FINAL REPORT

Prepared For:

Australian Energy Market Commission

1 Margaret Street

Sydney, New South Wales

Principles for the Regulatory Test

Prepared By:

CRA International

27 Jardine Street

Kingston ACT 2604, Australia

Date: September 2006

Author(s): Henry Ergas, Sabine Schnittger

DISCLAIMER

CRA International and its authors make no representation or warranty as to the accuracy or completeness of the material contained in this document and shall have, and accept, no liability for any statements, opinions, information or matters (expressed or implied) arising out of, contained in or derived from this document or any omissions from this document, or any other written or oral communication transmitted or made available to any other party in relation to the subject matter of this document. The views expressed in this report are those of the authors and do not necessarily reflect the views of other CRA staff.

TABLE OF CONTENTS

1. INTRODUCTION

The Ministerial Council on Energy (MCE) has requested the Australian Energy Market Commission (the Commission) to make a Rule to implement a set of "principles" that should guide the development and application of the Regulatory Test (the Test) to future transmission investment.

1.1. REGULATORY TEST PRINCIPLES

The MCE notes the uncertainty and disputation that has accompanied the Regulatory Test since its inception and outlines the importance of high level principles relating to the Regulatory Test in providing a framework for the evaluation of proposed new regulated transmission investment. The proposed Rule would then replace clause 5.6.5A of the Rules and introduce a set of principles that the Australian Energy Regulator (AER) would need to apply in promulgating the Test. The intent of these principles would be to provide certainty to network service providers (NSPs) in planning and undertaking network investment, while leaving the AER with sufficient discretion to perform its role as the regulator.

The MCE also proposes that the principles guiding the application of the Test would be complemented by principles that would define a number of obligations placed on the AER, including:

- Scope by the AER to vary the Test from time to time, but subject to minimum consultation requirements;
- An obligation on the AER to publish guidelines for the application of the Test, and the minimum requirements for such guidelines; and
- An obligation on the AER to clarify how the application of the Test by an NSP will determine what network investment will be included in the NSP's regulated asset base.

1.2. TERMS OF REFERENCE

CRA has been commissioned to assist the Commission by formulating a set of clear and consistent principles to guide the application of the Regulatory Test, including:

- Identifying the broad categories of the principles that should be included in the Rule; and
- Developing the proposed principles by ensuring that these are likely to achieve their intended economic and regulatory objectives.

In developing this paper we have drawn on draft background notes and discussions with Commission staff and the Commissioners.

1.3. STRUCTURE OF THIS PAPER

This paper is structured as follows:

- Section 2 summarises the policy framework articulated by the MCE to date as the starting point for defining the objectives that the Regulatory Test is intended to achieve, and hence the principles that should be incorporated in the Test;
- Section 3 sets out a number of general considerations that are relevant in framing and formulating principles to guide the Regulatory Test;
- Section 4 briefly outlines the Regulatory Test principles proposed by the MCE;
- Section 5 reviews a range of objectives that could be relevant for the Test, highlights interdependencies with other aspects of the regulatory framework and clarifies their implications in practice; and
- Section 6 sets out draft principles in the light of the above analysis and comments by the Commissioners.

2. POLICY FRAMEWORK

The following sets out various statements made by the MCE in recent years in relation to the regulation of transmission investment in the NEM. These statements reflect a concern by policy makers that in the past efficient transmission investment – particularly inter-regional (market) investment – may have been delayed or not have been undertaken, and a corresponding perception that the Regulatory Test requires strengthening, in terms of its focus, and perhaps also where associated processes are concerned.

Overall, we have interpreted the MCE policy statements and the two Rule change proposals before the Commission to give rise to an overarching efficiency objective that would need to be reflected in the principles developed for the Regulatory Test.

2.1. MCE STATEMENTS OF POLICY

The NEM objective, as stated in the National Electricity Law, represents an overarching efficiency objective to guide regulators such as the Commission and the AER in undertaking their functions. Where transmission planning and investment is concerned, the MCE has developed additional policy objectives and principles with specific implications for the Regulatory Test.

2.1.1. December 2003 report to COAG

In its December 2003 report to the Council of Australian Governments (COAG), the MCE set out the following principles to underpin transmission policy in the NEM:[1]

- *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 Ministerial Council on Energy, "Report to the Council of Australian Governments, Reform of Energy Markets", 11 December 2003.

Consistent with these principles, the MCE recommended the development of a new Regulatory Test for transmission:

> *A new Regulatory Test will be implemented to recognise the full economic benefits of transmission including where transmission is the most efficient means of mitigating market power. The new test will remove inefficient impediments to regulated transmission in dispute resolution, and information requirements.*

2.1.2. May 2005 Statement on Electricity Transmission

The MCE's 2005 statement on electricity transmission notes that the Regulatory Test had been amended to include competition benefits and "*delivers a reasonable framework for the removal of existing biases against the development of regulated transmission investment*".[2] The 2005 statement also contained new policy initiatives, including:

- The development of Regulatory Test principles as reflected in the present Rule change proposal, in order to provide a level of certainty in the AER's development of the Regulatory Test for transmission investments;
- The MCE's intention to place responsibility for promulgating the new Regulatory Test with the AER, noting the work done to date by the ACCC; and
- The MCE's intention to request the Commission to investigate the merits of removing stranding risk for transmission investments that pass the revised Regulatory Test.

The MCE also outlined a proposed streamlined dispute resolution process for the Regulatory Test with a clearly defined timeframe. Under the revised process, all matters relevant to the NEM that are currently heard by a multi-staged dispute resolution process will be heard directly by the AER, and the streamlined dispute resolution process will restrict those that can raise a dispute to "Rule Participants" and "Interested Parties".[3]

2.2. Rule Change Application – Reform of the Regulatory Test Principles

The MCE's proposed Rule change application sets out an overarching efficiency objective:[4]

---

2 Ministerial Council on Energy, "Statement on NEM Electricity Transmission", May 2005.

3 Rule Participants include the National Electricity Market Management Company (NEMMCO), Market Participants, the AEMC, Connection Applicants, and Intending Participants. Interested Parties includes an end user or its representative who, in the AER's opinion, has or identifies itself to the AER as having the potential to suffer a material and adverse market impact from the recommended network development.

4 Ministerial Council on Energy, National Electricity Rules – Rule Change Application, Reform of the Regulatory Test Principles, Attachment A.

> *The overarching objective of the Regulatory Test is to deliver efficient transmission investment through application of a net economic benefits test, not simply more transmission regardless of the economics.*

The MCE further clarifies that the policy intent of the proposed principles is to ensure efficient investment:

> *The proposed Rule change will promote efficient investment through the provision of a robust and stable framework for the economic evaluation of network investment against alternatives, or where the network investment is required to meet network performance standards, that the investment is made at least cost.*

2.3. RULE CHANGE APPLICATION – LAST RESORT PLANNING POWER

The 2005 Statement on Electricity Transmission also proposed the establishment of a Last Resort Planning Power (LRPP), which would enable the Commission to direct a relevant party to undertake the Regulatory Test for transmission investment. A corresponding Rule change application is currently before the Commission.[5]

The LRPP would be exercised only rarely, and when normal market and regulatory arrangements have failed to provide efficient and timely incentives for the assessment of transmission projects that might be expected to satisfy the Regulatory Test. The MCE justifies the proposed Rule change on the basis that efficient inter-regional investment may not have taken place in the past:

> *Under the National Electricity Code (the Code), transmission network planning was state based and piecemeal in nature. The lack of nationally consistent planning arrangements was an impediment to efficient network investment. The Code also provided no obligations for network businesses to maintain efficient transfer capacity between regions.*

5 Ministerial Council on Energy, National Electricity Rules – Rule Change Application, Last Resort Planning Power, Attachment A.

3. FORMULATION OF PRINCIPLES

The various policy statements made by the MCE in relation to transmission planning and investment in recent years set the context for the Rule Change Application for a Reform of the Regulatory Test Principles that is currently before the Commission.

In evaluating and commenting on the principles proposed by the MCE and developing these further we have been mindful of a number of broader considerations that could usefully inform the formulation of such principles to ensure that they achieve their intended policy objectives, namely that:

- The principles are sufficiently generally formulated to enable *future* issues or conflicts to be resolved;
- The principles are internally consistent and/or there is a clear hierarchy of principles; and
- The intent of the principles is clearly articulated.

3.1. FOCUS ON HIGH-LEVEL OUTCOMES

In the past, the ACCC has responded to difficulties in the application of the Regulatory Test by issuing increasingly precise formulations of the Test. In the course of developing these formulations, many of the difficulties with the initial Test were addressed, for instance where specific definitional issues or the role of “competition” benefits are concerned.

While these amendments have clarified how the Test would be expected to operate in practice, they have necessarily been made in hindsight and provide limited guidance as to how future issues should be addressed. The risk is then that as the circumstances in which the Test is applied change, other gaps in its formulation may become apparent, or that new areas of contention may emerge that would need to be resolved on the basis of a broader objective. The formulation of a clear set of generally applicable principles and priorities for the Regulatory Test would then assist in the future interpretation of the Test and limit the scope for disputes and delays.

Commission staff have similarly proposed that the principles should specify high level outcomes rather than detailed procedures, to allow the AER to determine how best to apply the principle. Also, the MCE noted in its Rule proposal that “*consideration was given to including a highly prescriptive Regulatory Test in the Rules. This approach was however discarded as it would go beyond setting policy requirements and would leave the Network Service Providers (NSP) and the AER with little discretion in applying the Test*.” These comments also suggest that the principles need to be established at a sufficiently high level in order to maintain the distinction between their role in establishing a framework for the application of the Regulatory Test, and the application of the Regulatory Test in practice.

3.2. CONSISTENCY OF PRINCIPLES

Given that the proposed principles are intended to provide greater investment certainty to NSPs, it would seem essential that the principles are individually consistent with one another. The experience in the NEM to date has been that transmission investment is inherently contentious, since it potentially has a commercial impact on market participants. Although the MCE has taken steps to limit the extent to which dispute resolution processes can delay transmission planning and investment, there remains a risk that inconsistent principles may lead to difficulties further down the track.

As noted by Commission staff, one area where consistency would seem critical is with respect to the NEM objective and MCE policy. Arguably, the aim to ensure that principles are as far as possible consistent would also provide a rationale for including *fewer*, rather than more principles as part of an overarching framework.

3.3. PRIORITY OF OBJECTIVES

It is possible that even principles that would initially appear to be consistent may lead to divergent outcomes in practice, for instance, if inconsistencies emerge in the application of the Regulatory Test. In the discussion in Section 5 we have highlighted those areas (objectives) where this is a possibility.

Ideally, potential inconsistencies should be eliminated through a clear understanding of the objectives that the Test is intended to achieve and a correspondingly careful formulation of the principles. Nonetheless, given that the Regulatory Test is intended to be applied in future (uncertain) circumstances, it is not impossible that inconsistencies may materialise at a later point in time. This would suggest that, at a minimum, the order in which principles are set out should also correspond to the priority of objectives that the Commission seeks to achieve.

3.4. CLARITY OF INTENT

The recent history with the Regulatory Test highlights the risk that objectives that appear reasonable taken on their own are deemed to have a wider or different interpretation than may have originally been intended. For instance, it could be argued that “competitive neutrality” objectives offered opponents of transmission investment considerable scope to object to transmission projects, irrespective of whether or not these might have been in the broader public interest.

While this example highlights the importance of establishing clear priorities, it also implies that any principles are clearly formulated, and that there be a clear understanding of which aspects of the Regulatory Test they would be expected to apply to, either directly or indirectly. The intent would be to ensure that any principles are effective from an economic and regulatory perspective, but also that the consequences of individual principles are well understood.

4. MCE REGULATORY TEST PRINCIPLES

This section briefly sets out our understanding of the principles proposed by the MCE in its Rule Change Proposal.

Table 1 summarises our comments. Overall, it is our understanding that the MCE intends that the Regulatory Test should achieve the following objectives via the principles it has proposed:

- Efficient investment;
- Competitive neutrality between investment alternatives;
- "Competitive neutrality" between inter- and intra-regional investment projects;
- Consistency in the application of the Regulatory Test;
- That the effort required to undertake the Test should be commensurate with the investment in question; and
- Consistency between the Regulatory Test and related provisions in the Rules.

Furthermore, a number of the principles seem to be directed at the *application* of the Regulatory Test, rather than at the overall objective that it is intended to achieve:

- The Regulatory Test would be applied by NSPs;
- The Regulatory Test should take the form of a social cost-benefit analysis or of a social cost-effectiveness analysis.

We review these objectives in more detail in Section 5.

Table 1: Interpretation of MCE principles

	Objective / intent
(a) The *Regulatory Test* or any amended *Regulatory Test* under this clause 5.6.5A must:	
(1) have as its purposes the identification of *new network investment* or non-*network* alternatives that: (i) maximise the net economic benefit to all those who produce, consume and transport electricity in the *market;* or	• (1) implies a neutrality principle in relation to investment options. • (i) and (ii) suggest that an investment analysis would take the form of a social cost-benefit analysis ("maximise the net economic benefit to all those who produce, consume and transport electricity") or of a social cost-

	Objective / intent
(a) The *Regulatory Test* or any amended *Regulatory Test* under this clause 5.6.5A must:	
(ii) in the event the option is necessitated to meet the service standards linked to the technical requirements of schedule 5.1 or in *applicable regulatory instruments,* minimise the present value of the costs of meeting those requirements;	effectiveness analysis ("minimise the present value of the costs of meeting those requirements"). • (i) and (ii) imply an efficiency objective, since a cost-benefit analysis is designed to identify an overall efficient outcome, as is a cost-effectiveness analysis, subject to achieving an identified outcome. • Schedule 5.1 sets out NSPs' reliability obligations; these are supplemented by state-based legislation/technical codes.
(2) be used by Network Service Providers in the assessment of all new network investment in accordance with the Rules and with a level of analysis commensurate with the scale and size of the new network investment;	• (2) clarifies that the Regulatory Test would be applied by NSPs. • Analysis commensurate with the scale and size of an investment is consistent with current Rule distinction between "large" and "small" network assets.
(3) be based on the principles of cost-benefit analysis;	• (3) refers directly to a cost-benefit analysis consistent with the implications of (1). • (3) could be interpreted to mean that the analysis should be undertaken consistent with the *generally accepted economic principles* for undertaking a cost-benefit (including cost-effectiveness) analysis.
(4) ensure that all genuine and practicable alternative options to proposed new network investments are evaluated by Network Services Providers without bias, regarding: (i) energy source; (ii) technology; (iii) ownership;	• (4) could be interpreted to have two objectives: - Competition neutrality: To ensure that the Regulatory Test is undertaken in such a way that most efficient option can be identified (i) – (iii), (v); and - Inter- versus intra-regional investment: To ensure that the NSP is not biased in favour of undertaking

	Objective / intent
(a) The *Regulatory Test* or any amended *Regulatory Test* under this clause 5.6.5A must:	
(iv) the extent to which the new network investment or the non-network alternative enables intra-regional or inter-regional trading of electricity;	intra-, rather than inter-regional investment (iv). • It is unclear how the terms "genuine and practicable alternative options" relate to how these terms are currently applied for "reliability" and "market" investments, respectively, in the current version of the Regulatory Test.
(v) whether the new network investment or non-network alternative is intended to be regulated; or	
(vi) any other factor.	
(5) reflect the requirement for Network Service Providers to meet network performance standards linked to the technical requirements of schedule 5.1 or in applicable regulatory instruments, while minimizing the present value of the costs of meeting those requirements;	• (5) appears to duplicate (1)(ii) where reference is also made to schedule 5.1 and similar obligations.
(6) be cable of consistent application; and	• (6) expresses a consistency objective.
(7) be consistent with the basis of asset valuation determined by the AER for the purposes of clause 6.2.3.	• Consistency with other Rule provisions: Clause 6.2.3 deals with 6.2.3 Principles for regulation of transmission aggregate revenue. (d) requires the regulatory regime administered by the AER to: - (4) provide a fair and reasonable risk-adjusted cash flow rate of return on efficient investment given efficient operating and maintenance practices; - (5) provide reasonable certainty and consistency over time of the outcomes of regulatory processes having regard to various factors.

5. OBJECTIVES FOR THE REGULATORY TEST

In this section we review the broad policy objectives that the Test is likely to be intended to achieve in more depth. These objectives would then guide the formulation of the principles for the Regulatory Test.

The following then sets out the objectives identified by the MCE and the Commission, highlights interdependencies with other aspects of the regulatory framework and clarifies their implications in practice. Conceptually we have drawn a distinction between objectives relating to the outcomes that the Regulatory Test is intended to achieve (for instance, an efficiency objective) and objectives that have a bearing on the application of the Test should be applied (for instance, the form that the Regulatory Test should take).

5.1. OVERALL PURPOSE OF THE TEST

As set out in Section 2, the MCE policy statements overwhelmingly support an overall efficiency objective for the Regulatory Test. From an economic perspective, efficiency implies that the best use is made of existing resources to deliver the greatest benefit to society overall.

Given that the MCE refers on a number of occasions to “efficient” investment, and the fundamental importance of this objective in terms of maximising social welfare and hence in guiding any future development of the Test, it would seem to be essential that an economic efficiency objective is also reflected in the principles. The NEM objective, as stated in the National Electricity Law, similarly reflects an overarching efficiency objective:

> *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 overarching efficiency objective would then suggest that the role of the Regulatory Test is to promote efficient investment, regardless of whether that investment is regulated or unregulated, or is in network assets or non-network alternatives.

5.1.1. Relationship with the NEM objective

On the face of it, the NEM objective and that inherent in the Regulatory Test (as currently formulated) differ. The Regulatory Test is a “public” or “social” net benefit test that values all benefits, irrespective of whether they accrue to producers or consumers of electricity, while the NEM objective refers to “*the long-term interests of consumers of electricity* “. Some stakeholders have then argued that the NEM objective would lend support to a revision of the Regulatory Test whereby changes in electricity wholesale market prices as a result of network investment (effectively transfers between producers and consumers of electricity) would be counted as a “public” benefit.

However, the distinction between the NEM objective and that of the Regulatory Test is only a superficial one. The long term interests of consumers of electricity are best served by an industry in which all sectors – regulated or unregulated – operate on a sustainable basis and a reduction in profitability in one part of the industry (generation) is viewed as a "benefit" to consumers. Electricity as a commodity is of central importance to the economy, and all consumers – be they residential, commercial or industrial – have an ongoing interest in its reliable supply at a reasonable cost. It is therefore also in consumers' interests to ensure that this sector is adequately funded, now and in the future.

Regulators are sometimes tempted to curtail profits at the cost of long term service provision – the consequences of insufficient financing may take many years to come to light, and investors may not be in a position to remove the assets and put them to good use elsewhere. However, even monopolistic firms (such as NSPs) must compete for financing in a global market, and **all** investors must reasonably expect a return that is sufficient to recover their opportunity cost of capital. A regulatory regime that does not reasonably compensate investors is not sustainable, in the sense that financing will become increasingly costly or private sector investors will exit the industry altogether.

5.1.2. Reliability investment

Given the current formulation of the Regulatory Test, an economic efficiency objective has different implications depending on the type of investment under consideration – "reliability" or "market" investment.

The overwhelming majority of investments that is undertaken in the NEM is assessed under the reliability limb of the Regulatory Test. Reliability and system security requirements are therefore key drivers for network investment. One question that we have then considered is whether an objective that might guide the design of the Regulatory Test principles would be: to ensure that system reliability and security is not compromised.

Existing provisions in the Rules

In assessing this objective it should be noted that the Rules and various jurisdictional regulations prescribe a broad range of targets that NSPs must meet to ensure that reliability and security standards for the NEM are maintained.

Schedule 5.1 describes the planning, design and operating criteria that must be applied by NSPs to transmission and distribution networks. Two sets of criteria and NSP obligations apply:

- Those required to achieve adequate levels of power transfer capability or quality of supply for all (or many) network users; and
- Those required to achieve a specific level of network service at an individual connection point.

Where overall network reliability is concerned, NSPs must plan and operate their networks to withstand, at a minimum, one of a range of credible single contingency events (S5.1.2.1). For network services *within a region*, the amount of network redundancy is expected to reflect the characteristics of generating units, and the size and importance of customer groups. The standard of service at each connection point must be set out in the relevant connection agreement, and the power system must withstand credible contingency events (S5.1.2.2). S5.1.2.3 in turn describes the levels of network service that apply for power transfer *between regions*.

The Rules furthermore contains numerous direct and indirect references requiring Code Participants to act in a manner that ensures the reliability and security of the system. Clause 5.2.3 requires NSPs to comply with the power system performance and quality of supply standards in schedule 5.1, with applicable regulatory instruments and all relevant provisions of the Rules. Beyond the Schedule 5.1 obligations, various other reliability related provisions in the Code apply to NEM TNSPs, including:

- The obligation to comply with network performance requirements in schedule 5.1 or a connection agreements (5.2.3);
- Network development obligations and associated processes (5.6);
- The obligation to co-operate with and assist NEMMCO in its system security responsibilities (4.3.4); and
- The obligation to plan or operate the transmission or distribution system in accordance with the power system stability guidelines (4.3.4).

Furthermore, all TNSPs and DNSPs are subject to separate jurisdictional regulations that impose specific performance requirements on them. As a general matter, these jurisdictional regulations require TNSPs (and VENCorp) to apply (deterministic) reliability criteria to their network investment that are additional and more stringent than those set out in the Rules.

Given the above provisions set out in the Rules and jurisdictional instruments, there are therefore clear obligations on NSPs to maintain system security/reliability standards. This would suggest that the objective of the reliability limb of the Test is not so much to ensure that system reliability and security is not compromised, but rather, that the corresponding standards should be achieved in a manner that is efficient or cost-effective.

Cost-effectiveness objective versus efficiency objective

It is worth noting that the distinction between "reliability" and "market" investment is in many respects an artificial one. An investment that is intended to meet a reliability criterion frequently delivers market benefits; conversely market investment may also deliver reliability benefits.[6] The reliability limb of the Test then simplifies its application for NSPs, since the benefits side of the equation can be ignored for certain types of investment – those whose benefits are deemed to overwhelmingly relate to meeting reliability targets. More precisely, in assessing these investments, it is assumed that:

- The benefits outweigh the costs; and
- All the options being evaluated yield the same benefits, so that they are only distinguished in terms of the costs they entail.

As a matter of economics, the cost-effectiveness analysis that is implied by such an assessment follows the same "rules" as a cost-benefit analysis: the "benefits" need not be quantified (they are presumed to exceed the costs and be identical for all investment options), but costs must equally be valued in a common currency and compared at a common point in time. A cost-effectiveness analysis is therefore consistent with an overall efficiency objective.

There is a question about whether the description of the purpose of the Regulatory Test – promoting efficient investment – should be left deliberately open or should provide some flexibility to enable NSPs to evaluate investment that would achieve "other" benefits beyond reliability benefits. However, such a formulation would immediately and significantly complicate the application of the reliability limb of the Test. If such "other" benefits are to be valued, reliability benefits would also need to be valued, perhaps with respect to a valuation of expected unserved energy. Valuing unserved energy (that is, the likely cost of outages to different types of consumers) is conceptionally and practically difficult – estimates of such valuations differ very significantly between different types of customers, as well as according to the circumstances (frequency, timing) when unserved energy occurs, the duration of outages, and other factors.

In effect, such an amendment would transform the reliability limb of the Regulatory Test – effectively a cost-effectiveness analysis into a cost-benefit analysis, and would represent a step up in terms of the complexity of the analysis that would be required.[7] At the same time, there is already a tool that NSPs or state planning bodies (such as VENCorp) can and do apply to evaluate comprehensively investments that are expected to deliver a range of benefits – the "market" limb of the Regulatory Test.

---

6 For instance, the SNI investment described below was intended as a "market" investment, but also delivered a number of reliability benefits.

7 In general, the analysis required under the reliability limb of the Test is "deterministic" rather than "probabilistic" and does not require detailed forecasts or network modelling.

There would therefore be some merit in retaining the conceptual simplicity of the reliability limb of the Test, but clarifying that such investment should be undertaken in a manner that is least-cost or cost-effective.

5.2. SCOPE OF THE REGULATORY TEST

We have considered whether the principles should include a statement in relation to the scope of the Test; that is, the types of projects the Test should be applied to, and the respective responsibilities of the different parties in promulgating and applying the Test.

Where the allocation of responsibilities is concerned, the understood purpose of the principles within the broader governance framework for network investment is to provide some policy guidance for the AER in promulgating the Test; that is, in developing the Regulatory Test and associated Guidelines. NSPs would, in turn, follow the formulation of the Test and Guidelines in preparing their applications in relation to specific investment proposals.

The formulation of one of the MCE's principles (2) can be interpreted as "binding" NSPs rather than the AER in promulgating the Test. While the principles are intended to set out the conceptual framework within which the Test is applied, the risk with this approach is also that in applying the Regulatory Test, NSPs might be placed in a position where they would need to apply the Test, follow the Guidelines, and interpret the principles at the same time.

More generally, a number of the issues that could be considered to relate to the scope of the Test – the type of analysis that must be undertaken and the associated processes that must be followed by various parties – are already covered in the Rules. Section 5.6 of the Rules sets out how the planning and development of the network should be undertaken and the respective responsibilities of distribution and transmission NSPs (DNSPs and TNSPs).[8] Clause 5.6.2 requires DNSPs to undertake a cost-effectiveness analysis of investment options, Clause 5.6.6 sets out processes required to establish a new "large" network asset (including the requirement to apply the Regulatory Test), 5.6.6A in turn sets out the processes required to establish new "small" transmission network assets.[9]

8 The MCE accept this in their proposal by noting that the Test should be "used by Network Service Providers in the assessment of all new network investment in accordance with the Rules".

9 The Rules do not currently require the Regulatory Test to be applied to replacement investment, but it is also not clear whether such a change would be necessary. Transmission assets tend to be long-lived, and replacement expenditure tends to be incremental, rather than taking the form of "de novo" investment. The "deprival value" approach to asset valuation (the lower of economic value or optimised depreciated replacement value) referred to in clause 6.2.3 would also offer the AER an avenue for writing down replacement assets that it deemed to be uneconomic or not useful.

The role of the AER in promulgating and developing the Test, and in making determinations in the context of applications to establish new large transmission network assets is currently set out in 5.6.5A and 5.6.6, respectively.

Overall, it could be argued that existing provisions in the Rules set out a governance framework that would require NSPs to apply the Test to certain types of investment projects, and under the direction and supervision of the AER. Careful drafting of the principles themselves should also ensure that there are no ambiguities in relation to the overall governance framework.

5.3. COMPETITIVE NEUTRALITY

The MCE has proposed a principle that would incorporate a competitive neutrality objective by requiring that the Regulatory Test would need to ensure that all genuine and practicable alternative options to a network investment should be evaluated by NSPs without bias regarding energy source, technology, or ownership. The ACCC has similarly in the past placed considerable emphasis on this principle.[10]

> *In developing the Regulatory Test the Commission relied on the two key principles of economic efficiency and competitive neutrality.*

As a general matter, competitive neutrality is intended to ensure that market processes achieve an efficient outcome by ensuring that competition is not distorted by factors such as Government ownership. Competitive neutrality is, in other words, bound up with the notion of allowing "competition on the merits", on the premise that such competition will ensure that resources flow to those uses where they are most highly valued.

From an economic perspective, and although there may be "winners" and "losers" as a result of an investment, economic efficiency delivers the greatest benefit to society overall. Objectives, such as "competition" or "competitive neutrality", are then alternative mechanisms of achieving an overarching efficiency objective.

It seems clear that the objective of achieving efficient investment outcomes would require an obligation on NSPs to assess all investment alternatives, irrespective of whether these are network or non-network options or undertaken by an NSP or market participant (that is, a competitive neutrality obligation). In the absence of such a requirement, NSPs may give preference to an investment option that would increase their asset base or otherwise suit their commercial interests, rather than reflect the public interest in an option that is efficient.

10 ACCC, Review of the Regulatory Test, Issues Paper, 10 May 2002, p3

However, the past experience with the Regulatory Test also suggests that such an objective would need to be carefully worded. At least in part, some of the disputes around the South Australia-New South Wales Interconnector (SNI) related to an interpretation of the competitive neutrality objective that gave special weight to promoting non-regulated investments, rather than ensuring that all options that could serve to achieve a particular outcome were properly considered. In that context it could be argued that the processes that were applied resulted in an outcome that was not efficient and did not serve the public interest in seeing efficient inter-regional investment taking place.

While the precise events in relation to SNI-Murraylink may be controversial, a scenario whereby a regulated and an unregulated investment effectively "compete" to be commissioned is entirely feasible in future. Although the unregulated transmission model has largely been abandoned in deregulated power markets, there are many instances when transmission and generation investment are effectively substitutes, for instance in the presence of network congestion. If the market limb of the Regulatory Test is applied in future, it would then be possible that the merits of individual investment options could be challenged by proponents of the (generation or transmission) alternative. The risk is that this could complicate the application of the Test, if approval and consultation processes encourage "gaming" by parties who opposed an investment for commercial reasons.

To see this, consider a scenario where there might be two (competing) options for alleviating congestion across an inter-regional interconnector – an NSP might propose augmenting the relevant transmission interface (that is, undertaking a regulated investment), and a commercial investor might want to build a peaking plant in the vicinity of the constraint (a commercial investment). The two investment options would almost certainly have different benefits and costs. In addition the "public" net benefits of the commercial investment would differ from the "private" net benefits (effectively: profits), so that a commercial investor would have a "private" perspective on the respective merits of a regulated and an unregulated investment that would differ from the "public" perspective. Finally, it is frequently the case that commissioning one investment will remove the economic rationale for the other – in this case, augmenting the interconnector may make the generation investment non-viable, while commissioning a power station would remove or postpone the need for a network augmentation. The practical consequence may then be that the respective proponents may adopt tactics aimed at delaying the competing investment, combined with a race to commence construction on the preferred option.

In this context it is also worth noting that in particular terms such as "genuine and practicable alternative options" that are referred to in (a)(4) of the MCE's proposed Rule have been a source of dispute in the past and may continue to be one. These terms are of central importance in the application of the Test, since they define the types of investment that can be expected over the forecasting horizon. Whether a particular investment project is then included or not in the analysis may have a material bearing on whether the option being evaluated is deemed to be economic or not. The ACCC has attempted to address this issue by defining these terms in more detail for reliability and market investments, respectively. Nonetheless, it could be argued that what constitutes a "genuine and practicable" investment option is open to interpretation, particularly since these ACCC's definitions in turn refer to other undefined concepts, such as "technically feasible" or "technically and commercially feasible".

In summary, the risk is that the application of the Regulatory Test would be controversial in circumstances where there are competing unregulated investments. Achieving a competitive neutrality objective in practice will require a careful balancing of processes to ensure that:

- Efficient commercial investment is not "crowded out" by regulated transmission investment; and equally
- Efficient regulated transmission investment is not prevented from being undertaken by alternative investments that may have some merit, but where there is insufficient assurance that the alternative investment will occur.

5.4. TRANSPARENCY

Part of the rationale for requiring NSPs to undertake the Regulatory Test is to improve the transparency with which network investment decisions are made in the NEM.

The Rules already specify a number of provisions to support transparency objectives; for instance, 5.6.6 (Applications to establish new large transmission network assets) sets out detailed processes that TNSPs must follow in the course of establishing a large network asset. There are also obligations on other parties that are designed to improve the information that is available to market participants, including NEMMCO's obligation to conduct an annual national transmission review and publish an Annual National Transmission Statement (ANTS), and its obligation to publish an annual Statement of Opportunities (SOO).

It is therefore not clear whether the Regulatory Test would deliver significant new information in addition to what is already available to the market. Where such an objective may however be valuable would be in:

- Eliciting alternative investment proposals that may be more efficient than those put forward by the proponent of a network investment;

- Serve good governance objectives for NSPs, by requiring them to clarify their decision making processes, but also for the regulator, by requiring the regulator to set out the basis on which decisions are made; as well as,

- More generally, being supportive of an environment in which market participants would be more willing to trade and invest.

These considerations would support a separate principle requiring the Regulatory Test to be undertaken and assessed in a transparent manner.

5.5. CONSISTENCY

Commission staff have noted that a potential problem with the Regulatory Test is a lack of consistency, given that it would be applied by different NSPs. The MCE has similarly proposed a clause that would support a consistency objective in that the Regulatory Test should be "*be cable of consistent application*" (6).

As a general matter, requiring the consistent application of the Test would tend to:

- Improve confidence in the regulatory process, reduce perceived risks and improves the legitimacy of the regulatory instrument;

- Improve the predictability of the analysis; and

- Reduce transactions costs to the extent that there is a "standard" model that can be followed.

Two considerations would suggest that a separate consistency objective may not be strictly necessary or would, at a minimum, require careful wording to balance issues of flexibility or prescription:

- It could be argued that a consistency principle could in some respects duplicate an objective that specified the form that the Regulatory Test should take (described in Section 5.7.1 below). That is, a principle requiring a proponent to undertake a cost-benefit or cost-effectiveness analysis would implicitly set the framework for how this analysis should be conducted.

- As has also been noted by the ACCC, there may also be an issue as to how "consistent application" could be defined. Taken literally, this principle could require the AER to specify in detail each of the assumptions that are to be made in undertaking the Test. In its Final Determination of Version 2 of the Regulatory Test, the ACCC said:

The ACCC is of the view that to ensure the consistent application of the Regulatory Test definitions should be as clear as possible. In defining terms used in the Regulatory Test, the ACCC must strike a balance between providing guidance and ensuring that the Test is not too narrow and prescriptive. If the Test is defined too narrowly, real benefits or costs could be unintentionally excluded. This could have a material and detrimental impact on the outcome of an assessment. Therefore, in addition to the proposed amendments outlined in Chapter 3, the ACCC amends and defines certain terms in the Test which it considers will provide greater guidance in its application whilst still providing sufficient flexibility for the Test to evolve over time.

5.6. PROPORTIONALITY

Clause (2) in the MCE's proposed Rule change proposes that the Test should be undertaken "*with a level of analysis commensurate with the scale and size of the new network investment".* This proviso is consistent with the current distinction in the Rules between "large" and "small" network investments, which require different processes to be followed for the two types of investment.

These objectives reflect the fact that undertaking the Test imposes a cost in itself, and that there could easily be circumstances when the cost of undertaking the analysis that is required could exceed the eventual benefits of the investment. This is most obviously the case for smaller reliability investments, whose benefits tend to be difficult to quantify, and where a "full-blown" cost-benefit analysis is potentially complex and costly. In this sense, an overall proviso in relation to the complexity of the analysis that must be undertaken would be consistent with a broader efficiency objective.

5.7. APPLICATION OF THE REGULATORY TEST

The following reviews those objectives relating to how the Regulatory Test would be undertaken in practice, including what processes would be applied.

5.7.1. Form of the Regulatory Test

As it is currently formulated, the Regulatory Test takes the form of:

- A cost-effectiveness analysis for reliability investments, which seeks to identify that investment alternative that can meet a given reliability standard at least cost; and
- A (truncated) public or social cost-benefit analysis for market investment, which seeks to achieve an outcome that is deemed to support the efficient operation of the market in a manner that delivers the greatest benefits relative to the costs that must be incurred.[11]

11 The analysis is truncated, because wider economic "knock-on" effects on other sectors of the economy are not currently considered.

The principles proposed by the MCE give an indication of the type of analysis that should be undertaken to establish whether investment is efficient:

- Clause (1) says that the purpose of the Test is to identify 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, or to minimise the present value of the costs of meeting reliability requirements; while

- Clause (3) states that the Test should be based on the principles of cost-benefit analysis.

These statements suggest that one of the MCE's objectives is to specify, at least in broad terms, the form of analysis that should be applied in undertaking the Regulatory Test: the analysis should take the form of a cost-benefit analysis for network investment with "market" benefits and a cost-effectiveness analysis for investments with a "reliability" benefits. In the following we therefore review the "advantages" and "disadvantages" of defining a cost-benefit framework as part of the principles to guide the application of the Test.

The benefits of cost-benefit analysis

There are two types of benefits that are generally viewed as flowing from the systematic application of cost-benefit analysis:

The first are the intrinsic benefits of using a decision rule that seems sensible in terms of the axioms of rational choice. Adopting a practice of providing for approval of an investment when this decision rule is shown to be met, through the rigorous and credible quantification of benefits and costs, would seem likely to lead to better decisions that would occur were the decision criterion less carefully specified.

The second set of advantages goes more broadly to the effect greater reliance on systematic quantification could have on the *quality* of the approval process, and more generally on the administration of any powers vested in the AER. Here six main areas of impact can be distinguished that have also been identified in the preceding discussion – namely, transparency, consistency, predictability, accountability, cost-effectiveness and overall legitimacy:

1. Greater quantification of benefits could make the basis on which decisions were being taken more *transparent*. The AER would need to disclose the way in which costs and benefits had been evaluated, thereby disclosing potentially important elements in its 'reasons for decision'.

2. Closely associated with greater transparency would be increased pressure for *consistency*. This could arise from the scope to ensure that similar methods were applied from decision to decision, both in terms of estimating the quantum of particular costs and benefits and in terms of the weight placed upon them.

3. Were the AER's treatment of cost and benefits transparent and consistent, the outcomes of the review process would be *predictable*. This, in turn, could provide a valuable signal to investors and other stake-holders, as it would help them assess their prospects in the event of an application. Moreover, to the extent to which the quantification of costs and benefits was accurate (which is an important caveat), such predictability would induce the allocation of resources to projects which, because they in fact yielded benefits that exceeded their costs, had good prospects of approval. By the same token, fewer resources would be wasted in pursuing projects whose costs exceeded their benefits, and which hence had less chance of being approval. Such a redirection of effort would not only avoid the inefficient use of resources in seeking approval, but could also divert scarce managerial talent from projects that, from a social perspective, are less highly valued to those that are more highly valued.

4. Transparency could also yield benefits in terms of *accountability*. Even were the AER to disregard the outcomes of the cost-benefit assessments it carried out, the availability of those analyses could allow better testing of the social impact of the approval process. In particular, third parties could examine whether the estimates involved in these assessments were reasonable, both in the circumstances of the time and in the light of eventual outcomes. Additionally, systematic quantification might provide a focal point for the exercise of any rights of review, as it would allow the parties and the appellate body to concentrate on the estimates used in the assessment of costs and benefits and importantly, on the methodology the AER employed in coming to an overall assessment.

5. Systematic quantification could also help make the process more *cost-effective*. To begin with, it would provide applicants with a framework for preparing applications. Additionally, it might allow the AER itself to improve its assessment of applications, for example because it could select staff trained in (or train staff to) apply the quantitative analysis framework. An element of routine, or at least predictable methodology, would then be introduced into the process, allowing for the more efficient use of resources in the course of that process.

6. Last but not least, systematic quantification might enhance the *legitimacy* of AER decisions. Understanding the basis on which decisions have been taken would make it more likely that applicants, third parties and the wider community could recognise the authoritative nature of the AER's deliberation. Perhaps most importantly, for so long as the "balance sheet" on which the AER relies is not plainly set out, there must be the suspicion that it is the essentially subjective preference for some outcomes over others, rather than an informed and testable assessment of costs and benefits that explains the decisions being taken.

Ultimately, these effects all go to improving the process by which the community, both directly and through the institutions of government, better monitors its agent in the form of the AER. As with other principal-agent relations, improving the efficiency of monitoring creates scope to enhance the welfare of *both* the principal and the agent. More specifically, were the AER effectively monitored, the community's willingness over the longer term to allow it to exercise wide powers would be enhanced. The transparency secured by the publication of carefully quantified estimates could replace other, less efficient, forms of control over the AER's use of its powers.

Some costs and limitations of cost-benefit analysis

That said, it is also fair to note the limitations and costs of greater reliance on systematic quantification.

An obvious factor here is the resource costs of the process. While small relative to the scale of the investments, they are certainly not trivial and would need to be compared to whatever benefits the process yielded.[12]

Additionally, placing the primary weight on systematic cost-benefit analysis could displace effort (by the AER, proponents and third parties) from other forms of analysis and persuasion to investment in the quantification process. More specifically, effort that might go into essentially qualitative arguments would go into 'fudging' quantitative assessments. As vague qualitative arguments were merely replaced by 'fudged' quantitative arguments, the overall quality of the decisional process would not increase nor would the extent of AER discretion be reduced. Rather, the AER's lee-way, otherwise exercised under the cover of imprecisely set out valuations, would be displaced into another form.

Whether this is likely to happen is difficult to tell, especially without considering more carefully what the 'qualitative' alternative involves. It seems reasonable to think that exposing quantitative estimates to testing does impose a substantial discipline. What studies there are of the impact of reliance on cost-benefit analysis on the quality of the policy process suggests that though economically inefficient decisions continue to be made, there are reasons to believe that fewer *very bad* decisions are taken.[13]

12 As noted in section 5.6, this trade-off is also reflected in the MCE principles.

13 See for example, Coglianese, Cary (2002) "Empirical analysis and administrative law" mimeo, John F Kennedy School of Government, Harvard University, at page 16.

Additionally, and potentially importantly, the cost-benefit analyses have allowed poor decisions to be identified, stimulating efforts to secure greater emphasis on efficiency in the agencies concerned.[14] However, these studies are fairly limited in coverage and may therefore provide relatively little guidance.

What is clear is that carrying out the systematic analysis of costs and benefits of transmission investments involves a wide range of discretionary judgements. Without claiming to be at all comprehensive, it is useful to touch on six areas, some of which are inter-related, where difficult issues arise:

1. The first is how the relevant *alternatives* are defined. It is plainly a mistake to think that sensible application of cost-benefit analysis requires a complete or comprehensive ranking of alternatives. If the only options considered are A and B, the community is still better off choosing A than B if A yields (properly measured) greater net benefits. However, if the process *should have* considered C and hasn't, and choosing involve involves foregoing C, then some loss has been incurred. It is arguable, however, that this is a failing of the *policy process*, rather than of the test that is being used within that process. Nonetheless, this is clearly an important issue in respect of transmission investments.

2. The second set of issues relates to whether the *standard conditions* that underpin cost-benefit analysis are met. Cost-benefit analysis is most readily applied to projects that are small, in the sense that they do not significantly change prices or materially redistribute income and wealth. In that case, existing market prices can serve as a guide to valuations and conventional measures of welfare can be used to assess the desirability of the project. However, many transmission projects are likely to substantially change prices and redistribute incomes and wealth across the population, with some of those impacts being quite concentrated. This creates significant challenges for the analysis, both in terms of the welfare criteria that need to be used and in terms of predicting the effects and hence assessing the net benefits.

3. This comes to the third set of issues which is the *welfare criteria*. Each project causes gains and losses and an evaluation involves measuring these in some way such that they can be added up. With large projects, this cannot be done using conventionally measured consumer surplus. Additionally, since there are "winners" and "losers", there is a judgement involved in determining whether the gains to the former should be allowed to outweigh the loss to the latter. These are complex issues in cost-benefit analysis that are all too often merely ignored.

14 For example, there is evidence that decisions taken by different US government agencies imply very different valuations of the cost of saving lives – see Tengs, Tammy and John D. Graham (1996) "The opportunity costs of haphazard social investments in life saving" in Robert W. Hahn *Risks, Costs, and Lives Saved: Getting Better Results from Regulation* at 167, 177. This has naturally focussed attention on the scope for improving outcomes by shifting outlays from less cost-effective to more cost-effective life saving programs.

4. Even if welfare criteria can be properly specified, the assessment inevitably involves great *uncertainty*. In respect of some parameters, the effect of the transmission investment on that parameter can be known reasonably precisely, but it is difficult to place a value on the change in the parameter. This is clearly the case with reliability benefits, which are inherently in the nature of a public good (in the sense that they flow to all those connected to the grid). As a result, any point estimate of the extent of these benefits is relatively speculative. In respect of other parameters, the relationship between the transmission investment and those parameters is inherently uncertain. For example, how a significant transmission investment will alter long term investment and competition in the NEM, and hence consumer prices, is simply not known with any degree of certainty.

   The presence of uncertainty means that the estimates of net benefits need to be expressed in the form of ranges or intervals, with those ranges likely to overlap (i.e. no project unambiguously dominates alternatives). Selecting among those ranges is an exercise of judgement, which must be informed by the willingness to bear risk. For example, one project may have a higher midpoint estimate of net benefits than another, but a wider interval around that midpoint. There is no reason to think that the community would merely ignore that fact (or want the AER to ignore it) in selecting among the projects.

5. The issue of uncertainty is closely associated with the fifth element which is *the choice of the discount rate*. This is an area which seems to have received less attention than it deserves. It appears that so as to secure "competitive neutrality" with generation investment, the private sector WACC has been used as the relevant discount rate. However, it is not clear why this would make sense. In effect, the evaluation being conducted in the Regulatory Test is a *social* one: it adds up relevant gains and losses. As a result, the relevant discount rate is not that of any private party but that for society as a whole (or at least that subset of society that is included in the assessment). To use the private sector WACC here merely seems odd: it implies that society more widely, in taking social choices, faces the same discount rate as generators. Were the social discount rate used instead, it would be far lower, which would have complex effects on the test.[15] This is important as the projects at issue are both hugely capital intensive and very long lived.

15 The effects are complex because a lower discount rate would place greater value on future incomes, which among other things has opposing effects on the intensity of resource use and on the scale of development.

6. Finally, there are a number of complex decisions involved in adjusting the test to the *presence of many distortions* in any real-world economy. For example, the proper treatment of taxes is much affected by the stand-point being adopted in the Test. Thus, a test which was primarily aimed at ensuring "competitive neutrality" with generators would seek to treat taxes in such a way that the taxes do not affect whether an augmentation is made through transmission or through generation. In contrast, it is at least conceivable that a social cost-benefit test would view taxes as wedges between prices and private valuations, and allocate the augmentation to the socially least cost alternative. This issue too does not seem to have received the attention it merits.

Overall implications

Overall, the promise of cost-benefit analysis is that it demands of the decision-maker an *explicit valuation* of the competing alternatives. In other words, it demands that the decision-maker not merely specify what is right, but why that course of action is preferable to alternatives with reference to the gains and losses selecting it entails. This requirement of explicit valuation is readily understandable in the context of public-sector decision-making, where what amount to taxes (or other mandatory consequences) are being imposed on the community.

There are many gains that can flow from the requirement to undertake systematic cost-benefit analysis, both in terms of the quality of individual decisions and in terms of the policy process. Most importantly, that analysis provides a framework for making, stating and testing estimates and assumptions, which contributes to transparency and through it, the consistency, predictability and cost-effectiveness of decision-making, as well as the accountability and legitimacy of the decision-making body.

However, what is also clear is that it would be a mistake to believe that the mere fact of engaging in cost-benefit analysis removed or even reduced the need for the exercise of judgement. It is useful here to quote from one of the great classics in the area of cost benefit analysis, written in the early 1970's by two of its leading advocates in the context of defence:[16]

> *"Most defense issues are highly complex, with variables of unknown or uncertain magnitude. Even the best studies leave much to be desired. And no study can account for all the variables or quantify all the factors involved. But analysis can be* ***an aid to judgment*** *by defining issues and alternatives clearly: by providing responsible officials with a full, accurate, and meaningful summary of as many of the relevant facts as possible, an agreed-upon list of disagreement and their underlying assumptions, and the probable cost of hedging against major uncertainties."*

16 Alain Enthoven and Wayne Smith had been instrumental in developing and implementing in the US Defense Department what was then referred to as the Planning-Programming-Budgeting System (PPBS) under Secretary of Defense Robert McNamara. The quotations are from their 1971 retrospective on PPBS, entitled How Much is Enough? (RAND, 1971).

They recognized that this role was sometimes said to undermine recognition of the importance of judgement. To this they said:

> *"The reasons for the critics' concern over the role of judgment is understandable. Much of the formal literature on analytical methods —particularly that on operations research— seems to suggest that formulating the problem, gathering data, and making assumptions are uninteresting preliminaries and that the action really starts when the mathematical model begins to calculate the optimum solution. But in most analyses of policy issues, the vast majority of the important effort is devoted to seeking and then asking the right questions, formulating the problem, gathering relevant data and determining their validity, and deciding on good assumptions. Rather than preliminaries, these items are in fact the heart of good systems analysis.*
>
> *In the world of operations research and computers, the name of the game is to calculate the best solution, given certain assumptions. But in the world of policy analysis, there is no best solution to most questions, because there is no single universally valid set of assumptions and no agreement on values."*

They then concluded that:

> *".. The suggestion of a conflict between judgment and analysis is false.* ***Ultimately, all defense policies are made and all weapon systems chosen on the basis of judgment****. There is no other way. The real issue is whether judgments have to be made in a fog of inadequate and inaccurate data, unclear and undefined issues, conflicting personal opinions, and "seat of the pants" hunches, or whether they can be made in the clearer air of relevant analysis and experience, accurate information and well-defined issues."*

As a result, the issue is not whether judgement (and the discretion inherent in its exercise) plays a role, but rather how that role is best factored into the policy process.

Overall, it therefore seems sensible to require the application of a cost-benefit test, **but to explicitly recognise the role that judgement plays both in the conduct of such tests and in the assessment of the weight to be placed upon them**. Where the application of the Regulatory Test is then concerned, options in terms of recognising this role that judgement must play include:

- Setting clear objectives against which such judgements need to be explained;
- Requiring that particular kinds of judgements (e.g. about critical parameters) be explained;
- Imposing levels of confidence (similar to standards of proof) for exercising particular judgements; and
- Requiring more retrospective studies to be made, to assess the effects of judgements exercised in the past and to inform the exercise of judgement in the future.

5.7.2. Form of the competitive neutrality requirement

The competitive neutrality objective described in Section 5.3 has consequences for the application of the Regulatory Test: if the aim is to determine whether a proposed network investment is the most efficient of a range of alternatives, then the investment not only needs to be compared against other (regulated) network alternatives, but also against unregulated alternatives, such as demand response or generation. Under the market limb of the Test, this introduces a requirement on the NSP to evaluate a potentially large number of alternative options.[17]

In the past, the application of the Regulatory Test has therefore been complicated by uncertainty about the "counterfactual" against which a network investment option should be compared; that is, the likely investment that would take place *in the absence of* the proposed network investment. Without a reliable counterfactual it is difficult to say whether or not a proposed network investment is efficient; but it equally problematic to dismiss a proposed network investment on the basis that a "better" alternative exists, if that alternative may never come to pass.

The Commission has therefore proposed to address the uncertainty about what investment would occur if the proposed transmission investment did not take place **directly** by requiring a transparent request for proposals (RFP) in advance of the application of the Regulatory Test. The purpose of the RFP would be to provide information about the "most likely" investment outcome that could be expected in the absence of the proposed network investment.[18] An approach that combined an effective RFP process with the application of the Regulatory Test would then provide greater assurance that:

- The application of the Regulatory Test would identify the most efficient investment option; and
- All genuine alternatives to the proposed network investment(s) had been appropriately considered.

17 For the market limb, the Test currently defines "alternative options" to be "genuine", meaning that it delivers similar outcomes and becomes operational in a similar timeframe, and "practicable', meaning that it is technically and commercially feasible. ACCC, "Decision, Review of the Regulatory Test for Network Augmentations", 11 August 2004.

18 Potential investors would be aware of potential investment opportunities through NEMMCO's Annual Network Transmission Statement (ANTS) and TNSPs' planning reports.

In effect, the RFP would require a proponent for alternatives to transmission investment and would place the onus on potential investors to make their intentions known to the NSP (and the regulator) at the outset of the evaluation and consultation process. This would enable the NSP to work from a transparent and reliable benchmark against which the transmission investment can be assessed. The RFP would then need to set out, at a minimum, in a transparent manner:

- The nature of the network limitation(s) that the regulated network investment and any alternative investment is intended to address;
- The timeframe over which the investment is likely to be required; and
- Any other supporting information that potential investors may require to prepare their response.

It is the intent of this RFP process that it would enable an evaluation under the Regulatory Test of the respective costs and benefits of the transmission investment(s) against genuine and realistic commercial alternatives proposed by private sector investors. Such an RFP process may then elicit one or more alternative proposals. The Commission proposes that the NSP would assess these to develop a “most likely” outcome that would be deemed to be the counterfactual in the NSP’s application of the Regulatory Test. In the event that multiple proposals elicited by the RFP process were considered equally likely, the NSP would need to assess these against the proposed transmission investment under the Regulatory Test in a transparent fashion to determine the most efficient alternative.

Determining whether an alternative investment is “likely” will invariably involve a degree of judgement. This would require the NSP come to a view about whether proposed alternatives would technically be viable, but also about other factors that are indicative of whether the investment is likely to proceed (for instance by evaluating its status in terms of planning and related permits). Alternatively or additionally, it may also be appropriate to require the RFP process to be in some way binding on proponents of network alternatives, at least for the purpose of the Regulatory Test evaluation (so that, for instance, alternative projects could not be submitted post the initial RFP process).

In the absence of either a judgement on the part of the NSP or some commitment on the part of commercial proponents, the risk is that the RFP would add an additional layer of complexity in the Regulatory Test without addressing the problem that the RFP is intended to address: to achieve some degree of certainty about the counterfactual and hence about the dependability of the outcome of the Regulatory Test.

Requiring NSPs to make a judgement about which investment alternatives are likely could raise concerns about a conflict of interest. These could be addressed by setting clear guidelines, for instance requiring that:

- The NSP’s assessment of the alternatives be subject to audit and that the auditors sign off on the results of the assessment; and/or

- A probity adviser should sign off on the NSP's report.

It may also be appropriate to impose some requirements on proposals for transmission alternatives, for instance by requiring these to be made “in good faith”, if the intent of the formal RFP format is to impose some discipline on the process of identifying alternatives to the network investment. That said, overly strict requirements at the RFP stage might prevent viable investment alternatives from being developed, and it could be useful for the AER to establish guidelines for these RFPs which ensured that they did provide scope for the relevant alternatives to emerge.

There is finally a question about the onerousness of this additional RFP requirement. An RFP process would impose additional costs on the proponent of a transmission investment and potentially risk time delays that would complicate the application of the Regulatory Test.

Overall, it seems likely that, given the costs and uncertainties that have characterised the Test in the past, an RFP process would overall enhance certainty, by clarifying the central counterfactual(s) that should be considered in the application of the Test, and therefore reduce the scope for costly disputes and delays at a future point in time. The scope to impose a clear time limit on the RFP process (subject only to the requirement that sufficient time is permitted to allow realistic proposals to be put forward) would enhance the timeliness of the Regulatory Test mechanism as a whole and reduce its vulnerability to undesirable gaming.

Nonetheless, there may be merit in clarifying that the RFP process should focus on the essential objective of clarifying the most likely counterfactual that would be applied in the Regulatory Test, and that the design of the RFP should, as far as possible, ensure that it did not create a source of unnecessary delays in the application of the Test.

5.7.3. Asset stranding risks

As noted above, some of the MCE’s earlier policy statements indicate a desire to encourage efficient transmission investment. The MCE’s LRPP Rule change proposal also suggests that there is a view that efficient inter-regional transmission investment may not have been properly identified or built.

While it is not clear why little transmission investment has been undertaken under the market limb of the Regulatory Test, one area where greater clarity may support future investment is in relation to the regulatory consequences of investment that has passed the Regulatory Test, specifically, whether the investment should be allowed to enter the regulated asset base (RAB) of the NSP. In its Rule change proposal the MCE also recognises that the question of whether or not an investment that has passed the Regulatory Test should be deemed a regulated asset is an important one.

The question of the linkage between passing the Regulatory Test and revenue regulation has been considered a number of times. In relation to interconnectors, the original Code stated that "*If NEMMCO determines that the proposed interconnector is justified, then the proposed interconnector may, with the consent of the Connection Applicant, be deemed a regulated interconnector that will be subject to transmission network regulation and pricing in accordance with Chapter 6 of the Code*."[19] The Network and Distributed Resources Code changes removed this explicit link.

If the intent is to ensure that efficient transmission investment should take place, there would be some merit in incorporating a right, in principle, for the NSP to include the relevant asset in its RAB. This is not to say that the investment should be included in the RAB irrespective of cost. In the interest of preserving efficiency incentives and consistency with the overall framework for NSP revenue regulation, NSPs should clearly be under an obligation to undertake investment in a cost-effective manner. Given these considerations, and recognising that the scope of a project may change as between the time when the Regulatory Test is applied and the project's completion, it may be desirable to establish a *presumption* that the asset that has been the subject of the Test will be incorporated in the RAB at its commissioning cost, then leaving it open for the regulator to rebut that presumption, should there be compelling evidence of inefficiency in the project's execution.

However, we understand that changes to the Rules proposed by the AEMC in the context of its review of the Chapter 6 provisions for the regulation of TNSP revenues are broadly aimed at achieving similar objectives – improved certainty for TNSPs while preserving efficiency incentives.[20] To include similar provisions in the principles for the Regulatory Test would therefore duplicate other provisions in the Rules.

19 National Electricity Code, 5.6.6(d)

20 Australian Energy Market Commission, "Draft Rule Determination, Draft National Electricity Amendment (Economic Regulation of Transmission Services) Rule 2006", 26 July 2006.

6. DRAFT PRINCIPLES

The discussion in Section 5 suggests that the following hierarchy of objectives should be formulated as principles that would in turn guide the development and application of the Regulatory Test:

- To guide the *development* of the Regulatory Test:
    1. An overarching efficiency objective;
    2. A competitive neutrality objective;
    3. Transparency;
    4. Consistency;
    5. Proportionality; and
- Consistent with the above, to guide the *application* of the Regulatory Test:
    6. An RFP process to support competitive neutrality in the application of the Test;
    7. Application of economic principles of cost-benefit or cost-effectiveness analysis to support efficiency, transparency, and consistency objectives.

The following sets out the proposed wording for the principles as a starting point for discussion:

1. The purpose of the Regulatory Test is to promote socially efficient investment.
2. The formulation of the Regulatory Test should ensure that investment options are assessed in neutral manner to preclude any bias in respect of technology and ownership of investment alternatives.
3. The Regulatory Test should be developed and applied in a transparent manner.
4. The Regulatory Test should be developed and applied in a consistent manner.
5. The analysis required to undertake the Regulatory Test should be commensurate with the cost of the proposed network investment.
6. Competitive neutrality in the application of the Regulatory Test should be achieved through a transparent RFP process prior to the application of the Test.
7. The analysis undertaken under for the Regulatory Test should be based on the principles of cost-benefit analysis or cost-effectiveness analysis, recognising the role judgement plays in the conduct of such analysis.

APPENDIX A: PROPOSED REPLACEMENT OF CLAUSE 5.6.5A OF THE NATIONAL ELECTRICITY RULES

5.6.5A Regulatory Test

The AER must promulgate the *Regulatory Test for new network investment* in accordance with the principles set out in this clause 5.6.5A. The principles are intended to ensure the *Regulatory Test* is promulgated in a manner which provides a level of certainty to *Network Service Providers* in undertaking *new network investment.*

(a) The *Regulatory Test* or any amended *Regulatory Test* under this clause 5.6.5A must:

(1) have as its purposes the identification of *new network investment* or non-*network* alternatives that:

(i) maximise the net economic benefit to all those who produce, consume and transport electricity in the *market;* or

(ii) in the event the option is necessitated to meet the service standards linked to the technical requirements of schedule 5.1 or in *applicable regulatory instruments,* minimise the present value of the costs of meeting those requirements;

(2) be used by *Network Service Providers* in the assessment of all *new network investment* in accordance with the *Rules* and with a level of analysis commensurate with the scale and size of the *new network investment;*

(3) be based on the principles of cost-benefit analysis;

(4) ensure that all genuine and practicable alternative options to proposed *new network* investments are evaluated by *Network Services Providers* without bias, regarding:

(i) energy source;

(ii) technology;

(iii) ownership;

(iv) the extent to which the *new network investment* or the non-*network* alternative enables *intra-regional* or *inter-regional* trading of electricity;

(v) whether the *new network investment* or non-*network* alternative is intended to be regulated; or

(vi) any other factor.

(5) reflect the requirement for Network Service Providers to meet network performance standards linked to the technical requirements of schedule 5.1 or in applicable regulatory instruments, while minimizing the present value of the costs of meeting those requirements;

(6) be cable of consistent application; and

(7) be consistent with the basis of asset valuation determined by the AER for the purposes of clause 6.2.3.

(b) The *AER* may amend the Regulatory Test from time to time, only if it:

(1) *publishes* a notice of its intention to review or amend the *Regulatory Test;*

(2) invites and considers submissions from *interested parties;*

(3) *publishes* a draft decision in relation to the review or proposed amendments to the *Regulatory Test;* and

(4) *publishes* a final decision, setting out any proposed amendments to the *Regulatory Test* and its reasons for the final decision.

(c) The *AER* must *publish* guidelines for the application of the *Regulatory Test.* The guidelines must be *published* at the same time that the *AER* promulgates the *Regulatory Test* or subsequently amends the *Regulatory Test.*

(d) The *AER* must ensure that in relation to the principles of cost benefit analysis referred to in clause 5.6.5A(a)(3), the *Regulatory Test* or any guidelines for the application of the *Regulatory Test* address, as a minimum, the following factors:

(1) the classes of possible benefits that may be included as benefits, and classes of possible benefits that may not be included as benefits;

(2) the method or methods permitted for estimating the magnitude of the different classes of benefits;

(3) the classes of possible costs that may be counted as costs, and classes of possible costs that may not be included as costs;

(4) the method or methods permitted for estimating the magnitude of the different classes of costs; and

(5) the appropriate method and value for specific inputs, where relevant, for determining the discount rate to be applied.

(e) The *AER* must ensure that the *Regulatory Test* or any guidelines for the application of the *Regulatory Test* address the extent to which the *AER* will use the results of an application of the *Regulatory Test* by a *Network Service Provider* in determining what *new network investment* or non-*network* alternative options will be included in the regulated asset base of the *Network-Service Provider* for future *revenue cap* decisions.