian Supreme Court challenge to the NET Majority Decision. The primary reasons for this focus are that:

- the appeal process identified a range of matters related to the way the (first version of the) regulatory test had been specified and applied that were subject to substantial criticism;
- several of the above-mentioned criticisms are important, particularly in respect of formulating alternative options and in respect of the 'mechanics' of applying the principles of cost-benefit analysis; and
- it is not at all clear that all of these matters were subsequently, and adequately, addressed by the Australian Competition and Consumer Commission (**ACCC**) in formulating the second version of the regulatory test.

We believe this focus is appropriate, and relevant to the AEMC's consideration of the MCE Rule change proposal, because it is not clear that critical issues identified in the appeal process have been taken into account by the MCE in development of the Rule change proposal. If this is the case, it would be of benefit for the AEMC to implement a Rule change that had the effect of removing 'known defects' in the regulatory test.

Section 2 of the paper provides a summary of the background to the development of the regulatory test in its current form and outlines the basis for suggesting issues that should be covered by the AEMC in its consideration of the Rule change proposal.

In section 3, we show how the economic theory and framework that underpins application of cost-benefit analysis has dealt with the range of judgements to be made. Some of these judgements properly fall within the mandate of policy makers, not economic regulators – or even less desirably – parties with a commercial interest who have responsibility for applying cost-benefit analysis in the form of the regulatory test. It is our view that it would be highly desirable for the AEMC to consider these matters, and if necessary seek clarification from

[13] This reservation was noted in the Minority Decision to the National Electricity Tribunal Appeal on SNI and in a presentation made by Prof Stephen Littlechild at a public form convened in Melbourne on 28 July 2003 by the ACCC to discuss 'competition benefits'.

The AEMC would appear to have the option of fundamentally reviewing whether or not a regulatory test is necessary at all. Australia is the only jurisdiction in the world to have a 'regulatory test' in this form. This may indicate we have yet to grasp the policy essentials needed to ensure our energy markets work effectively – and in the long-term interests of energy consumers.

We also note that a similar test (the Grid Investment Test) has been implemented in New Zealand, but has yet to be applied successfully (and result in a Grid Upgrade Plan approved by the NZ Electricity Commission).

the MCE of any unresolved policy issues. This is particularly relevant to the issue of judgement in respect of weighting for welfare transfers in cost benefit analysis. It appears that the ACCC has made an assumption that one possible weighting is appropriate without any consideration given by government to the policy implications of this assumption.

In section 4 we provide a very brief summary of the conclusions reached in the paper. The paper itself attempts to identify where the potentially unresolved policy issues arise and provides examples – by way of reference to regulatory precedent – that may assist resolution of those issues.

2. Background

This section of the paper explains the background to our concern that key issues have not been comprehensively and transparently addressed by the ACCC in developing the regulatory test; or by the MCE in developing its Rule change proposal.

2.1. Why the regulatory test is important

The regulatory test is a key element in the regulation of network services in the NEM. The existing and proposed Rule 5.6.5A require that the regulatory test be applied, subject to certain specified conditions, to all major augmentation investments in regulated transmission and distribution networks. The principal area of interest for this paper, and of controversy in application of the regulatory test, relates to investment in augmentations that aim to remove or reduce constraints in the transmission system. This is clearly one of the major areas of focus for the MCE policy initiative mentioned above. Such augmentations would facilitate the efficient removal of regional price differences in the operation of the NEM, which would have a positive and long-term impact on energy users that would be entirely consistent with achievement of the NEM objective.

The potential value of such impacts are difficult to estimate, but are certain to be substantial. For example, we note that the ACCC/AER and NEMMCo have commenced a process to estimate the *ex-post* cost of transmission constraints based on modelling of actual generator bidding data.[14] As we understand it, the AER model uses actual generator bidding data files and 'replaces' the bid from a generator in a constrained region with a lower bid (from a generator in an unconstrained region) as the constraint is relaxed (i.e. assumed to reduce). This suggests that the AER model assumes that generator bidding would be unchanged if transmission constraints were relaxed.[15]

The preliminary estimate of transmission constraint costs quoted initially by the ACCC/AER was approximately $15 million for 2002/03.[16] A more recent estimate contained in a presentation to the AER Service Standards Working Group appears to suggest that the AER modelling produces annualised cost of transmission constraints in the order of hundreds of millions of dollars per year.[17]

An alternative (and simpler) way of estimating the cost of capacity constraints is too assume each region participates in a NEM-wide reverse auction (where bidders / regions compete on the lowest price) under the assumptions that:

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[14] See: Appendix C and D, *Statement of principles for the regulation of transmission revenue - Market impact transparency measures*, ACCC, 28 July 2004.

[15] If this interpretation of the AER methodology is correct, the methodology is likely to simplify the complexity in the generator bidding process. It is likely that removal (or substantial reduction) of transmission constraints would alter generator perceptions. This could lead to different bidding strategies or even 'mothballing' capacity if the spot price revenue stream fell below the marginal cost of some (higher cost) plant.

[16] See: Appendix D, *Statement of principles for the regulation of transmission revenue - Market impact transparency measures*, ACCC, 28 July 2004.

[17] See: *Calculating the Total Cost of Transmission Constraints in the NEM*, Presentation to the ACCC/AER Service Standards Working Group – Darryl Biggar, 6 December 2005. The figures in this presentation indicate that the total cost of transmission constraints may be between $90 million and $2.5 billion/year. In personal communications (20 Feb 06), Biggar suggested that the AER modelling would reasonably be expected to produce an estimate for the total cost of transmission constraints in the order of several hundred million dollars per year.

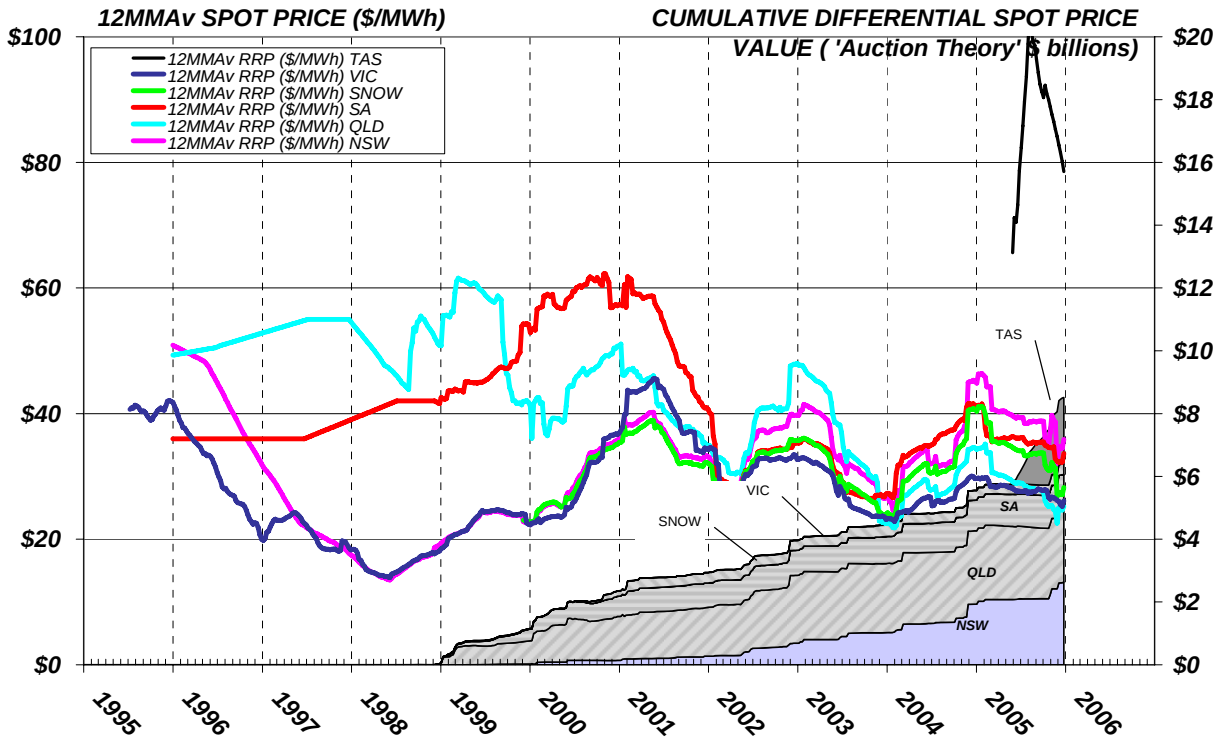
(i) the pool price in each region represents the lowest price at which a region would supply electricity to an unconstrained NEM; and

(ii) there are no capacity constraints in any one region.

Auction theory would then predict that the (auction) winner would be the region with lowest supply price at a 'common' pool price equal to the region with the second-lowest supply price.[18] In other words, auction theory suggests that a 'common' pool price in an unconstrained NEM would approach the second-lowest regional spot price. This allows the 'value' of constraints could be estimated as the difference between actual regional price and the second-highest price (which is assumed to be the "equilibrium" price for the market). The price difference in each region used to estimate the value of constraints could be either positive or negative.

This result is illustrated in the Chart 1 below. Excluding Tasmania,[19] which is not yet connected to other NEM regions, the average annual value of constraints has been reasonably consistent at around $0.9 billion/year since commencement of the NEM.

CHART 1 : ESTIMATE OF CUMULATIVE POOL PRICE DIFFERENCE VALUE



Source: MJA analysis based on NEMMCo market data files.

[18] This is called a Vickrey Auction (second price sealed bid auction) and is consistent with what auction theory would predict, if you had the regions competing with each other in an auction and the current prices reflected each regions valuation (or maximum willingness to pay).

[19] The cumulative spot price difference estimated for Tasmania is excluded for the above figure because Tasmania is not yet not physically connected to the NEM. Tasmanian generation is, however, included in NEMMCO despatch process. In a sense, Tasmania 'suffers from' the ultimate constraint of no interconnection at all.

The primary point that is relevant to the commentary in this paper – and that appears incontrovertible – is that system constraints add a substantial burden to the wholesale electricity market by:

- increasing output from less efficient generators;
- increasing the cost of wholesale energy to electricity consumers by distorting 'efficient' pool price outcomes; and
- distorting signals for 'efficient' investment in demand side response and new generation capacity.

It would appear that the intent of the MCE policy and the Rule change proposal are to redress these outcomes.

2.2. Cost-Benefit Analysis

Cost-benefit analysis is essentially an economic analysis undertaken using a formal, prescriptive technique that seeks to inform decisions of the cost and benefits of actions or alternatives. Cost-benefit analysis was originally derived to deal with 'market failure' situations relating to investments in large, government owned, monopolistic infrastructure systems (for example, dams, hydro plants, airports, roads, etc) and where the proposed investment is a small proportion of total system investment.[20]

Cost-benefit analysis has been used, with varying usefulness, in other contexts, such as in various types of *ex-ante* and *ex-post* assessments of policy instruments. As Arrow *et al* point out, the ability of governments or policy makers to conduct cost-benefit analysis is important because:[21]

> …*society has limited resources to spend on regulation*
>
> and
>
> …*benefit-cost analysis can help illuminate the trade-offs involved in making different kinds of social investments. In this regard, it seems almost irresponsible to not conduct such analyses, because they can inform decisions about how scarce resources can be put to the greatest social good.*

Cost-benefit analysis can also be used to deal with issues associated with 'welfare transfers' between groups affected by the analysis. This is one of the most divisive issues to be raised in the prolonged debates that have accompanied development of the regulatory test. It is also a critical aspect for the AEMC to consider in reviewing the MCE Rule change proposal because the proposal essentially involves elevating key aspects of the regulatory test and the Statement of Regulatory Principles to the Rules. It is not at all clear that the ACCC, or the MCE, has formally dealt with the welfare transfer issue in a comprehensive and transparent or appropriate manner from a policy perspective.

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[20] The background, development and application of cost benefit analysis is thoroughly explained in the economic classic *Cost Benefit Analysis*, EJ Mishan, first published by Allen & Unwin in 1971 (now out of print).

[21] *Is there a role for benefit-cost analysis in environmental, health, and safety regulation?*, Arrow, Cropper, Eads, Hahn, Lave, Noll, Portney, Russell, Schmalensee, Smith, and Stavins, Environment and Development Economics 1997, 2: 195-221 Cambridge University Press.

It is the nature of a welfare transfer that one party will gain at the expense of the other. The issue of transfers among groups is one of distributional policy not one of economics. There is no conventional approach to the treatment of welfare transfers by economists. Hence, economists usually leave the choice of the treatment of transfers in the hands of policy makers and/or courts to exercise their judgement in respect of whether or not a welfare transfer is relevant one way or the other.

On the basis that application of cost-benefit analysis is appropriate in assessing investment options for electricity networks, the ACCC adopted a conventional economic approach by giving equal weight to the interests of consumers and those of producers. The economic theory that supports cost-benefit analysis allows this to occur and offers no principle objection. However, the economic theory that supports cost-benefit analysis would also allow greater weight to be given to the interests of consumers, or indeed treat transfers from producers to consumers as a benefit, in the cost-benefit analysis.

In applying the principles of cost-benefit analysis to the regulatory test, it is necessary to take, as a starting point, some well defined target group to which costs and benefits accrue. For example:

- If the group is a single firm then the cost-benefit analysis will evaluate the net benefits to the firm from some course of action.
- If the analysis is of society as a whole, then a wider set of considerations come into play and some rule must be applied to deal with issues of welfare transfers, i.e. how to weight the gains and losses of the various individuals and groups of individuals of which society is comprised.
- If the analysis is conducted from the perspective of consumers (as a group), then the cost and benefits to be considered are those which are of relevance to consumers, as distinct from society as a whole.

Any one of these starting points would be legitimate. It can be argued that the latter example is appropriate in the case of evaluating investment options in shared electricity network assets because, under the current Rules, it is electricity consumers who bear 100% of the cost of the shared networks in both transmission and distribution sectors. A clear focus on consumer benefit may also be appropriate as promoting the long-term interests of consumers is core to achieving the NEM objective.

A similar argument was advanced by Ernst & Young in a report prepared for the ACCC in the lead-up to formulation of the first version of the regulatory test. Ernst & Young identified two arguments for restricting the test to assessing customer benefits only as opposed to including producer benefits as well, viz:

> *1. The first view is that net overall benefits will always be passed through to customers anyway (assuming there is sufficient competition) in which case public benefit and customer benefit are largely interchangeable terms. According to this view, references to Customer benefit in the current Code draft are entirely adequate. However, we believe the assumption of adequate competition might sometimes be contentious, and therefore a less ambiguous expression of the Test is required. (emphasis added)*

> *2. The second argument is based on the belief that it is Customers who pay TUoS charges. This being the case, it would be inequitable and inefficient for customers to pay for transmission augmentations which did not directly benefit them (as a group). We agree that the Test may potentially interact with the cost allocation to provide inefficient incentives in the market. However, we believe that any equity or efficiency considerations concerning who pays TUoS are better dealt with under the TUoS review (which is in progress), rather than through the Test.*[22]

As we note in section 3 of this paper, evaluation of costs and benefits from the consumer standpoint is an acceptable cost-benefit approach, provided that it can be established that consumers are the appropriate target group whose welfare is to be advanced.

In cost-benefit analysis there are generally three different standards that are discussed and applied:

- The *total surplus* standard;
- The *balanced weights* standard; and
- The *consumer surplus* standard.

The *total surplus* standard is equivalent to that currently adopted by the AER for the regulatory test. It is essentially the standard described by Williamson in his famous article on welfare tradeoffs in antitrust economics.[23] The total surplus standard has the advantage of relative simplicity – surpluses are simply added up with no special weighting attached to any particular group(s). That is, it is assumed that transfers between consumers and producers have a zero social impact. This removes the need to analyse the transfers in any detail, although there is a need to carefully specify efficiency components to ensure that they are consistent with this approach. An example of this is the regulatory test definition of competition benefits, where care is required to estimate these benefits net of any transfers. The total surplus standard is only relevant in a public benefit focused analysis; and in that context only when it can be demonstrated that there are no spill over effects from transfers.[24]

However, a public benefit test does not necessarily entail adoption of the total surplus standard. An alternative approach is to assign different (welfare) weights to the various groups encompassed by the cost-benefit analysis, reflecting the importance that policy makers attach to each group's welfare. As we discuss in section 3, this approach has been used in considering the impact of mergers and competition in the Canadian energy industry.

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[22] See: p. 25, *Review of the Assessment Criterion for New Interconnectors and Network Augmentation: Final Report to ACCC*, Ernst & Young, March 1999.

An issue that may also be relevant to the AEMC's considerations is a key aspect of the TUoS review foreshadowed by Ernst & Young in 1999 was whether is was appropriate – and most likely to produce economically efficient outcomes – for end uses to pay 100% of the costs of the shared transmission network. This was to be addressed by NECA in a 'beneficiary pays review' that was put in abeyance at the time of the CoAG Energy Market Review.

[23] Williamson O.E., *Economies as an Antitrust Defence: the Welfare Tradeoffs*, American Economic Review 58: 18-36, 1968.

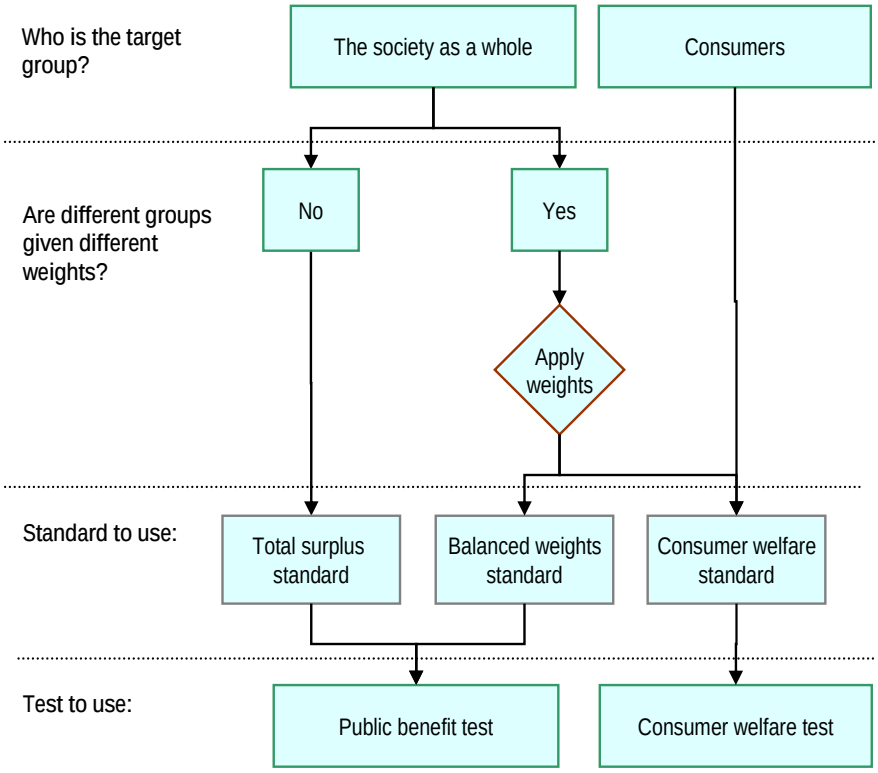
[24] A spillover effect is here defined as an externality that is generated by the transfer of wealth from one party to another, such that individuals or groups not themselves participating directly in the particular transaction experience effects on their welfare. For example, distorted economy wide prices relativities leading to distortions in economic structure.

A special case of the *balanced weight* approach is the 'consumer welfare test'. Here consumers are attributed all the weight in the analysis.

Chart 2 below summarises the cost-benefit decision tree. In principle, the total surplus standard and the consumer welfare standard can be accommodated within the balanced weight standard, with appropriately defined weights. However, when discussing a public benefit test, it is common to interpret the term 'public' as broader than 'consumers' and to regard efficiency gains that benefit producers as a benefit to the public. It would therefore seem appropriate to distinguish between two separate tests: one broad, the public benefit test, and one narrower, the consumer welfare test, as indicated by Chart 2 below.

Although we discuss the different tests in section 2.2 above, we note that, in an idealised world (with perfectly competitive markets), the various standards would agree on the optimal configuration for the market (in terms of quantity, price and social welfare). That is, it would also be correct to assert that, in an environment where 'perfect competition' prevailed, the issue of welfare transfers between consumers and producers would be less relevant because 'perfect competition' would ensure that overall social welfare was optimised. In that context, a regulatory test that has to deal with the challenge of identifying welfare transfers is required primarily because competition is not perfect (or sufficiently effective to ignore welfare transfers). If competition was workable and effective in the 'market' that electricity networks facilitated, welfare transfers would be less relevant and application of a 'public benefit' or 'consumer benefit' test would be likely to yield similar outcomes.[25]

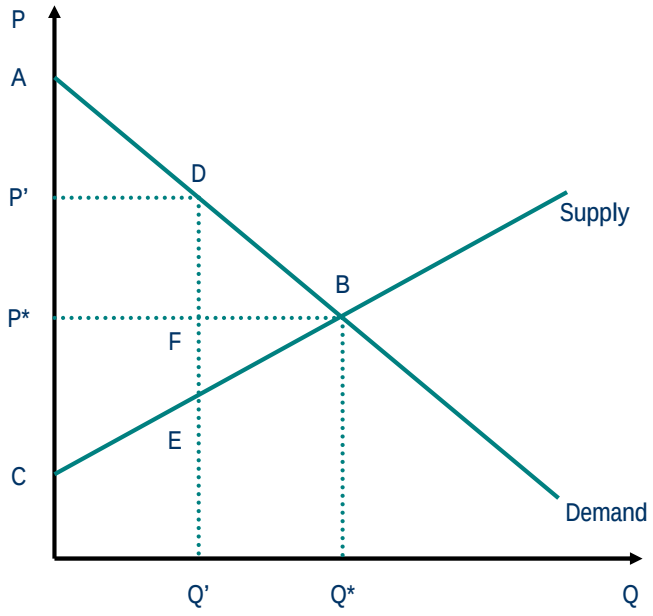
CHART 2 : COST BENEFIT DECISION TREE



[25] As noted above, this view has similarities to the first argument advanced by Ernst & Young for restricting the test to assessing customer benefits only as opposed to including producer benefits as well.

This can be illustrated with the standard economic picture of a market as illustrated in Chart 3 below. This figure shows a downward sloping demand curve and upward sloping supply curve. The social optimum is at a price of *P** and quantity *Q**. At that point, consumer surplus of triangle *ABP** is maximised and is equivalent to the benefit realised (by consumers) over and above the purchase price. The logic behind this is simple. The consumer benefit is the difference between the amount someone would be willing to pay for a good and service and what they actually pay. This occurs whenever the demand curve for good is downward sloping as some people are able to buy the good at the (equilibrium) market price, which is less than some consumers would be willing to pay. Simultaneously, the total surplus (consumer surplus plus producer surplus or the area *ABP** + *BCP** = *ABC*) is also maximised.

CHART 3 : ECONOMIC CHARACTERISATION OF A MARKET



If the price is set at *P'*> *P** with a corresponding quantity *Q'*< *Q**, consumer surplus (*ADP'*) and total surplus (*ADEC*) is reduced. That is, society suffers a deadweight loss *DBE* when the price is increased.

The different standards therefore agree with respect to the optimal configuration of the market (a price *P** and quantity *Q**). The difference between the standards is the size of the gain from moving to this optimal position of the market. The consumer welfare standard counts as a benefit the amount transferred to consumers (the rectangle *P'P*DF*) and treats this as a net gain.[26] The total surplus standard would net this transfer out by treating the loss in producer surplus as a cost to society. The benefit counted by the total surplus standard is the triangle *DBE*.

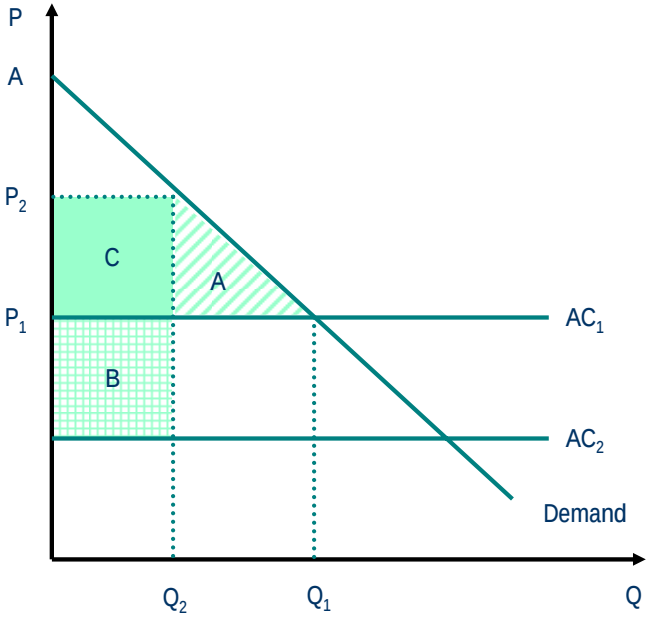
As we summarise in section 3, the choice of standard to be applied has been a hotly contested issue in the field of mergers and acquisitions. The motives for mergers are many and varied, but most can be placed into one of two broad categories used by antitrust experts.

[26] The same result would be gained under the total surplus test if all rent was wasted on unproductive rent seeking.

First, mergers may be motivated by a desire to achieve certain efficiencies that will make the merged entity 'better' than the original participants, e.g. benefits from sharing of important intellectual property, lower costs, etc. Second, a merger may represent an attempt by the parties to reduce competitive pressure, creating market power and likely leading to higher prices.

While the lower costs can be viewed as society's gain (fewer resources used up), the higher prices can be viewed as society's loss (by hurting consumers). This is illustrated in Chart 4 below.

CHART 4 : ECONOMIC IMPACT OF A MERGER[27]



Suppose two firms propose to merge and form a monopoly. Before the merger the average cost of both firms is AC_1, and the market price is P_1 (the long-run competitive price). The merger is predicted to reduce costs to AC_2 and drive the price up to P_2 as the merged firm exercises its new-found market power.[28]

The merger of the two firms produces market power, which is demonstrated by the fact that the price rises to P_2, but at the same time it produces significant efficiencies that push the average costs down to the level AC_2. The higher price leads consumers to buy fewer units (the number of units sold falls from Q_1 to Q_2). As indicated in Chart 4 there is:

- a direct deadweight loss (losses of allocative efficiency) of area *A*, created by a restriction of output;
- cost savings due to improved productive efficiency of area *B*; and
- the transfer of monopoly rent (surplus) from consumers to the firm is area *C*.

[27] This type of diagram was made famous by Oliver Williamson (1968) in his discussion of efficiencies in merger review.

[28] For more on the specific assumptions made in this example see Williamson *Op Cit.*

The first two effects are straightforward to quantify, but the third presents a problem from the economic point of view. Because it is a zero-sum transfer from one group to another, it has no direct effect on the total amount of surplus. But it obviously has potential welfare implications that must be addressed.[29]

The 'total surplus standard' may be regarded as a rule of thumb that simply assumes the net effect of the transfer to be zero, in which case the social effects of the merger are merely the change in total surplus, (*B* - *A*).

Williamson characterises the total-surplus approach where transfers net out as 'naïve'. On the issue of how transfers between consumers and producers should be evaluated he writes:

> *On the resource allocation criteria for judging welfare effects … the distribution of these profits becomes a matter of indifference. For specific welfare valuations, however, we might not always wish to regard consumer and producer interests symmetrically – although since, arguably, antitrust is an activity better suited to promote allocative efficiency than income distribution objectives (the latter falling more clearly within the province of taxation, expenditure and transfer payment activities), such income distribution adjustments might routinely be suppressed. If they are not, the tradeoff between efficiency gains and distributive losses needs explicitly to be expressed. Thus, while economies would remain a defense, any undesirable income distribution effects associated with market power would be counted against the merger rather than enter neutrally as the naïve model implies.* (emphasis added) [30]

In a similar vein, Mishan, on whom the ACCC would have relied extensively to set out their cost-benefit framework, advises that:

> *Although the device of incorporating utility weights into a cost-benefit analysis as a means of enforcing the claims of equity or distribution is evidently unsatisfactory, distributional and other social goals have to be respected by the economist who offers advice to society. The least he should do is point up the distributional implications wherever they appear significant.*[31]

2.3. Why changes to the regulatory test are essential

As the MCE notes in its Rule change proposal:

> *… application of the regulatory test has been the most disputed matter in the Code (before conversion to the Rules). It was the subject of the only matter to*

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29 To quantify the effects of a transfer it is necessary to:

(i) estimate the social value of the increase in profits of the monopoly, relative to the circumstances that existed before the merger or any circumstance where effective competition existed (i.e. the counterfactual);

(ii) estimate the full social cost of the extraction of wealth from captive consumers who have been held-up by the newly powerful firm (including spillovers); and

(iii) find the net social effect.

30 pp.27-28, *Op Cit.*

31 p. 405, Mishan, E.J., *Cost-Benefit Analysis*, Praeger: New York, 1976.

> *be brought before the National Electricity Tribunal,*[32] *and subsequently to a Supreme Court and Court of Appeal. Among the matters disputed were the nature of the regulatory test itself and the methodologies used to ascribe economic benefits to transmission investment.*
>
> *Also, there was no policy guidance to the ACCC for promulgating the regulatory test.*
>
> *As a consequence of this lack of clarity on the application of the regulatory test and consequent disputes, potentially economic transmission investment was either delayed or not made.*
>
> *Further, the initial regulatory test excluded the benefits of competition facilitated by transmission investment. Consequently, transmission investment which may have been economically justified may not have proceeded because those investments did not pass the regulatory test.*[33]

The MCE proposal also notes that:

> *(m)any of the ambiguities of the regulatory test and inconsistencies between the regulatory test and the Rules have been highlighted in the ACCC Discussion Paper on the Review of the Regulatory test (5 February 2003).*[34]

Difficulties with the regulatory test (and the challenges of regulating electricity transmission that these difficulties have highlighted) have also been thoroughly examined in two papers by Prof Stephen Littlechild[35] following his involvement as an expert witness in the NET hearings and subsequent role in advising the ACCC.

This paper does not attempt to address all of the issues identified by the ACCC or Littlechild. Many of these relate to legal issues that are not directly relevant to this paper. However, MJA urge the AEMC (and all those intended to apply the regulatory test) to carefully consider each of the issues raised in Littlechild's papers – and take action to address them where practicable.

Of particular relevance to this paper are matters relating to the way in which the principles of cost-benefit analysis have been applied in the development of the regulatory test. This particular issue – of whether the regulatory test is consistent with the logic and public benefit arguments underlying cost-benefit analysis – was identified in the NET Minority Decision[36] as a matter that rendered application of cost benefit analysis as 'fundamentally flawed'. We acknowledge that the SNI appeal dealt with issues arising from application of the first version of the regulatory test. However, we are concerned that criticisms in the NET

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32 Referred to as the NET in the remainder of this paper.

33 p. 3, Attachment A, Letter from Ian Macfarlane to Dr John Tamblyn, *National Electricity Rules – Rule Change Application, Reform of the Regulatory test Principles*, Undated.

34 *Ibid.*

35 *Transmission regulation, merchant investment, and the experience of SNI and Murraylink in the Australian National Electricity Market*, Stephen Littlechild, 12 June 2003; and *Regulated and Merchant Interconnectors in Australia: SNI and Murraylink Revisited*, Cambridge Working Papers in Economics CWPE 0410, Stephen Little child, 13 January 2004.

36 *Reasons for Decision, National Electricity Tribunal Application No. 1 of 2001 - Application for Review of a NEMMCO Determination on the SNI Interconnector*, Prof Gavan McDonell, 6 December 2001

Minority Decision of the way in which the regulatory test was applied may not have been adequately addressed by the ACCC in developing the current version of the regulatory test.[37]

This is particularly important because the MCE proposal involves elevation of key aspects of the regulatory test and the relevant concepts in the Statement of Regulatory Principles to the Rules. Accordingly, we believe it is desirable that the AEMC ensure that issues referred to in the NET Minority Decision are adequately dealt with in the Rules change (if appropriate) or by the AER in implementing the changed Rules.

2.3.1. The Initial 'Customer Benefits Test'

The early version of the test as articulated in version 1.0 of the National Electricity Code (Code) was known as the Customer Benefits Test. This test was applied by NEMMCo during 1998 to determine whether the SANI (Riverlink) project proposed by TransGrid and ETSA Transmission Corporation was justified as a regulated interconnection.

The outcomes from application of this initial Customer Benefits Test have been referred to in many documents as being unsatisfactory, because the results were unstable. However, very little detail is provided to explain why this occurred. It is appropriate to briefly summarise the circumstances that applied to the Customer Benefit Test to ensure they are taken into consideration by the AEMC.

NEMMCo's report on the initial SANI assessment[38] noted the following:

- The 'decision criteria' adopted for application of this first version of the test was based on demonstrating that the project 'maximises the net benefit to Customers,' who were defined in the Code as one class of NEM Participant (other classes including, for example, Generators and Network Service Providers).[39]

  That is, NEMMCo's interpretation was that wording of the initial Customer Benefit Test excluded consideration of the benefits that might be derived by the market as a whole or energy end users.

- Another test which could sensibly be applied if it were permitted under the Code was a public interest (or public benefit) test, which requires adopting a wider focus than a Customer Benefit Test. NEMMCo said that a public interest analysis must take into account the impact of investments on all members of the public. This requires considering the impact of an investment on all participants in the NEM not just Customers. The impact of the investment on affected members of the public who are not participants in the NEM must also be considered.[40]

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[37] Most of the changes implemented by the ACCC in developing 'version 2' of the regulatory test related to the process to be used in applying the test. The guidance provided to those applying the test was revised somewhat, but it is not clear that issues of substance raised in the NET Minority Decision have been adequately addressed. It is notable for instance that the ACCC made only indirect reference to the NET Minority Decision in its (the ACCC's) own report on the review of the *regulatory test* – and made no explicit reference to any of the issues raised by the NET Minority. (see: *Review of the Regulatory test for Network Augmentations*, ACCC, 11 August 2004).

[38] *The SANI (Riverlink) Review*, NEMMCo, June 1998.

[39] p. 3, *Introduction and Summary, Op Cit.*

[40] p. 4, *The SANI (Riverlink) Review*, NEMMCo, June 1998.

NEMMCo (initially) and the ACCC subsequently (during development of versions 1 and 2 of the regulatory test) have made a fundamental assumption that the interests of all sectors of the electricity market (principally

- Assessment of the robustness of the Customer Benefit Test, using a number of sensitivity studies highlighted the extreme volatility of the Customer benefit decision criterion factors which affect the spot price, such as bidding strategy and load growth. NEMMCo demonstrated the 'extreme volatility' of the Customer Benefit Test by performing a series of market simulations[41] using the VISION software package (marketed by the Victorian Power Exchange (VPX)) in the form of a number of sensitivity studies, particularly where the available data may be uncertain or estimated.[42]

The results of the sensitivity analyses for the Customer Benefits Test (using eight different scenarios) were summarised in tabular form in NEMMCo's report.[43] For comparison, the results from simulation of sensitivity analyses for a 'public interest assessment' (using the same scenarios) was also included.[44] These tables showed that estimates of 'cost effectiveness' varied from -$48 million to +$215 million for the Riverlink option and from -$135 million to +$43 million for the Heywood option under the Customer Benefit Test. By comparison, the ranges under the 'public interest assessment' varied from -$5 million to +$56 million and -$29 million to +$12 million respectively, with scenarios ranked in different orders. That is, NEMMCo's 'public interest assessment' produced a smaller range of 'cost effectiveness' values for both options and substantially lower (and closer) mid-range values than the Customer Benefit Test.

The outcomes of NEMMCo's review of the SANI proposal led to the conclusion that the Customer Benefits Test was conceptually flawed. Specifically, and in respect of the Customer Benefits Test, NEMMCo concluded that:

- based on legal advice, it was bound to make its determination on the Customer benefit criterion; and
- using the Customer benefit decision criterion (and the methodology and analysis framework defined in its report), the Customer benefits of SANI (Riverlink) are not robust to plausible and realistic variations to key assumptions which affect pool price, including bidding strategy and load growth forecasts. It therefore becomes virtually impossible to state with certainty whether a proposal will maximise Customer benefits and therefore be justified in terms of the decision criterion.[45]

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consumers and producers of electricity) should be weighted equally. As noted earlier (and in section 3) the assumption has also been made that cost-benefit analysis can be applied to just the electricity market – ignoring any 'flow-on' effects to other parts of the economy. These are only one of a range of possible assumptions that could have been made in each case.

The issues of how the impact on different sectors of society has been dealt with in 'public interest assessments' in other industries and other jurisdictions, and whether a 'partial equilibrium analysis' is appropriate, are addressed in further detail in section 3 of this paper.

41 The market simulations took into consideration the proposed interconnection between New South Wales and Queensland and physical market operations were modelled in all five regions of the NEM. (See: p. 11, *The SANI (Riverlink) Review*, NEMMCo, June 1998.)

42 p. 12, *Ibid.*

43 Table E3, p 14, *The SANI (Riverlink) Review*, NEMMCo, June 1998.

44 Table E4, p 15, *The SANI (Riverlink) Review*, NEMMCo, June 1998

45 p. 15, *The SANI (Riverlink) Review*, NEMMCo, June 1998.

In respect of the 'public interest criterion', NEMMCo concluded (provisionally) that the public interest decision criterion is more robust than the Customer benefit criterion to parameters which affect pool price, for example bidding strategy.[46]

In light of issues discussed below and in section 3 of this paper, we emphasise that – from a policy context – the most basic 'flaw' in the Customer Benefit Test is likely to have been the formal wording of the Code. The use of the term *'Customer'* which was interpreted by NEMMCo's legal advisers to mean one of the defined market Participants rather than energy end users generally appears to have substantially complicated the analysis and interpretation. The examples in section 3 of this paper demonstrate that forms of cost-benefit analysis that focus on 'consumer (i.e. end-use customer) benefit', or which assign a greater weighting to 'consumer benefit' than 'producer benefit' have been adopted in a number of jurisdictions.

2.3.2. Transition to the regulatory test

As the MCE proposal notes, following recognition that the interpretation of the Customer Benefits Test was leading to undesirable outcomes, the ACCC was asked to review the test and, in 1999, revised the Customer Benefits Test to the (first version of the) regulatory test. The regulatory test was still to be administered by NEMMCo (and the Inter-regional Planning Committee (**IRPC**)), but was now focused on the concept of net public benefits, rather than net Customer benefits and on economic cost savings, rather than (potentially distorted) pool price outcomes.

The process under which the regulatory test had been applied has also been substantially revised. In February 2002, the ACCC issued a final determination regarding Code changes sought by National Electricity Code Administrator (NECA) -– the Network and Distributed Resources (NDR) package. The NDR Code changes significantly modified the processes surrounding the application of the regulatory test.

Under the arrangements in place from December 1999 to February 2002, there was a degree of centralised oversight of network investment across the NEM. As noted above, the IRPC and NEMMCo were responsible for evaluation of the technical and economic merit of inter-regional augmentations using the first version of the regulatory test. The NDR Code changes moved away from these centralised arrangements and placed greater reliance on individual TNSPs -– as proponents of the project -– for planning and investment decision-making.

In August 2004, the ACCC published its decision which promulgated changes to the regulatory test. The three sets of changes included:

- Modification to the regulatory test (version 1) to ensure consistency between it and the Code.
- Introduction of a number of definitions to be used by TNSPs when applying the regulatory test to ensure its consistent application across the NEM.
- Introduction of competition benefits, which captures the efficiency benefits of increased competition between generators. [47]

[46] p. 16, *Op Cit.*

[47] However, in other respects, the NDR Code changes did not fundamentally alter the 'mechanics' (or technical aspects) of the regulatory test. Revisions to the ACCC's Guidelines for applying the regulatory test

In particular, the TNSPs are now responsible for undertaking the economic assessment of the project. That is, the proponent for the investment now applies the regulatory test, and subsequently makes an application for regulated status to the AER.

2.3.3. Testing the regulatory test

Littlechild's 2003 paper provides a detailed summary of each of the issues dealt with by the NET, and of the differences that emerged between members of the NET in their Majority and Minority Decisions and between the NET and the Victorian Supreme Court. The issue of immediate relevance to this paper, and the AEMC's consideration of the MCE Rule change proposal, is that the Minority Decision identified that the regulatory test had been specified by the ACCC in a way that allowed the test to be applied in a manner that was not consistent with the logic and public benefit arguments underlying cost-benefit analysis on which any reasonable application of the test should rely.[48] We believe this is a serious deficiency that must not be permitted to pass without detailed scrutiny by the AEMC.

As Littlechild noted, the third member of the Tribunal (Prof Gavan McDonell) did not accept the views of the other two members[49] (two prominent lawyers, The Hon Jerrold Cripps, QC (Chairperson) and Professor Douglas Williamson, RFD, QC). McDonell pointed out that he was the non-legal member of the NET, with expertise in engineering, economics and sociology.[50] He resolved the NET's tasks into two parts:

- the interpretation of the regulatory test and whether SNI was justified at the time of NEMMCo's determination; and
- whether SNI is presently justified.

This paper deals only with the first part.[51] In this respect, McDonell argued that the ACCC had clearly related the test to the logic and public benefit arguments underlying cost-benefit analysis. In his view, deciding the appropriate interpretation of the test was the first question to be resolved by NEMMCo and by the NET. He concluded that:

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were largely focussed on clarifying what had been intended initially. This means it is still possible that the outcomes from applying the test will produce similar, technically incorrect results.

[48] Essentially the same issue was raised in the EUAA and Energy Action Group 2003 submission to the ACCC Review of the Regulatory Test. (See: *Review of the ACCC Regulatory test - Submission to the Australian Competition & Consumer Commission & Report to the National Electricity Consumers Advocacy Panel*, Energy Users' Association of Australia & Energy Action Group, December 2003.

A further issue of considerable interest identified by Littlechild was that different modellers used different modelling tools, made significantly different assumptions and derived significantly different results. But the biggest problem (according to Littlechild) was that the modelling undertaken for NEMMCo was poorly explained and analysed. A further issue of interest, as Littlechild notes (on p. 29 of his 2004 paper), is that a recent evaluation of the 1997 study (by London Economics that showed the original SANI proposal was economically viable), six years afterwards, has found that most of the underlying assumptions are no longer valid.

These observations raise serious questions about whether it is appropriate to commit substantial 'regulatory energy' to oversighting development and execution of an investment 'test'. Such a test may have more 'regulatory value' if assumptions crucial to its application were stable.

[49] See pp 12-13 and pp 18-20, *Transmission regulation, merchant investment, and the experience of SNI and Murraylink in the Australian National Electricity Market*, Stephen Littlechild, 12 June 2003.

[50] In personal communications with MJA, McDonell confirmed that as a member of the NET it was not up to him to advance arguments for any of the parties to the Appeal. However, he also suggested (as did Littlechild) that none of the principal parties to the appeal demonstrated a detailed understanding of the technical economic issues that related to application of cost-benefit analysis.

[51] McDonell concluded that SNI was not justified in the form proposed by Transgrid.

> *NEMMCO's interpretation of the test was foundationally flawed and that it thus did not apply the regulatory test. Of the various inadequacies of NEMMCo's which include reading the regulatory test out of context, the treatment of alternatives and of interdependencies among them, taxes and transfers, shadow prices, of costs, of incremental optimisation, and of risk and uncertainty, two are especially damaging:*
>
> - *the failure to make valid economic comparisons of the net present values of alternative investments of different size (especially in this case where the differences are large); and*
>
> - *the failure to consider the implications, for the calculation of net present values, of the relative magnitudes and probabilities of less uncertain early occurring, and the more uncertain late occurring, benefits (especially in this case where the late occurring benefits as a proportion of total benefits is large).*
>
> *As I show in Appendix 1 … these deficiencies can be expected to lead to the 'gold plating' of regulated assets proposed for justification.*[52]

In McDonell's view, it was open to NEMMCo to have sought a corporate statement from the ACCC as to the construction of the regulatory test and the method and procedure to be adopted but it did not do so. Accordingly, McDonell concluded that the result obtained by NEMMCo was fundamentally flawed.[53]

McDonell expressed concern that NEMMCo's special expertise lay not in economics but in electrical engineering. On the other hand, McDonell (asserted) that the ACCC has frequently demonstrated familiarity with economic principles and methods. He went on to say that:

> *NEMMCO could be reasonably expected to ensure the economic soundness of its approach to an ACCC public benefits test. However, its reach exceeded its grasp.*
>
> *Moreover, …the formula of interpretation which NEMMCO adopted can be reliably expected to result in 'gold plating. This is a practice which the ACCC has been especially concerned to discourage, and was a major issue in its considerations of and consultations on the Regulatory test. Though there might be infelicities of drafting in the ACCC's text, I do not accept that it can be interpreted to include that the objective of the Regulatory test was to encourage so perverse a result. This would be a necessary consequence of the NEMMCO formula.*[54]

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[52] pp. 6-7, *Reasons for Decision, National Electricity Tribunal Application No. 1 of 2001 – Application for Review of a NEMMCO Determination on the SNI Interconnector*, Prof Gavan McDonell, 6 December 2001.

[53] p. 7, *Op Cit.*

Instead, it adopted an interpretation which does not provide a rational investment decision criterion and which therefore fails to examine the merits of alternatives, however they might be defined or otherwise analysed, as regulated economic investments.

[54] p. 8, *Op Cit.*

McDonell concluded that NEMMCo had not applied cost-benefit analysis as intended, and that SNI was not justified.[55]

In responding to McDonell's Minority Decision, the Majority dismissed the themes of McDonell's arguments that the NEMMCo process was deficient, that it would lead to gold-plating, and that SNI was not justified. In the Majority view, the concern that the whole process was 'fundamentally flawed' was not an issue that had been raised in the proceedings by any party, or by any of the expert witnesses.[56]

In effect, the Majority rejected McDonell's criticisms on the grounds that NEMMCo had followed the process specified by the ACCC; and ignored (what we consider to be) the legitimate criticisms by McDonell that the way NEMMCo had undertaken the process had several clear and demonstrable technical flaws that were incompatible with the logic and public benefit arguments underlying cost-benefit analysis.

The Majority view (that following the process was more important than technical issues) was also reflected in the Supreme Court judgement, which Littlechild summarises by way of reference to the Court's reasoning on (what Littlechild considered to be) the most interesting rejected ground as:

> *The appellant claimed that 'the Tribunal erred in law in holding or proceeding on the basis that it was not necessary to apply general principles of cost-benefit analysis in the application of the Regulatory test'. The Court held that the question was whether the cost benefit analysis had been carried out in accordance with generally accepted standards of cost benefit analysis as conditioned by the regulatory test. There was expert evidence before the Tribunal adequate to support a number of competing views as to whether or not it had been. On the basis of that evidence the Minority member Professor McDonnell took one view and the Majority took another. The Majority were entitled to do so.*[57]

That is, the Court judged the 'technical' deficiencies in applying the logic and public benefit arguments underlying cost-benefit analysis raised by McDonell as being of lesser importance than 'process' and put the dispute between McDonell and his two fellow NET members down to a 'difference of view'.

An issue for the AEMC is that the generally accepted standards of cost-benefit analysis considered by the Court were those presented in evidence at the NET hearings (and the Court proceedings). As McDonell has noted subsequently, His Honour Justice Nettle dismissed the merits of 'technical arguments' by way of:

> *There is no dispute that the test to be applied is the test promulgated by the ACCC. There is also no dispute that the test modifies what Professor*

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55 *Ibid.*

56 *Ibid.*

pp. 67-74, *Reasons for Decision, National Electricity Tribunal Application No. 1 of 2001 - Application for Review of a NEMMCO Determination on the SNI Interconnector*, The Hon Jerrold Cripps QC (Chairperson) and Professor Douglas Williamson RFD, QC (Member), 31 October 2002.

57 p. 12, *Regulated and Merchant Interconnectors in Australia: SNI and Murraylink Revisited*, Cambridge Working Papers in Economics CWPE 0410, Stephen Littlechild, 13 January 2004

> *McDonnell terms "the usual dimensions of a CBA". The debate is about the ways to go about a cost benefit analysis of that kind. Say that quickly and it may sound as though it involves a question of construction of the Code, or at least the construction of the test imported by the Code. But it does not. The difference between the majority and Professor McDonnell is about no more than the application of economic criteria to the facts of the matter (emphasis added by McDonnell).*[58]

McDonell interprets this statement in the following way:

> *In short, His Honour did not accept that the terms in question were terms of art, with expert meanings, and that their use should be determined by those meanings, including both technical and welfare associations of those meanings, given to them in the economics discipline. Further, His Honour concluded that my position was a personal one, rather than one exposing, on the basis of cited economic authorities which have not been disputed, the rationale of the expert discipline in this area. My point was, of course, that NEMMCO's processes in question did not conform to economic criteria. With respect, His Honour, in my view, erred in both these respects.*[59]

MJA, as a specialist practitioner of the application of economic criteria to the facts of the matter has considerable sympathy with McDonell's view. One could liken this to a situation where an (inexperienced) engineer utilised a form of calculation in the design of a major structure 'that modifies the usual dimensions of structural analysis'. If that occurred,[60] the structure would either collapse or cost substantially more to construct than might otherwise be the case. Economics is held to have a rational, logically and 'scientific' basis. In that case, it is important to ensure the regulatory test is entirely consistent with the logic and public benefit arguments underlying cost-benefit analysis.

Littlechild also appears to show similar sympathies. He concluded in his 2003 paper that:

> *… it is unfortunate that the Minority Decision did not establish more clearly that, not only were these potential deficiencies in the process, they had in fact led to a wrong decision; and a greater familiarity with, and sense of responsibility towards, the cost benefit tradition in economics could surely have remedied some of the more serious shortcomings in the process* [61](emphasis added). [62]

Littlechild then went on to list the following factors that should be included in any application of the regulatory test:

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58 p2, *Draft Decision – Review of the Regulatory test for Network Augmentation*, Letter McDonell to Samuel, 23 April 2004.

59 *Ibid.*

60 In fact, engineers do make 'technical errors' when designing major structures. A significant proportion of all major bridges built in the last century have collapsed or developed major problems. King's Bridge and the Westgate Bridge in Melbourne are just two examples.

61 p. 18, *Transmission regulation, merchant investment, and the experience of SNI and Murraylink in the Australian National Electricity Market*, Stephen Littlechild, 12 June 2003.

62 p. 18, *Transmission regulation, merchant investment, and the experience of SNI and Murraylink in the Australian National Electricity Market*, Stephen Littlechild, 12 June 2003.

a) searched more actively for relevant alternative projects and scrutinised them more closely

b) avoided the unduly restrictive approach to the screening of alternative projects

c) looked for ways of making potentially beneficial projects commercially feasible instead of taking a premature judgement and eliminating them

d) been more sensitive to the incremental costs and benefits associated with components or variants of particular projects

e) sought out, identified and highlighted (instead of ignored, failed to identify and concealed) the possibility that particular components of a project could provide all or most or even more than all the benefits associated with the project as a whole

f) actively explored the most economic configuring of submitted projects

g) explored in more detail claims of risks associated with the potentially most beneficial projects, including the sources of such risk, their probability or likelihood, and the expected costs associated with them

h) explored possible and economic ways of mitigating any justified risks, including by alternative network design and by means of contractual or charging arrangements, in the context of the statutory objectives on the parties in question

i) insisted from the outset on a more explicit and accessible form of modelling, with wider and more informed discussion of results,

j) shown more cognisance of the relevant organisational incentives, as documented in the economic literature and as recognisable in practical experience, and their potential implications for the proposals, issues and decisions likely to arise in the context of the regulatory test.[63]

The current version of the regulatory test would benefit by ensuring these matters must be considered. This would require the AEMC to provide appropriate instructions for the AER to modify its existing guidelines for application of the regulatory test. Accordingly, we recommend that the AEMC ensure this occurs as part of the Rule change process.

[63] p. 19, *Op Cit.*

3. Issues for the AEMC

The discussion in earlier sections of this paper allow MJA to suggest to the EUAA areas where focus is required by the AEMC. These are dealt with in the section below.

3.1. Do we really 'need' a regulatory test?

As noted in section 1 of this paper, cost-benefit analysis is essentially an economic analysis undertaken as a formal, prescriptive technique that seeks to inform decisions of the costs and benefits of actions or suggestions. Cost-benefit analysis was originally derived for dealing with the 'market failure' situations relating to investments in large, government owned, monopolistic infrastructure systems (for example, dams, hydro plants, airports, roads, etc) and where the proposed investment is a small proportion of total system investment.

We accept that cost-benefit analysis, properly and reasonably applied, could assist in informing decisions about investment options in electricity networks. In the form of the regulatory test, the application of the cost-benefit analysis technique seeks to determine whether a particular project should be undertaken or decision should be made.

While it is clear that this is an intention that underpins the MCE proposal, we are not aware of any other example of cost-benefit analysis being used to discriminate between investment options in a highly market-dynamic situation such as the NEM. This same reservation was noted in the NET Minority Decision and in a presentation made by Littlechild at a public forum convened in Melbourne on 28 July 2003 by the ACCC to discuss 'competition benefits'.

As the SNI appeal process demonstrated, an investment decision made using the regulatory test may not produce an outcome that matches the assumptions adopted in modelling costs and benefits. The key issues that Littlechild notes in his 2003 paper were dealt with in the SNI appeal (and the subsequent Supreme Court challenge to the NET Majority Decision) all raise questions about the 'regulatory value' of relying on outcomes from the regulatory test. For example, evidence presented in the appeal process questioned:

- the economic value of (the now re-named) SNI and differences between the modelling results used by NEMMCo and modelling undertaken for Transgrid;

  A key issue related to modelling was that different modellers used different modelling tools, made significantly different assumptions and derived significantly different results.[64] In many cases there were plausible explanations to support particular sets of assumptions; and equally plausible explanations why assumptions made at one time were not valid at another time.

  A further issue of interest, as Littlechild notes,[65] is that a recent evaluation of the 1997 study (by London Economics that showed the original SANI proposal was economically

[64] An additional problem (the biggest problem according to Littlechild) was that the modelling undertaken for NEMMCo was poorly explained and analysed.

[65] p. 29, Littlechild, 2004.

viable), six years afterwards, found that most of the underlying assumptions are no longer valid.[66]

- what proposals can/could/should be considered as 'alternatives/options' during application of the regulatory test;

  The key issue here was that modelling undertaken for Transgrid showed that 'unbundled SNI' (the network reinforcement required to support an additional link in Transgrid's network) has a higher economic value than the whole of SNI. Even so, the NET Majority accepted Transgrid's argument that 'unbundled SNI' could not be considered an 'alternative' to SNI because it did not have a proponent (because Transgrid declined to be the proponent and no acceptable agreement could be reached for Murraylink to be the proponent). [67]

- what level of commercial risk (from asset stranding in this case) was sufficient to disqualify an 'alternative/option' from consideration;

  The key issue here was that the Tribunal Majority accepted that implementation of USNI (unbundled SNI) would lead to a real risk of stranding or, at the very least, TransGrid's apprehension of the risk of stranding is real and not unreasonable, which justified Transgrid declining to be considered a proponent for 'unbundled SNI'.

- whether the NET, or the ACCC, had the power to compel Transgrid to become a proponent for, or to undertake, an 'alternative project' that could be deemed to pass the *regulatory test*. [68]

Matters that should be of particular interest to the AEMC, AER and electricity consumers are those observations made by Littlechild in respect of the IES modelling (undertaken for Transgrid) that were also left unanswered by the NET and Supreme Court process. The IES modelling estimated the economic benefits of what the NET called the 'unbundled SNI' (or USNI), which was essentially the network reinforcement needed to support the additional network link part of SNI. Arguments in the NET hearings (and Decisions) essentially related to whether or not USNI should be considered an 'alternative or option' for application of the regulatory test, particularly since the advent of Murraylink.[69]

The IES modelling showed that more than the total economic value of SNI came from 'unbundled SNI'. That is, with Murraylink in place, the additional network link part of SNI actually demonstrated a negative economic benefit. This suggests that if 'unbundled SNI' had proceeded it would have increased the economic value of Transgrid's network (and would also add value to the now regulated Murraylink). However, Transgrid declined to act

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[66] Littlechild notes that London Economics had rejected an additional gas-fired base load station as a viable option, and relied instead on gas peaking plant to provide additional generation as an alternative to interconnection – although they did point out that their calculations of the benefits from reduced generation plant build were particularly vulnerable to this assumption. In the event, additional base load generation was constructed in SA.

A similar assumption also, presumably, led Transenergie to makes its ill-fated investment in Murraylink. The early modelling for SNI did not anticipate the investment in Murraylink, nor appropriately judged the likelihood of the level of investment in generation capacity that occurred subsequently.

[67] It is noteworthy that this was one of two aspects of the Majority Decision that was over-turned by the Supreme Court, which ruled that an 'alternative/option' did not need to have a proponent.

[68] Which the Tribunal sensibly concluded would not be appropriate.

[69] As noted above, the NET Majority concluded that 'unbundled SNI' could not be considered an 'alternative/option' to SNI since there was no proponent for USNI – one of only two parts of the Decision that were rejected by the Supreme Court.

as a proponent for 'unbundled SNI'.[70] Transgrid (not unreasonably according the NET Majority) also refused to let Murraylink nominate as proponent for (and build) 'unbundled SNI'; and was unable to reach any reasonable agreement with Murraylink to defray the asset stranding risk.

Leaving aside the technical and economic arguments that are reasonably presented by Littlechild, a question for the AEMC, or the AER (and of interest to electricity consumers) is:

> What is Transgrid doing about 'unbundled SNI' now that Murraylink has become a regulated asset?[71]

As Littlechild notes:

> *The clear messages of the IES modelling (and perhaps the ROAM modelling[72] too, had it been properly explained and analysed) are two-fold. Once Murraylink was committed, (a) it was economic to reinforce the State transmission systems so as to make best use of that interconnector, and (b) it was uneconomic to build a duplicate interconnector along the same route, at least at the present time.*[73]

This experience shows that the outcomes from modelling required to execute the regulatory test can vary substantially, and can produce forecast outcomes that do not eventuate. Even where the modelling suggests an investment may deliver benefits to energy users, there is no mechanism to ensure that investment proceeds.

Most importantly, these issues – and the deficiencies in application of the regulatory test - only came to light because Transgrid's decision to proceed with SNI was subject to appeal. There has been no comparable scrutiny of other investment decision based on outcomes from the regulatory test; and, therefore, no way to determine whether those applications were any more robust.

Each of these observations begs the question of whether Australia 'needs' something like the regulatory test specified in the Rules. A pragmatic, and technically robust, application of cost-benefit may assist in informing decisions on which one of a range of options is likely to deliver optimum benefits. But the SNI appeal demonstrated that modelling used to estimate costs and benefits was very sensitive to assumptions that were 'reasonable' at the time of the modelling but very likely to change due to the 'dynamic' nature of the NEM.

At best, even a robust application of cost-benefit analysis techniques may achieve no more than assist in making a rational investment decision. It is unlikely to produce a 'right' decision alone and must be complemented by other decision criteria. Ideally, those other

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[70] Transgrid's argument was, essentially, that the way Murraylink was operated as an 'entrepreneurial interconnector' could strand the investment.

[71] Littlechild refers to much the same issue in a section headed 'Two issues not examined by the Tribunal' in pp 13-14 of the 2003 paper.

[72] ROAM Consulting undertook the modelling of the SNI proposal that underpinned the IRPC and NEMMCo decision to approve the project.

[73] p. 19, *Transmission regulation, merchant investment, and the experience of SNI and Murraylink in the Australian National Electricity Market*, Stephen Littlechild, 12 June 2003.

criteria should be linked to incentives for TNSPs to take actions and make investments that would be reasonably likely to lead to improved outcomes in the NEM.

This suggests that there may be benefit to the NEM and energy users in adapting investment decision criteria and incentive mechanisms used elsewhere and abandoning the regulatory test as a 'regulatory instrument'.

It is beyond the scope of this paper to canvas what these alternatives might be or how they could be implemented in the NEM. However, two examples are relevant:

- the first is the incentive arrangements implemented in the UK for NGC which link financial outcomes for NGC directly to market outcomes.
- a second is to adapt arrangements from North America that link incentives to reliability performance in a manner that appears similar to the 'reliability branch' of the regulatory test.

Both these types of arrangements focus on outcomes not directly related to investment decisions linked to inputs; and both allocate responsibility for investment decisions to transmission network service providers.

The AEMC would appear to have the option of fundamentally reviewing whether or not it is necessary to have a regulatory test specified in the Rules.

Given that Australia is the only jurisdiction in the world to have a regulatory test (apart from the yet to be successfully applied Grid Investment Test in New Zealand), it is our view that it would be both appropriate and legitimate for the AEMC to deal with this question. It is entirely possible that the only reason Australia has a regulatory test is because we have yet to grasp the policy essentials needed to ensure our energy markets work effectively – and in the long-term interests of energy consumers.

However, we acknowledge that this is a matter that is beyond the powers of the AEMC to resolve in this Rule change process. For example, challenges in introducing an NGC-style incentive scheme are compounded substantially by the jurisdictional structure of electricity transmission. Aggregating all electricity transmission assets into a single 'National Electricity Grid Company', as initially intended by CoAG in 1992, may well be required to address this 'regulatory problem'.

Resolution of that particular policy issue is a matter for jurisdictional governments and the MCE. However, it would be entirely proper for the AEMC to draw it to the attention of the MCE for consideration.

Moreover, MJA believes that the EUAA should raise the matter with the COAG Energy Reform Implementation Group (ERIG) once formed, as the ERIG will be examining the need for a "full national transmission system".

3.2. We do need to ensure appropriate technical rigour

If the regulatory regime for electricity transmission is to retain the regulatory test, it is our view that any reasonable practitioner should be expected to execute the test in a sound and technically rigorous manner. Experience to date strongly suggests that, in addition to

adopting a test based on the 'principles of cost benefit analysis, it is necessary to specify technical criteria in sufficient detail to address issues identified in the SNI appeal. This would require the AER to incorporate into its Guideline each of the criteria identified by Littlechild. That is, the AEMC should amend the MCE Rule change proposal to require the AER to amend its Guideline for application of the regulatory test to include a requirement that practitioners:

a) actively identify relevant alternative projects and scrutinise them closely;

b) avoid an unduly restrictive approach to the screening of alternative projects;

c) examine ways of making potentially beneficial projects commercially feasible instead of taking a premature judgement and eliminating them;

d) be sensitive to the incremental costs and benefits associated with components or variants of particular projects;

e) seek out, identify and highlight the possibility that particular components of a project could provide all or most or even more than all the benefits associated with the project as a whole;

f) actively explore the most economic configuring of submitted projects;

g) explore in more detail claims of risks associated with the potentially most beneficial projects, including the sources of such risk, their probability or likelihood, and the expected costs associated with them;

h) explore possible and economic ways of mitigating any justified risks, including by alternative network design and by means of contractual or charging arrangements, in the context of the statutory objectives on the parties in question;

i) insist from the outset on a more explicit and accessible form of modelling, with wider and more informed discussion of results; and

j) demonstrate understanding (and explain the impact of) relevant organisational incentives, as documented in the economic literature and as recognisable in practical experience, and their potential implications for the proposals, issues and decisions likely to arise in the context of the regulatory test.

However, we also acknowledge that Littlechild noted in his 2004 paper that it was prudent to take a practical view in applying cost-benefit analysis, by stating that it was:

> *understandable … that the Court had indicated that either the rigorous cost benefit approach advocated by the Minority decision or the less detailed more applied version adopted by the Majority decision could have been acceptable.*
>
> *The implications of requiring a "full" or "rigorous" cost benefit analysis could have been uncertain, time-consuming and costly. It ought to be possible to remedy the more specific deficiencies identified by some witnesses and the Minority member within the framework of the approach adopted by the*

> *Majority. But does the Court decision give reason to believe that this will happen?*[74]

We endorse this view and recognise that it is consistent with the principle included by the MCE to use analysis commensurate with the scale and size of investment. That is, the level of detail involved in applying cost-benefit analysis must be appropriate to the circumstances.

Even so, Littlechild noted that:

> *There is no doubt scope for improved guidance in some respects, although the independence, economic competence and attitude of the regulatory bodies are at least as important.*[75]

Accordingly, it is appropriate for the AEMC to ensure the matters suggested by Littlechild are considered as part of the Rule change process. The most appropriate way to do this could be by ensuring the AER includes these explicitly in guidelines for application of the regulatory test.

As noted elsewhere in this paper, a primary reason for focus on this issue is that there is little indication in ACCC documents relating to the regulatory test – and none in the MCE's Rule change proposal – that McDonell's criticisms (and Littlechild's observations) have been addressed by the ACCC, AER or MCE. The potential impact on end users, and the NEM generally, of outcomes from applying the regulatory test is clearly considerable. It is, therefore, essential for the Rule change to confirm that specification of the test is sufficiently rigorous to be reasonably consistent with the logic and public benefit arguments underlying cost-benefit analysis. This is the only way to ensure its future application is likely to lead to an outcome that will promote achievement of the NEM objective.

3.3. The issue of Welfare Transfers must be considered

Also as noted in section 1 of this paper, one of the most divisive issues to be raised in the prolonged debates that have accompanied development of the regulatory test is that related to 'welfare transfers'.

3.3.1. The prevailing view and background

The issue of transfers is (or would appear to be) most clearly stated in the ACCC's recent consideration of competition benefits:

> *The ACCC is of the view that clauses 6.2.2 and 6.2.3 of the Code provide that the regime it administers must foster the efficient operation, provision and expansion of the transmission network. Increases in the efficiency of the market can and do result in reductions in prices. However, lower prices are not an objective that the ACCC is required to pursue. <u>If the writers of the Code had intended that reduced prices for consumers were to be an over-riding objective,</u>*

[74] p. 13, *Regulated and Merchant Interconnectors in Australia: SNI and Murraylink Revisited*, Cambridge Working Papers in Economics CWPE 0410, Stephen Littlechild, 13 January 2004.

[75] *Ibid.* The same observation relates to transmission network service providers since they have primary responsibility for applying the regulatory test.

> *then that would have been expressly stated. It is likely that they considered that promoting efficiency would provide the benefits of the market as a whole. That is, with greater efficiencies, benefits would accrue to both consumers and producers of electricity, not just consumers. (emphasis added)* [76]

The ACCC continues:

> *The Code's objective of promoting efficiency was paramount in the ACCC's promulgation of the regulatory test (v.1), where it stated that in developing the regulatory test the ACCC has relied on the two key principles of economic efficiency and competitive neutrality. The ACCC also considers that including wealth transfers in the definition of competition benefits would be inconsistent with the stated principle of competitive neutrality, given that such an approach would effectively mean weighting increases in consumer surpluses higher than increases in producer's surpluses.* [77]

We are not convinced by these arguments. First, the ACCC has resorted to an argument in the form "if *[this is what was intended]….. then …[it follows that...]*" to make its case, i.e. *if the writers of the Code had intended that reduced prices for consumers were to be an over-riding objective, then that would have been expressly stated*. This is weak line of argument. Simply because a particular phrase has not been used does not provide compelling evidence that both (net) benefits to producers and consumers should be considered. Indeed, we could construct the following statement: *If the writers of the Code had intended that producers and consumers should be treated equally, then that would have been expressly stated*. We cannot conclude from this statement that only benefits to consumers should be counted.

Second, as discussed in section 2.2 the concept of efficiency does not necessarily entail that the choice should fall upon the total surplus standard.

Third, it is unclear how competitive neutrality entails that equal weighting be given to consumer and producer surplus. The ACCC offers no discussion to assist in understanding its definition of competitive neutrality in the current context. The competitive neutrality principle was, however, discussed at some length by the ACCC's consultants Ernst & Young in their 1999 report:

> *This criterion [competitive neutrality] 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.*[78]

In terms of generation competition, Ernst & Young state:

> *Our main concern … is to ensure that the regulated transmission investment decision criterion does not unfairly favour one group of generators over another…. We take "favouring" (or discrimination) to mean any arrangement,*

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[76] p. 63, ACCC, *Review of the Regulatory test for Network Augmentation*, Decision, 11 August 2004.

[77] p. 63 ibid.

[78] p. 16, Ernst and Young, *Review of the Assessment Criterion for New Interconnectors and Network Augmentation*, Final Report to Australian Competition and Consumer Commission, March 1999

> *not reasonably based on cost, which allows one party to benefit over another. … regulated transmission could be deemed to favour remote generators if the cost of that transmission together with the cost of remote generators exceeded the cost of generators close to load centres. In this sense, it is seen that competitive neutrality is an aspect of efficiency, since discrimination will lead to inefficient outcomes.*[79]

Ernst & Young continue by discussing neutrality issues in transmission competition and conclude:

> *We have taken the view that, since a non-regulated interconnector appears to the market essentially as a generator in one region and a Customer in another region then the neutrality question really reverts to ensuring competitive neutrality between generation options, as discussed above.* [80]

In our view, the discussion can be summarised into the general principle that competitive neutrality requires that a business is not unfairly advantaged against its competitors.[81] It offers no advice on how to address the weighting of producer and consumer surplus. It can therefore not be used to justify equal treatment of all groups, nor how to weight welfare transfers to certain groups, in particular when the two groups under scrutiny are either consumers or producers.

3.3.2. The Public Benefit test in mergers and acquisitions

The public benefit test is also used by the ACCC in mergers and acquisitions. In the following we review how efficiencies and transfers between producers and consumers have been treated in that area.

The test for whether mergers substantially lessen competition is found in s. 50 of the *Trade Practices Act* (**TPA**). The TPA does not include a specific provision for the incorporation of efficiency considerations. These arise as part of the public benefits test under an application for authorisation under s. 88 of the TPA. This provision can be invoked by the ACCC to allow a merger to proceed even if it has been found to lessen competition as long as it will result in a sufficient public benefit.

Under s. 88 of the TPA, merging parties can apply for authorisation for permission to proceed with a merger that is found to have been potentially anti-competitive under s. 50 because it will result in a net positive public benefit. An authorisation can be given by the ACCC for a period of time, and can be conditional and subject to undertakings. It is within the authorisation process 'public benefits test' that the ACCC can formally consider

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[79] p. 17, ibid

[80] p. 18, ibid

[81] Competitive neutrality may be defined more formally with reference to William B. Tye in a paper submitted at the ACCC regulatory and competition conference July 25-26 2002. Tye states: *Weak competitive neutrality achieves "static" (i.e., shortrun) economic efficiency. It is achieved when a more efficient competitor (measured by lower incremental costs) has a profitable pricing strategy available to it that will be successful in a "winner-take-all" competition. Equally efficient competitors (i.e., equal incremental costs) enjoy weak competitive neutrality if they suffer no disadvantage from the pricing rules in a "winner-take-all" competition. Strong competitive neutrality includes weak competitive neutrality, but also requires that more efficient firms have a better opportunity to recover their total costs in a winner-take-all competition (the "firm viability" requirement).*

efficiencies. Public benefits are balanced against public detriments in order to determine whether or not an overall public benefit exists.

Apart from the mandatory factors in subsection 90(9A), the TPA leaves the term 'public benefit' open-ended. According to the *Merger Guidelines*:[82]

> *…the weight and significance accorded to different types of efficiencies should be a function of their magnitude and probability, the degree to which they likely will enable the merged firm not only to be a better competitor but to enhance (or not lessen) competition and thus benefit consumers, and the delay with which these consumer benefits are to be realized.*

When analysing what qualifies as a public benefit, the ACCC considers any conduct that produces a direct or indirect benefit to the Australian public as constituting a public benefit. The list of conduct that can be considered as resulting in a public benefit is wide and non-exhaustive, allowing the ACCC to consider any public benefit claim brought forth by applicants.[83]

Careful reading of the *Merger Guidelines* also suggest that the public benefit test may be interpreted as giving rise to a consumer surplus standard. The *Merger Guidelines* state:

> *…public benefits in the form of increased efficiency and better resource usage, resulting in lower unit costs, are most important in the consideration of applications for the authorization of mergers.* [84]

However, the ACCC also note that:

> *The concept of a benefit to the public is not limited to a benefit to consumers, a benefit to a private party which is of value to the community generally is a public benefit.*[85]

While it is not possible to unambiguously conclude that a consumer welfare test is an accurate interpretation of the public benefit test in the case of mergers, a conclusion that public benefit would exclude transfers is not possible either. It would therefore seem that a balanced weights approach is followed.

Indeed, in the ACCC's Final Determination in relation to the proposed acquisition of Air New Zealand by Qantas Airways and further cooperative arrangements among Qantas, Air New Zealand and Air Pacific, the ACCC stated (in reviewing the public benefits claimed by Qantas and Air New Zealand):

> *…While the Commission is of the view that benefits to a particular group or segment of the community may be regarded as benefits to the public, consideration needs to be given as to whether the community has an interest in that group being benefited and whether that benefit is at the expense of others –*

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82 Australian Competition and Consumer Commission, *Merger Guidelines*, June 30, 1999, para 5.17.

83 See Allan Fels, *The Public Benefit Test in the Trade Practices Act 1974*, Australian Competition and Consumer Commission, 12 July 2001.

84 *Supra* note 82 at para. 6.39

85 *Supra* note 82 at para. 6.42

> *for example, consumers through higher prices. The level of competition in a market will affect both the durability of the benefit and the likelihood and extent of that benefit being passed through to consumers. Where benefits are not passed on to consumers this may be symptomatic of a lack of competitive pressure that would otherwise cause such benefits to endure and be passed through. Such benefits are likely to be accorded a lower weight by the Commission.*[86]

More generally, a recent study from the Australian National University confirms an inner tension related to the ACCC's implementation and foundation for the public benefit test:

> *Interviews with past and current ACCC staff reveal that there is no single approach to determining public benefit. Whereas past staff stated that they could rely on their intuition, current staff felt that there was greater pressure than before to emphasise efficiency issues and to quantify public benefits. Whereas past staff indicated that they impliedly favoured a Consumer Welfare Standard, without necessarily articulating it as such, current staff were equivocal about the appropriateness of a single standard given the variety of authorisations they are called upon to determine. While one staff member cited the Port Waratah decision as reflecting the application of the Total Welfare Standard, another staff member used the same case to illustrate the application of the Balancing Weights Standard. Many staff members expressed concern about the approach taken by the Australian Competition Tribunal and the effect this would have on their future deliberations.* [87]

3.3.3. International experience

In the following we review international experience related to the implementation of cost-benefit analysis, efficiency analysis and in particular treatment of wealth transfers.

Canada

In Canada, significant effort has been devoted to the discussion of wealth transfers in the context of mergers and acquisitions in the energy sector. Historically, and until quite recently, Canada has used the total surplus standard which originates from the Competition Bureau's Merger Enforcement Guidelines from 1991.

However, in launching the Superior Propane[88] litigation, the Bureau made clear that it was departing from the guidelines to:

> *reflect the refinement and evolution of the Bureau's practice in light of not only jurisprudence but also other legal and economic advancements since 1991.* [89]

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[86] p.146, ACCC's Final Determination, paragraph 13.65.

[87] p 95, Working Paper Evaluating the Public Benefit Test Project: *An Assessment of the Public Benefit Test in Authorisation Determinations by the ACCC*, September 2005 Vijaya Nagarajan.

[88] Superior Propane is Canada's largest distributor of propane, related products and services, for more information see http://www.superiorpropane.com/external/bins/splash.asp

[89] Competition Bureau Consultation Paper at 20.

The Bureau endorsed the balancing weights approach, under which there is an assessment of the adverse effects stemming from any redistribution (or transfer of wealth) caused by the merger. However, following much discussion and debate on this issue by both the Bureau and Canadian Competition Tribunal, the total surplus effectively remained the default test and no consistent methodology was identified for determining the weights that would be attributed to the consumer and producer surplus effects respectively.

Nevertheless, following the Superior Propane litigation, the Competition Bureau has formulated new Merger Enforcement Guidelines. The new Guidelines attempt to allow the balancing of weights approach to be applied on a routine basis and ensure that effects on consumers form a significant part of the analysis.[90]

Unfortunately, the Guidelines only offer what can best be characterised as a tentative formulation of how s. 96 of the *Canadian Competition Act* is to be applied:[91]

> *There is currently no statutory basis for assuming any fixed set of weighting between redistributive effects, deadweight losses and efficiency gains. Such weighting depends on the facts of a particular case. Because all gains must be weighed against all effects, the exercise of judgment is required when combining measured gains (effects) with qualitative gains (effects) for the purpose of performing the trade-off.*

It would seem, as a result of the decisions in the various stages of the Superior Propane case and more recent Merger Enforcement Guidelines, that the current Canadian standard for weighing efficiency gains is unclear. However, it cannot be ignored that distributional considerations need to be made. That is, adoption of a pure total surplus standard is not a correct interpretation of the *Canadian Competition Act*'s merger provisions.

New Zealand

A general practice of treating transfers as having a zero net public-welfare effect has been adopted by the New Zealand Commerce Commission (NZCC) in its consideration of authorisations for restrictive trade practices, mergers and takeovers, under s 61 and 67 of the *Commerce Act 1986*.

This approach has recently been supported in the merger context by the High Court in *Air New Zealand and Qantas v. Commerce Commission & Ors* (unreported, 17 September 2004). As the Court noted in that judgment:

> *the words 'benefit to the public' remain intact; the term 'public' is intentionally broader than 'consumers'; and an efficiency gain that benefits producers is still a benefit to the public.*

In undertaking Part IV inquiries into whether control should be imposed on a firm or sector, however, the NZCC's primary mandate under s.52 of the Commerce Act is to identify and measure the effects on "*persons acquiring the goods or services (whether directly or indirectly)*", which points to a application of a consumer welfare test.

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90 Canada, Director of Investigation and Research, *Merger Enforcement Guidelines*, 2004.

91 Supra note 90, paragraph 8.34

In reporting further to the Minister (if requested under s.53) on whether control should be imposed, the NZCC has in effect an open brief, spelt out in s.56:

> *The Commission may have regard, in considering a report, to all matters it considers necessary or desirable.*

This leaves it open for the NZCC to judge whether to retain the consumer welfare standard of s.52, or some other standard. In a recent gas pipelines inquiry, the NZCC was directly asked by the Minister to conduct a net-public benefit test and did so by subtracting transfers.[92]

The New Zealand Telecommunications Act 2001 s.18(2) sets out the criterion "*long-term benefit of end-users of telecommunications services*" to be used by the NZCC in deciding whether regulation is justified. The NZCC has interpreted this in its investigation into the regulation of mobile termination, as requiring a consumer welfare test to be applied.[93]

United States

The Federal Trade Commission and Department of Justice's Merger Guidelines (from 1997) devotes one chapter to treatment of efficiencies. The operative welfare standard is the consumer surplus standard, and an emphasis is placed upon short-term efficiency gains with less consideration to long-term gains.

Specifically, the 1997 Guidelines state that:[94]

> *The Agency will not challenge a merger if cognizable efficiencies are of a character and magnitude such that the merger is not likely to be anticompetitive in any relevant market. To make the requisite determination, the Agency considers whether cognizable efficiencies likely would be sufficient to reverse the merger's potential to harm consumers in the relevant market, e.g., by preventing price increases in that market. In conducting this analysis, the Agency will not simply compare the magnitude of the cognizable efficiencies with the magnitude of the likely harm to competition absent the efficiencies. The greater the potential adverse competitive effect of a merger… the greater must be cognizable efficiencies*[95] *in order for the Agency to conclude that the merger will not have an anticompetitive effect in the market.*

In terms of telecommunications regulation, the Federal Communications Commission uses a consumer welfare standard to evaluate regulatory interventions.

United Kingdom

In 2001, a United Kingdom (**UK**) government White Paper outlined possible changes in the competition law of the UK. In anticipation of the changes, there was a marked reduction in the degree to which there is political involvement in antitrust decision-making. The

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92 Commerce Commission, *Gas Control Inquiry*, Final Report, 29 November 2004, paragraph 4.48

93 Although we note that both consumer welfare and public benefit tests are used in their analysis.

94 Horizontal Merger Guidelines 1997, Department of Justice and the Federal Trade Commission, section 4.

95 Cognizable efficiencies are explained to be "*(1) merger specific efficiencies that (2) have been verified and (3) do not arise from anticompetitive reductions in output or service.*"

Enterprise Act 2002, which came into effect in 2003, implemented a number of changes, including some diminishing the role of the Secretary of State in the review process.

While clarifying that efficiency considerations may be relevant at two points in a merger review, the new Act (and associated Guidelines) indicate that the efficiencies must bring benefits to consumers (though not necessarily in the form of lower prices).

3.3.4. Conclusion

In our view the regulator's task is to promote the efficient working of the energy market. It can do so by promoting competition and efficient market outcomes and neutralizing the exercise of market power and price collusion. A major detriment caused by market failures and lack of competition is the stripping away of consumer wealth which otherwise would be allocated to the purchase of goods and services in other markets. The restoration to consumers of this purchasing power has important effects for both equity and efficiency; and economics has a long history of support for consumer sovereignty and competitive markets.

However, while economists are well equipped to analyse the consequences of any policy rule once that rule has been specified they do not have a mandate to dictate which rule is appropriate. This is an issue of distribution and we do not attempt to provide a definition answer to this question above. The main point we make is that:

- the public benefit test currently applied by the AER is one of a series of tests that could be conducted; and
- no attempt has been made by the AER to justify the current total surplus standard.

Further, international experience indicates that choice of the appropriate standard is by no means a simple matter. Indeed the orthodox approach would seem for policy makers to adopt a consumer welfare test.

Given that this matter has not been directly addressed by the MCE, and – as we argue – is not a matter that should be decided by the AER, we recommend that that AEMC refer to the MCE a decision of whether or not welfare weightings (apparently) assumed by the AER are both appropriate and consistent with achievement of the NEM objective to promote efficient investment "for the long term interest of consumers of electricity".

We note also the important role that the COAG ERIG will have in formulating positions on issues involving competitive market structures and a full national transmission system and recommend that the EUAA raise these matters with them.

3.4. A partial equilibrium approach

The AER approach isolates the energy sector from the rest of the economy, i.e. it is a partial-equilibrium approach.[96] This is clearly acknowledged by the ACCC in its recent decision where it states that:

[96] Partial equilibrium theory usually looks at the relationship between two economic variables, assuming other variables are constant in value. This type of analysis was developed by French economist Antoine Augustin Cournot (1801-1877) and English political economist Alfred Marshall (1892-1924).

> *The regulatory test does not consider those benefits arising in a general equilibrium setting.* [97]

In this respect the recommended analysis will fail to examine interactions between different sectors of the economy. Certain economic effects may therefore go undetected, such as second order economic effects and dynamic adjustment within the industry. Accordingly, there is a risk that a project that appears to yield positive net economic benefits in a partial equilibrium analysis will result in net losses when investigated in a general equilibrium context.

Clearly, the functioning of the modern society is based on consumption of energy. Changes to energy prices will therefore have macroeconomic influences. These may of course be relatively small or limited, but there can be no disputing that changes in energy costs will be felt by all sectors of the economy. These effects can either be of a static nature, i.e. the immediate benefits of a reduction in energy prices or they can be more dynamic, i.e. changes in investment patterns over time due to changes in energy prices. Consider the following simple example:

Wind vs. Coal

Energy can be produced using two different technologies: coal and wind. The cost per MWh is lower for coal than wind.

The coal powered plant may be expected to produce air pollution and acid rain which has a detrimental impact on the agricultural produce in the surrounding area. In addition, the pollution also adversely affects the health of local residents and the pleasure they receive from their surroundings. The wind plant produces no pollution, but does reduce the pleasure local residents receive from their surroundings due to noise and scenery pollution.

Based on these considerations the analyst calculates that pollution costs of coal compared to wind energy outweigh the benefit of lower product costs and hence recommends wind energy.

However, the analyst has failed to recognise that the more expensive wind energy also increases the cost of intermediate industry produce that is exported to other countries, which in turn reduces international competitiveness resulting in a lower output and higher unemployment in that sector. Further, because of distortions in the local labour and capital markets, the more capital intensive wind generation solution seems more attractive. From a welfare perspective it is therefore better to use less capital and more labour intensive technologies like coal generation to raise employment and save scarce capital. [98]

Had the analyst included these considerations the outcome would be a recommendation of coal.

The above example is intended to illustrate the point that partial equilibrium analysis may potentially be misleading.

In our view, development of the current version of the regulatory test has not been accompanied by discussion of this issue. Nor has the AER/ACCC attempted to justify whether a partial equilibrium approach is appropriate. Although we acknowledge that the introduction of a general equilibrium framework would be onerous and, almost certainly, too

97 *Supra* note 76 at p.22.

98 Note that the process of correcting for distortions more formally is called shadow pricing.

complex to implement in a more general sense, the AEMC should carefully consider the extent of any effects that would not be expected to be included in a partial equilibrium framework. If it can be established that these are negligible, then we would accept that the current approach is satisfactory. However, if analysis shows substantial second order effects, then we would recommend that guidelines are provided to ensure that these, as a minimum, are captured in a qualitative manner – possibly by implementing appropriate weighting of stakeholder benefits as discussed above.

The key issue to evaluate is whether the investment project is small enough so that a partial equilibrium approach will suffice or whether it is of a size (in terms of impact) that will have general equilibrium repercussions on several markets. In our view, most if not all of the projects that are to be evaluated through the regulatory test are likely to exceed this threshold and require some evaluation of second or even third order effects. The regulatory test should therefore include provisions to allow inclusion of these effects.

4. Conclusions

Australia is the only jurisdiction in the world (that we are aware of) that requires a regulatory test based on application of formal cost-benefit analysis to be used in informing decisions on major investment in electricity networks. We accept that, properly applied, such a test is relevant to this application. However, we also believe it is appropriate for the AEMC to address the question of whether or not the test in its current form is the best means to contribute to achievement of the NEM objective specified in the National Electricity Law. It is entirely possible that the only reason Australia has a regulatory test is because we have yet to grasp the policy essentials needed to ensure our energy markets work effectively – and in the long-term interests of energy consumers.

However, if we are to retain the regulatory test there are clearly areas that require improvement in its application. It is not at all clear that all of the issues related to these areas have been dealt with adequately (or at all) by the ACCC, AER or MCE.

As discussed in this paper, the economic theory and framework that underpins application of cost-benefit analysis – which was initially developed to quantitatively 'test' the impact of public policy alternatives – requires a range of judgements to be made. Some of these judgements properly fall within the mandate of policy makers, not economic regulators – or even less desirably – parties with a commercial interest such as those TNSPs who have responsibility for applying cost-benefit analysis in the form of the regulatory test. However, we are unable to find evidence that such judgements have been made, or if they have been made (by the ACCC or those applying the regulatory test) the basis or arguments supporting those judgements have not been articulated.

It is our view that it would be highly desirable for the AEMC to consider these matters, and if necessary seek clarification from the MCE of any unresolved policy issues. The key issues that require resolution by the MCE are:

- whether further structural change to the electricity transmission sector, specifically aggregating all electricity transmission assets into a single 'National Electricity Grid Company', as initially intended by CoAG, would be a better way of stimulating market-focussed incentives for efficient investment in transmission assets; and
- whether or not welfare weightings (apparently) assumed by the AER are both appropriate and consistent with achievement of the NEM objective to promote efficient investment for "the long term interest of consumers of electricity".

Also as discussed, if the regulatory test is to be retained, we are concerned that the technical matters identified in the SNI NET hearings and Decisions, and the subsequent Victorian Supreme Court challenge to the NET Majority Decision, have not been adequately addressed by the AER (or ACCC) – or adequately considered by the MCE. If that is the case, it is likely that future application of the regulatory test could, once again, lead to erroneous outcomes and continue to inhibit delivery of the best outcomes for the NEM.

The purpose of the regulatory test should be to deliver outcomes that are to the long terms benefit of consumers, as required by the Single Market Objective. In our view, it would be highly desirable for the AEMC to review each of these issues in detail. It would also be highly desirable to include a mechanism in the changed rules that ensures the parties that

apply the regulatory test take these issues into account. We have recommended that this be done by altering the Rule change proposal to require the AER to incorporate additional criteria into its regulatory test guideline that requires practitioners to:

a) actively identify relevant alternative projects and scrutinise them closely;

b) avoid an unduly restrictive approach to the screening of alternative projects;

c) examine ways of making potentially beneficial projects commercially feasible instead of taking a premature judgement and eliminating them;

d) be sensitive to the incremental costs and benefits associated with components or variants of particular projects;

e) seek out, identify and highlight the possibility that particular components of a project could provide all or most or even more than all the benefits associated with the project as a whole;

f) actively explore the most economic configuring of submitted projects;

g) explore in more detail claims of risks associated with the potentially most beneficial projects, including the sources of such risk, their probability or likelihood, and the expected costs associated with them;

h) explore possible and economic ways of mitigating any justified risks, including by alternative network design and by means of contractual or charging arrangements, in the context of the statutory objectives on the parties in question;

i) insist from the outset on a more explicit and accessible form of modelling, with wider and more informed discussion of results; and

j) demonstrate understanding (and explain the impact of) relevant organisational incentives, as documented in the economic literature and as recognisable in practical experience, and their potential implications for the proposals, issues and decisions likely to arise in the context of the regulatory test.

However, the degree of complexity in applying these criteria should be consistent with the principle included by the MCE to use analysis commensurate with the scale and size of investment.

We have also recommended that the AEMC carefully consider the extent of any effects that would not be expected to be included in a partial equilibrium framework. If it can be established that these are negligible, then we would accept that the current approach (of undertaking a general equilibrium analysis) is satisfactory. However, if analysis shows substantial second order effects, then we recommend that the AER further amend its guidelines to ensure that these, as a minimum, are captured in qualitative manner – possibly by implementing appropriate weighting of stakeholder benefits.

We note also the important role that the COAG ERIG will have in formulating positions on issues involving competitive market structures and a full national transmission system, which are relevant to the matters raised in this paper, and recommend that the EUAA raise these matters with them.