

**AUSTRALIAN COMPETITION
AND CONSUMER COMMISSION**

**Regulatory Test for New Interconnectors
and Network Augmentations**

15 December 1999

Executive Summary

Two issues emerged following NEMMCO's rejection of the application for the proposed regulated South Australia – NSW interconnector:

- NEMMCO found the *Customer* benefits test to be highly volatile; and
- the NSW Government believed the test was deficient and placed it on the issues register, meaning the National Electricity Market (NEM) would not commence until the issue was resolved to their satisfaction.

NEMMCO approached the Commission to undertake a review of the criterion.

The Commission engaged the firm Ernst & Young to assist it in conducting the review. The Commission published the Ernst & Young report in March 1999. On the basis of that report, the Commission staff published a preliminary view of the regulatory test in April 1999. This paper acknowledged the merit in changing the regulatory test from a *Customer* benefits test to a market benefit test based on maximising net public benefits.

On 23 July 1999 NECA sought authorisation of changes to the National Electricity Code (the Code) that included changes to replace the existing *Customer* benefits test for regulated interconnectors and network augmentations with a *regulatory test* to be determined by the Commission. Following a public consultation process, the Commission authorised the Code change on 20 October 1999 and these were gazetted on 18 November 1999.

Following the NECA's application for a Code change, the Commission adopted a parallel process for developing the earlier staff paper. The Commission sought additional submissions and released a draft regulatory test for further comment on 22 September. Consequently, the Commission has released this final version of the regulatory test after an extensive period of debate by interested parties. The regulatory test, as set out in this decision, is largely based on the earlier draft but has been refined in a number of key areas to address the concerns raised by interested parties.

In developing the regulatory test the Commission has relied on the two key principles of economic efficiency and competitive neutrality. Consequently, the Commission has based the regulatory test on the traditional cost-benefit analysis framework but with a number of clarifications to limit any adverse impacts that regulated network investments might have on the competitive processes in the contestable parts of the industry. Key features of the regulatory test include:

- reference to net public benefits rather than the original net customer benefits;
- calculating the net benefits of the various options with reference to the underlying economic cost savings and not with reference to pool price outcomes which may be distorted by market participants exercising market power;
- excluding from the analysis the costs and benefits associated with competitive, non-electricity, market activities as the test is to be used to assess the merits of regulated electricity network assets;
- including in the analysis only those environmental impacts that governments or their environment agencies have sought to redress;
- using the discount rate that would be used by participants in the contestable markets; and
- relying on forecasts of future market behaviour based on both assumptions of a competitive market as well as actual market behaviour.

The Commission has made a number of amendments to the draft regulatory test on consideration of submissions by interested parties. The amendments include:

- refining the test so that it links more closely to the network planning requirements of clause 5.6.2 of the Code. Specifically, the Commission has introduced a cost minimisation test for augmentations required in order for networks to meet their service standard obligations as specified in schedule 5.1.
- clarifying the requirement to model longer term projects on the basis of likely competitive and actual market outcomes;
- introducing a “market failure” test for new interconnectors that avoids the problems of the earlier proposals; and
- refining the limitation on the duration of the regulatory approval to include both construction start and commissioning dates.

The revisions have also included some suggested typographical amendments.

The Commission has determined that the regulatory test is of the form set out in section 4 of this document and has published this test, along with the Commission’s reasoning, in accordance with section 5.6.5(q)(1) of the Code.

1. Introduction

Two issues emerged following NEMMCO's rejection of the application for the proposed regulated South Australia – NSW interconnector:

- NEMMCO found the *Customer* benefits test to be highly volatile, which would make it difficult for any proposed augmentation to satisfy the criterion; and
- the NSW Government believed the test was deficient and placed it on the issues register, meaning the NEM would not commence until the issue was resolved to their satisfaction.

NEMMCO approached the Commission to undertake a review of the criterion as part of the Commission's Draft Regulatory Principles.

The review was to examine not only the interconnector assessment criterion but also the way in which the Commission might subsequently value the interconnector assets for the purposes of determining a revenue cap.

The Commission engaged the firm Ernst & Young to assist it in conducting the review. In undertaking the review, the Commission conducted a public consultation process. The Commission published the Ernst & Young report in March 1999.

Following this, the Commission publicly released a staff paper that acknowledged the merit in the Ernst & Young proposal to change the regulatory test from a *Customer* benefits test to a market benefit test based on maximising net public benefits.

Reflecting these developments, NECA on behalf of NEMMCO proposed a Code change that removed the existing *Customer* benefits test for regulated interconnectors and network augmentations and replaced it with a *regulatory test* to be determined by the Commission.

Specifically, the Code change:

- provides a definition of the regulatory test;
- requires the Commission to promulgate the test and ensure it is consistent with the Commission's assessments of asset values;
- binds all network service providers to apply the test in deciding which network augmentations should proceed; and
- requires the Inter Regional Planning Committee and NEMMCO to apply the test when considering possible system augmentations.

Following a public consultation process, the Commission authorised the Code change on 20 October 1999 and these were gazetted on 18 November 1999. The following paper discusses the detail of the Commission's regulatory test.

In the remaining sections of this paper, the Commission summarises the main findings of the Ernst & Young review (section 2), provides a summary of the submissions along with the Commission's assessment of the issues raised (section 3) and sets out the Commission's decision on the regulatory test (section 4). Appendix A highlights the changes the Commission has made in going from a draft to final regulatory test.

2. Ernst & Young report

In summary, the Ernst & Young report made the following recommendations on the regulatory test:

- (1) The transmission augmentation criteria in chapter 5 of the Code should be based on net benefits accruing to generators and customers (both wholesale and retail).
- (2) The relevant benefits to measure are those that can also be captured by non-regulated alternatives: for example, savings in costs associated with energy and ancillary services, and improvements in reliability, priced at a level consistent with spot market mechanisms. External benefits not able to be captured through the market, such as environmental benefits, should not be included within the analysis.
- (3) The test should require an augmentation to maximise benefits. This should mean the proposed augmentation delivers more anticipated benefits than any identifiable alternative across a range of (although not necessarily all) forecast scenarios.

3. Commission considerations

The National Electricity Market in southern and eastern Australia has been developed on the basis of the structural reform of the Electricity Supply Industry where:

- vertical separation has taken place to ensure the monopoly parts of the industry are separated from the contestable parts of the industry; and
- horizontal separation has taken place to limit the existence of market power in the contestable parts of the industry.

Consistent with these structural reforms there have also been pro-competitive market reforms. For instance, a wholesale market has been introduced to facilitate competition between generators and retail contestability is being phased-in to allow end use customers to choose their electricity supplier.

Moreover, an access regime has been introduced to ensure there is efficient and non-discriminatory access to the wires networks. The main function of the access regime is to ensure that the monopoly position held by the networks does not adversely impact on network users who operate in competitive markets (eg generators, retailers or electricity consumers). Key elements of this access regime are the pricing of, and investment in, the wires network. The Commission's approach to regulating monopolies has been to focus on outcomes that would mimic the outcomes consistent with competitive markets.

Emerging practice in a number of overseas electricity markets, has been to rely on marginal locational (nodal) pricing. In addition, transmission congestion contracts (TCCs) can be used to provide market based signals and mechanisms to underwrite new network investments. Through these arrangements, the marginal generator sets the wholesale price at each network node. The transport service of the electricity network is valued as the difference in prices between two nodes (eg reflecting line losses and constraints). Under these market based arrangements, a new network investment will occur when the cost of that investment is lower than the expected cost of losses and constraints over the life of the investment.

While these new approaches to pricing and investment may have their theoretical attractions, given the current stage of the NEM's development it may be too early to rely solely on market based network investments. For instance, as it currently stands, the NEM embodies an abridged version of locational marginal pricing based on regional reference nodes. Also, some have criticised the current regional boundaries and approaches to accounting for electricity losses. Given these deficiencies, market based incentives may not result in efficient investment decision. Moreover, resolving these, and other, deficiencies could well raise equity concerns over locational electricity prices.

Consequently, there remains a need for a criterion to assess the merits of investments in the regulated networks. However, drafting a test for regulated investments in the midst of a competitive market highlights certain contradictions and draws out competitive tensions between the treatment of networks and the competitive markets. For instance, the Code's network planning arrangements essentially require networks to conduct a central planning function yet the remainder of the market responds to market forces. As a result, the central planning function is no longer as deterministic as in the past.

Recognising the changed status of the networks operating between competitive markets, the Commission has sought to develop a test for regulated network investments which:

- is based on sound economic principles; and
- is competitively neutral with respect to other investments.

Given these principles, the Commission sees merit in the recommendations in the Ernst & Young report. As proposed by Ernst & Young, the market benefit augmentation test:

- embodies the principle of competitive neutrality which is important for encouraging competition in the generation of electricity and the supply of energy services; and
- is also largely consistent with the standard principles used in economic cost benefit studies.¹ These studies are used to guide public decision making towards economically efficient outcomes, often in the context of market failures.

Based on the *Recommended guidelines for the augmentation test* described in the Ernst & Young report, Commission staff developed a preliminary version of the test in April 1999. The Commission subsequently published a draft test in September 1999.

The Commission received submissions on the initial staff paper from the Australian Cogeneration Association, Australian Greenhouse Office, Hazelwood Power, NEMMCO, South Australian Department of Treasury and Finance, TransGrid and VENCORP.

Transenergie and the Total Environment Centre also provided the Commission with comments on the staff paper.

On publishing the draft regulatory test, the Commission received further submissions from the Australian Cogeneration Association, GPU PowerNet, Powerlink, the South Australian Department of Treasury and Finance, Transenergie and TransGrid.

The remainder of this chapter examines key elements of the regulatory test. Each section outlines the Commission's reasoning on each issue as well as summarising the views of interested parties.

3.1 Definition of market benefit

Issues for the Commission

The Commission has relied on the principles associated with cost/benefit analysis in developing the regulatory test. Cost/benefit analysis is a widely accepted tool in public sector decision making, in particular in circumstances of market failure where, if markets were left to their own devices, society as a whole would be left worse off.

The focus of cost/benefit analysis is on economic costs and benefits and not simply wealth transfers between individuals or sections of the economy. This has two implications for the analysis.

First, cost/benefit analysis does not rely on market prices where there is good reason to believe these prices are distorted by a market failure (eg use of market power). For this reason, the Commission has based the regulatory test on the notion of a net public benefit derived from a comparison of the economic costs associated with each alternative. The Commission has moved away from a test based on price outcomes which may not reflect competitive market behaviour but may include distortions due to behaviour reflecting the use of market power.

Second, the costs and benefits included in the analysis are assessed from an economy wide perspective, and no account is taken of sectional impacts. This latter factor supports the notion of moving away from a customer benefits criterion which seemingly emphasises the benefits of one group of users over another. It would also remove wealth transfers from the analysis as the focus of the investment analysis is on economic costs and benefits and not on their distribution.

As cost/benefit analysis is usually used to assist in government decision making, the discounts rates used tend to be the risk free rates (eg the ten year government bond rate) as

¹ Cost benefit studies seek to maximise the sum of consumer and producer surplus based on estimates of efficient economic costs and benefits. For a description of the standard approach to undertaking cost benefit studies, see Mishan, E.J. (1982), *Cost-Benefit Analysis*, George Allen & Unwin, London.

they reflect the opportunity cost of capital. However, electricity networks are commercial activities which transport electricity from generators to customers and facilitate competition between remote and local generation. Consequently, investment in electricity networks can crowd out investment in competitive activities. In order to ensure that regulated network investments are undertaken in a competitively neutral way in comparison to generation and non-regulated investments, the Commission has accepted the argument that a commercial discount rate should be used.

Views of interested parties

There were a range of views expressed on the staff paper's proposed change from a net customers benefits test to a net public benefits test. For instance, TransGrid supported the underlying principles for the change, stating that it:

Is consistent with encouraging the most efficient pattern of investment and operation in the power system and is consistent with standard economic theory.

The Australian Cogeneration Association (ACA) was critical of the proposed regulatory test, arguing that those who have to pay for the augmentation should decide which is the best option. Citing the draft assessment of the Sydney CBD augmentation, the ACA argued that the draft assessment's preferred option was largely determined by the benefits to generators and not by the benefits of the customers. While the ACA noted that generators would pay for a proportion of such an augmentation under NECA's beneficiaries pays approach, they questioned what would happen if the generators disputed such an outcome.

Hazelwood Power supported a regulatory test which targets net benefits to market participants. Hazelwood Power argued that the proposed regulatory test is consistent with NECA's beneficiaries pays approach and that transmission networks should be seeking market-based participation by beneficiaries prior to seeking regulated status.

The South Australian Department of Treasury and Finance (DTF) also raised concerns about cost recovery for an interconnector, but these were largely in the context of inter-regional transfers of TUOS charges. South Australia argued that the regulatory test process should take account of any inefficiencies resulting from inter-regional TUOS flows and that this factor should not be left to the Code's dispute resolution processes.

Commission's draft regulatory test

In releasing the draft of the regulatory test, the Commission maintained the position that the test should focus on economic costs and benefits. In effect this meant that wealth transfers between market participants should not have an impact on regulated network investments.

Interested parties' views on the draft regulatory test

In responding to the Commission's draft regulatory test, Powerlink argued that one of the major benefits from transmission augmentations has been to increase competition between generators which leads to customer benefits through lower pool prices. Powerlink noted that the:

Regulatory test as drafted appears to only include reductions in generator's capital and operating costs. It does not include the reduction in generator surpluses due to increased generator competition. It is recommended that this be specifically included ...

While supportive of a net public benefits test, TransGrid also argued that the regulatory test should include any benefits associated with an increase in the competitiveness of the market. In particular, TransGrid argued that the regulatory test be amended by including an additional note:

- (7) The assessment of *market benefit* should include any benefits which result from an increase in the competitiveness of the market. This assessment should be conducted separately from the modelling aimed at identifying the nature of the projects to be included within the relevant expansion scenarios.

The South Australian DTF reiterated its concerns that even though an inter-connector may be given approval to proceed the impact of inter-regional flows of TUOS may outweigh any incremental benefits of the inter-connector. The South Australian DTF argued that NECA's proposal for a beneficiaries pays arrangement be brought forward to 1 July 2000.

Commission's views

The Commission was originally requested to undertake a review of the criterion to assess the regulatory status of network augmentations and new interconnectors on the basis that NEMMCO had found that the customer benefits criterion had proved volatile. On the basis of the Ernst & Young review and the Commission's own analysis, the Commission believes that a test for regulated investments should be based on the traditional principles associated with cost/benefit analysis. The cost/benefit framework is robust and supports economically efficient decision making; that is, where incremental benefits are greater than incremental costs. A decision criterion that emphasised certain individual benefits and ignored other individual costs may well result in an over investment in networks. Consequently, the Commission maintains its view that the regulatory test should not be based on the customer benefits criterion but should be based on the cost/benefit framework which emphasises an assessment of net public benefits in aggregate.

However, that is not to say that the concerns of participants about disaggregated benefits and costs and who pays for an investment are without merit. In order to address this very concern, NECA have proposed Code changes where the networks not only have to demonstrate that an investment meets the regulatory test but that the networks must identify groups of beneficiaries and levy charges according to the relative benefits. These Code changes are currently with the Commission for authorisation and acceptance and are being actively discussed by participants in NECA working groups. The Commission will consider South Australia's suggestion to bring forward the commencement date for NECA's beneficiaries pays proposal as part of its assessment of the NECA transmission price review code changes.

Moreover, the Commission does not believe that inter-regional flows of TUOS should affect the assessment of an inter-connector proposal. TUOS payments are largely associated with the recovery of the costs of the existing (sunk) network. In this context, there are strong economic arguments why the recovery of sunk costs should not impact on future behaviour, including investments. Rather, investments should be assessed on the basis of the incremental benefits they generate. However, South Australia's concern again reflects an equity issue associated with the possible distribution of benefits from an inter-connector. The Commission believes that this concern should not be addressed through the regulatory test. Rather, inter-regional flows of TUOS is a NEM design issue which was included into the Code through the NGMC processes. Any concerns with this arrangement would be better addressed between the NEM governments or through the NECA review/code change process. The Commission believes that, as the market benefits test is based on an assessment of an increase in net public benefits (ie net increase in consumers and producers surplus), some of the benefits associated with additional competition between generators, for instance, will be included as part of the assessment. For instance, a new link may mean that a high cost generator will be displaced from the market by a more efficient generator with lower fuel costs. As indicated above, simple wealth transfers from producers to consumers are not included in a cost/benefit framework if they do not result in any incremental net benefits. In addition, it should be noted that the purpose of the regulatory test is to provide a framework whereby investments that meet its criteria can be included within the regulated asset base of the networks and that the networks can recover these costs in accordance with the pricing principles of Chapter 6 Part C of the Code. The Code does not prohibit networks

from undertaking other activities and other investments. Consequently, if networks, such as Powerlink, believe that they can provide a service of value to particular individuals, and the benefits cannot be demonstrated as part of a regulatory test assessment, then they are free to explore non-regulated alternatives. While market network services are an example for the operation of unregulated interconnectors, the Code, as it currently stands, seems to provide scope for further such opportunities. For instance:

- cl 6.2.3(d)(4)(i) of the Code requires the Commission to provide a network with a reasonable rate of return on assets created on the basis of a *take or pay contract*, and those assets should be valued in a manner consistent with that contract;
- cl 6.2.4(f) of the Code provides scope for *contestable* services to be excluded from the revenue cap;
- cl 6.5.8(c) of the Code allows networks to negotiate to provide services to a level above that required in the Code and that the recovery of the cost of those services also be negotiated (this framework would be extended by NECA's proposed Code changes).

In addition, the Code changes from the NECA price review propose placing generator access service revenues (and presumably any associated costs) outside the revenue cap.

3.2 Identification of costs and benefits

Issues for the Commission

The cost/benefit framework has normally been used in the context of identifying whether a particular project generates a net benefit to the community. It has also been normal practice to extend the cost/benefit analysis framework to include sensitivity analysis where the input assumptions are systematically varied to assess whether the estimated net benefits (or costs) of a project are particularly sensitive to any of the underlying assumptions or estimates. However, in developing the regulatory test the Commission has proposed to extend the cost/benefit framework in order that an optimal outcome is identified and not just any option that generates a net public benefit. That is, the Commission has accepted the argument that the regulatory test include the principle of maximising prospective benefits over costs. This principle has two implications. First, regulated network investments should be compared against competing options (eg generation, demand side and non-regulated alternatives). Second, the regulated network investment should be commissioned at a time that maximises the net benefits to the community and not simply at that time when the net benefits to the community first become positive. Consequently, in the context of assessing regulated network investments, the cost/benefit framework will be required to work much harder than is normally the case.

In order to assess whether a network augmentation or interconnector proposal generates a net public benefit that is greater than other alternatives, the range of costs and benefits associated with each alternative and their likely impact on future market outcomes need to be estimated and included in the analysis. For example, it might be predicted that a network constraint might arise at some time in the near future given the forecasts of load growth. This constraint could be resolved in a number of ways:

- i. First, the network could be augmented to increase the import capability from remote generation.
- ii. Second, the supply of electricity could be augmented through the construction of a local generator that operates close to load and on the inside of the network constraint.
- iii. Third, demand side projects could be implemented to reduce load. This could consist of options that attempt to reduce energy consumption overall such as investments in more energy efficient equipment and appliances. Alternatively, options could include arrangements aimed at reducing the growth in demand during peak periods, either by

shifting demand from peak to shoulder or off-peak periods (eg peak load pricing) or through voluntary load shedding arrangements where customers agree to have their supply interrupted/curtailed on specified terms and conditions.

Each of these options are likely to generate their own stream of benefits and costs. For instance, the local generation option may avoid or defer the need for a network augmentation, it may displace electricity otherwise generated by a remote generator (ie operating and fuel cost savings) and it may delay the need for new generation at some future time.

In addition, the Commission has accepted the principle of extending the concept of optimality to ensure that a proposed investment is commissioned at a time that maximises the net public benefit. This additional requirement would ensure that networks were limited in their ability to “gold plate” by undertaking investment at a time that is well before that which could be reasonably justified. It would also limit the ability of networks to use the regulated status of their investments to crowd out competitive alternatives.

Introducing the concept of optimal timing of an investment also introduces added complexity to the regulatory test. In particular, it emphasises assessing the benefits of a network investment which, in a cost/benefit analysis, would normally be measured on the basis of a net increase in consumers and producers surplus. For example, the benefits of an investment may be associated with the value attached to reducing the likelihood of involuntary load shedding (ie the loss of load probability). However, this example emphasises the different approaches networks and generators have towards new investments.

On the one hand, faced with growing demand and an increasing likelihood of involuntary load shedding, networks largely respond on the basis of their network service standards. Conversely, faced with the same circumstances, a generator’s response will be based on the increased likelihood of higher pool (and contract) prices which are capped at the Value of Lost Load (VOLL), which is currently set at \$5 000/MWh. Given the differences in the investment frameworks, it is likely that it will only be a coincidence that the investment incentive facing networks will be the same as that facing generators and other market participants.

Views of interested parties

In responding to the Commission staff paper, TransGrid argued that measuring the increase in consumer and producer surplus of the proposed augmentations presents practical difficulties, particularly in acquiring sufficient data to define the relevant demand curves.

TransGrid suggested:

... a modification to the proposed regulatory test so as to focus on a comparison of the proposed augmentation with other projects on the basis of minimising the *total cost* of supplying the volume of electricity presently consumed in the market.

Commission’s draft regulatory test

In responding to TransGrid’s concerns, the Commission amended the draft of the regulatory test to incorporate the notion of minimising the cost of supplying a given level of electricity supply. Accordingly, the Commission revised item (a) of the draft regulatory test so that the definition of market benefit was relaxed to allow for a cost effectiveness assessment in circumstances where measuring the benefits in a cost/benefit assessment proved difficult.

Interested parties’ views on the draft regulatory test

The Australian Cogeneration Association argued that a market benefits test is not consistent with market based outcomes and encouraging the development of competition for network services. Rather, the Australian Cogeneration Association argued that the more appropriate approach would be for networks to implement that option that maximises the benefit (or minimises the costs) to those that are expected to pay for the augmentation.

Similarly, Powerlink noted that the regulatory test could conclude that the preferred option is an anticipated project or demand management option for which there is no firm commitment or regulated performance requirements. Powerlink argued that if the regulatory test is to rely on market forces to deliver such outcomes, then the networks should be relieved of its obligations in these circumstances.

TransEnergie argued that

In order to place regulated options on a more commercial basis their proponents should be required to submit budget cost estimates based on a fixed firm cost guaranteed by the project sponsors. Any deviations from that cost should be borne by the project proponents (and not included in the transmission revenue requirements of the NSP).

Moreover, TransEnergie argued that the reliability benefits of regulated projects should be evaluated on the same basis as that for non-regulated projects (ie on the basis of the then current VOLL rather than on a value of avoided capacity).

In responding to the Commission's draft of the regulatory test, TransGrid noted that the regulatory test is to be applied to both intra-regional augmentations as well as to inter-regional interconnectors. However, TransGrid noted that the draft test's development had been primarily focused on the inter-regional interconnectors. TransGrid argued that the regulatory test needs to be framed to ensure that it is also appropriate for intra-regional augmentations.

For instance, TransGrid argued that in response to an inter-regional constraint, pool prices would tend to diverge which would, in turn, provide a signal for new investment. However, there would be no pool price differences in response to constraints within a region. Consequently, there would be no additional pool price signals for generators to locate in the constrained region. Rather, networks are required (cl 5.6.2 of the Code) to undertake network planning that examines alternative options to meet service standards (eg reliability). In order to address these concerns, TransGrid argued that the regulatory test needs to be amended in a number of ways. First, the preamble should clarify that the regulatory test is applied to intra-regional augmentations in line with cl. 5.6.2 of the Code. Specifically, TransGrid suggested that the preamble be amended to state:

The regulatory test is to be applied to:

- (a) to transmission system or distribution system augmentation proposals in accordance with clause 5.6.2(b) of the Code or augmentation options identified under clause 5.6.5(g) of the Code [to the extent that such options are within a single region or solely involve augmentations to a distribution system] (augmentation within a region); and
- (b) by NEMMCO and the Inter-regional Planning Committee, to applications for new interconnectors across regions in accordance with clause 5.6.6(c) of the Code (new interconnectors).

*In this test, augmentations within a region and new interconnectors are called **proposed augmentation**.*

Second, TransGrid argued that in assessing intra- and inter- regional augmentations the methodology should remain the same. However, TransGrid suggested that the range of alternatives considered in either case could differ and that the regulatory test should recognise that an intra-regional augmentation is driven by the need to meet an underlying service standard. For instance, TransGrid suggested that the regulatory test be amended to state:

The Commission has come to the ~~preliminary~~ view that the regulatory test is as follows:

~~A **Proposed augmentation new interconnector**~~ is justified if it maximises the *net present value* of the *market benefit* in terms of its timing and as regards alternative options and market development expansion scenarios; and

An *augmentation within a region* is justified if it maximises the *net present value* of the *market benefit* in terms of its timing and as regards alternative options and alternative development scenarios, while meeting the technical requirements of schedule 5.1 of the Code.

Third, TransGrid argued that, for an intra-regional augmentation, the regulatory test (ie note 1a) should specify a comparison of net market benefits but subject to meeting an underlying service standard.

- (1) In determining the market benefit, the following information should be considered:
 - i for new interconnectors, the capital and operating costs of the proposed augmentation new interconnector
 - ii for augmentation within a region, the capital and operating costs of each of the options for addressing the projected limitation of the relevant transmission or distribution system, as identified in accordance with clause 5.6.2(f) of the Code. These should include (but not be limited to) network, demand side and generation options.

TransGrid also made a more general, although related, point that modelling of future market development scenarios should refer to reliability standards. In particular, TransGrid suggested that references to reliability standards be deleted from note 1(b) and that note (5) be amended to include the words that:

These [market development] scenarios should include projects undertaken to ensure that relevant reliability standards are met.

TransGrid also suggested a number of additional refinements to the regulatory test, including:

- adding a requirement to perform sensitivity testing for a range of variables and not just for the discount rate (item c);
- allowing scope for benefits from the deferral of committed projects to be included in the analysis;
- clarifying the requirement to maximise the market benefit, so that the decision criterion is one based on maximising the net market benefit where it has the greatest market benefit under most (although not necessarily all) of the scenarios considered;
- removing any confusion from the use of the interchangeable terms “market development scenario” and “market expansion scenario” by deleting references to the latter; and
- deleting the additional guidance on the requirement to consider reasonable forecasts of electricity demand (note (1)(b)i).

Commission’s views

The primary concern of interested parties on the draft regulatory test focussed on refining the test to ensure that it better reflected the network obligations under the Code for intra-regional augmentations. For example, it was argued that clause 5.6.2 requires networks to meet service standards by undertaking network planning based on a cost effectiveness criteria. This obligation requires the network planner to identify the option that can meet a benchmark level of performance at minimum cost. The cost effectiveness criterion will be equivalent to the market benefits criterion where the various options provide a very similar level of benefits (ie the service standard requirement) so the assessment of benefits is no longer an important distinguishing element of the test.

In contrast, the draft regulatory test was based on a criterion to choose that option that maximises net benefits thereby requiring a separate assessment of costs and benefits. Interested parties argued that the outcome of a net benefits test might be that no option provides a net public benefit so the network is unable to invest to meet its service standard obligation.

The Commission sees merit in TransGrid’s proposals to draw a distinction between intra-regional investments that are assessed under clause 5.6.2 of the Code and new interconnectors that are assessed under clause 5.6.6 of the Code. However, the changes proposed by TransGrid do not seem to go far enough. For instance, TransGrid proposes separate treatment for augmentations that flow from:

- network planning by either the networks (cl 5.6.2) or by the IRPC (cl 5.6.5); and

- requests for new inter-connectors (cl 5.6.6).

The role of the IRPC's planning review is to take a "whole of system" view of network planning. Consequently, the IRPC can identify intra-regional augmentations options as well as assess new inter-connectors. That is, the IRPC can assess new investments ranging from those that could be considered under cl 5.6.2 to those that could be considered under cl 5.6.6. The Commission believes that if a distinction is drawn between investments under cl 5.6.2 and cl 5.6.6 then a distinction must also be made on the augmentations flowing from the IRPC's and NEMMCO's considerations under cl 5.6.5. On this basis, the Commission has amended the regulatory test so that new interconnectors and augmentation options identified by the IRPC are to be assessed on the basis of a net public benefits test.

Conversely, all other augmentation can be assessed against either a net public benefits test or a minimum cost test consistent with meeting service standard obligations. The Commission has allowed the networks the discretion to use either a net public benefits test or a minimum cost test. The Commission has allowed the networks this flexibility in order that they can move away from their service standard obligations in those circumstances where it is appropriate to do so. For instance, a service standard obligation for a heavily utilised part of the network may not be appropriate for a lightly utilised part of the network. In such circumstances, a public benefits test is more appropriate.

In addition, in making this amendment, the Commission has added the rider that the minimum cost test can only be used to assess those augmentations required to meet those clearly defined standards in schedule 5.1. This limits the ability of networks to use the minimum cost test for those augmentations that are proposed on the basis of the more undefinable concept of "good electricity industry practice".

In response to the range of sundry issues raised by TransGrid, the Commission sees merit in the suggestions to extend the requirement to perform sensitivity analysis for a range of variables, to limit confusion by replacing references to the terms "market expansion scenario" with references to "market development scenario" and to include a requirement that relevant reliability standards be included in the scenario analysis and removed from the other parts of the test.

The Commission also sees merit in TransGrid's proposals to clarify the requirement on maximising the market benefit over a majority of the most likely or credible scenarios. In considering TransGrid's comments, the Commission was concerned that the obligation on the network planner to assess the optimality of a proposed augmentation with respect to alternative projects (eg generation, demand side etc), timing and development scenarios was too open-ended. Consequently, the Commission has amended the regulatory test so that the assessment of market benefits is respect to a finite, but unspecified, number of alternatives. While the Commission has not been prescriptive with this element of the test, it would anticipate that the number of alternatives considered would be proportional to the size and/or importance of the proposed augmentation.

The Commission has also altered note 1(b)(iv) to allow for the inclusion of any benefits from the deferral of committed projects, even though the possibility of changes to a committed project may be slight and difficult to justify. It does not seem appropriate that the test should introduce an uncertain outcome as a result that the ranking of preferred projects alters on the basis of a number of unlikely scenarios. The relevant sections of the regulatory test have been altered accordingly. The Commission has retained the additional guidance on demand forecasting.

3.3 Electricity only costs

Issues for the Commission

In developing the regulatory test the Commission has relied on the traditional approach to cost/benefit analysis which limits the extent of the costs and benefits analysed. Only those costs and benefits that are directly related to the proposed project are assessed (ie a partial equilibrium analysis) while ignoring any of the flow-on or second round effects (ie a general equilibrium analysis). For example, a new network investment may reduce losses, and therefore the cost of electricity, which may in turn stimulate additional electricity consumption. A partial equilibrium analysis attempts to assess the benefits associated with the lower electricity prices and the additional consumption. A general equilibrium analysis attempts to assess those benefits and any additional benefits associated with the economic stimulation generated by the lower product prices that can be attributed to the initial lowering of electricity prices. The Commission sees merit in maintaining the traditional approach by ignoring any additional general equilibrium effects.

Moreover, it might be anticipated that the majority of the services provided by the networks would be regulated services and therefore augmentations to support their provision would be subject to the regulatory test. Consequently, the Commission's focus in developing the regulatory test has been on network investments that will be recovered through the pricing arrangements in Chapter 6 of the Code.

However, as envisaged in the Code, networks can provide a range of services that may be funded in ways other than relying on Chapter 6 of the Code. For instance, it could be anticipated that networks might provide services on a contestable basis such as non-electricity services (eg telecommunications) or even provide non-regulated electricity services (eg market network services or generator access services). It is also possible that networks will provide regulated network services but where the associated revenue is not included in the revenue cap as their costs are covered by direct contracting arrangements with other parties. This feature of the networks should also be reflected in the assessment criterion for investment in new regulatory assets. That is, the costs associated with making these other, non-regulated, investments are not relevant for the regulatory test.

Removing the costs of unregulated investments from the analysis is straight forward where the costs of providing these unregulated services are wholly separable from the costs associated with providing a regulated service. However, it could be anticipated that some investments could provide both regulated and non-regulated services. Moreover, a new network investment may not be justified on its ability to provide regulated services alone. Nevertheless, a new investment should go ahead if it can be supported by both the benefits it delivers in providing regulated services as well the benefits it delivers in providing contestable services. In such circumstances, the cost and benefit allocations in the regulatory test should be consistent with the cost and revenue allocations specified by the Commission and jurisdictional regulators in their ring-fencing guidelines.

Views of interested parties

TransGrid argued that the staff paper should be amended to indicate that the regulatory test includes only direct costs and benefits. In support of this view, TransGrid argued that:

... the standard cost-benefit framework incorporates only those costs and benefits that arise *directly* from the project being considered. ... Costs and benefits that arise indirectly from the investment (those that arise from second and subsequent round effects) are not considered in the analysis.

None of the interested parties commented on the proposed ring fencing of regulated and non-regulated investment costs.

Commission's draft regulatory test

The Commission amended the draft regulatory test by making it clearer that the scope of the analysis was limited to a partial equilibrium assessment consistent with the usual approach to cost/benefit studies.

Interested parties' views on the draft regulatory test

The Australian Cogeneration Association highlighted that it is not only the networks that can provide a range of benefits, but that cogeneration provides additional non-electricity benefits as the host of the cogeneration plant receives benefits from reduced capital, operating and fuel costs from the provision of thermal energy.

Commission's views

In preparing the draft of the regulatory test, the Commission provided for the exclusion of any costs and benefits which cannot be attributed to electricity related financial transactions. The Commission believes that this requirement should be sufficient to address the concern raised by the Australian Cogeneration Association, where a cogenerator or any other party can propose an option that provides both electricity market benefits as well as other non-electricity market benefits (eg thermal energy). Nevertheless, the Commission sees merit in ensuring consistency between the cost allocation principles, as embodied in Ring-Fencing Guidelines, that apply to network and non-network options. To this effect, the Commission has amended note 4 of the regulatory test.

In addition, as indicated by TransGrid, the regulatory test applies to both intra-regional and inter-regional investments. Accordingly, the Commission has amended note 2 of the regulatory test to take into account distribution ring-fencing guidelines.

3.4 Environmental costs

Issues for the Commission

A traditional cost/benefit analysis would include an allowance for all external costs and benefits that can be directly attributed to an activity but which cannot be captured through normal market transactions. Environmental impacts are an example of such external costs and benefits. For instance, a transmission line may pass through an otherwise pristine wilderness area such as a national park. In such a circumstance, the loss in the wilderness amenity of the national park would be viewed as an environmental cost associated with the transmission line. Other examples might include particulate, NO_x and CO₂ emissions from a coal fired power station.

However, the Commission would have some concerns about automatically including all such costs and/or benefits into the assessment of a regulated network investment. First, NEMMCO and the networks will use the regulatory test for network development purposes. Assessments of environmental impacts is largely a task for independent experts. It would be questionable whether it would be good public policy to require corporatised electricity bodies to be making decisions on the basis of environmental concerns. Second, many of these external costs and benefits will be difficult to accurately measure. It is quite possible therefore, that network investments could be determined on the basis of unverifiable assessments of environmental costs and benefits.

On the basis of the concerns, the Commission has proposed that environmental benefits and costs be included in the analysis but that there be some constraints on the scope of this analysis. For instance, the investment analysis should include all of the compliance costs associated with meeting existing environmental requirements of the jurisdictional governments and their environmental agencies. In doing so, issues of public policy with

respect to the environment are determined by the relevant jurisdictions and their expert agencies and not as part of an electricity network investment assessment process.

Views of interested parties

In responding to the Commission staff paper, the Australian Greenhouse Office (AGO) argued that it did not support the exclusion of externalities in the decision criterion. The AGO added that:

The inclusion of externalities may actually better reflect the true value of competing options in the market. It is recommended that an appropriate range of costs (such as \$0, 10, 30/tonne) of carbon dioxide equivalent emissions be included in the analysis of all options

TransGrid argued that externalities arise from a range of sources and not just in the context of environmental effects. For instance, TransGrid argued that the regulatory test should take into consideration the impact on competition in the importing electricity market and in closely related fuel markets.

Commission's draft regulatory test

In releasing its draft of the regulatory test, the Commission maintained its view that the test should only take into account those externalities that have been specifically addressed by the jurisdictional governments and their instrumentalities. However, in reviewing the claims by interested parties the Commission acknowledged that laws and regulations were not the only mechanism that governments use to address environmental concerns. Governments can also use subsidies and taxes in order to place a "price" on environmental externalities. The Commission recognised these additional mechanisms in its draft of the regulatory test where the scope of environmental benefits and costs was extended to encompass environmental subsidies and benefits.

Interested parties' views on the draft regulatory test

In responding to the draft regulatory test, the Australian Cogeneration Association questioned whether the costs associated with meeting licensing obligations (such as those in NSW) should be included in the analysis.

TransGrid suggested deleting the references to environmental taxes/subsidies as this requirement is too limiting. In addition, TransGrid believed that the additional words, stating that other costs be disregarded, were unnecessary and should also be deleted.

Commission's views

The Commission believes that the current wording of this section of the regulatory test provides a clear indication that the costs and benefits of complying with all government environmental requirements are to be included in an assessment of new network augmentations and regulated interconnectors. The Commission believes that this requirement should be broad enough to capture all avenues governments might use to achieve environmental policy objectives; that is, whether it be through legislation, licensing requirements, taxes/subsidies and/or environmental agency requirements.

Further, the Commission does not believe that network planning is the appropriate forum to deal with environmental policy issues. Assessing the environmental impact of alternative options may be open to wide interpretation. In addition, given there may be a conflict of interest when the one organisation is responsible for network planning and network operation, this wide discretion may be used to influence the outcome of the assessment process. Consequently, the scope to include other costs and benefits which have not been addressed by governments and their environmental agencies and which may be subject to some conjecture, should not be considered as part of an assessment of regulated network investments.

3.5 Modelling of alternative scenarios

Issues for the Commission

The Commission believes that proponents of new regulated investments should be able to demonstrate that the proposed investment maximises net public benefits over a broad range of credible scenarios. Consequently, the regulatory test has to include forecasts of future load growth, supply and load flow in order to determine the relative costs and benefits of a proposed augmentation or interconnector. Much of this forecasting work can draw on the planning work that the Code requires of the transmission networks and NEMMCO. For instance, the transmission networks have the obligation to undertake an annual planning review and NEMMCO is required to produce an annual Statement of Opportunities, both with a 10 year planning horizon.

However, by its very nature forecasting work is highly speculative and the accuracy of the forecasts are likely to become less reliable as the time periods extend out. In the near term, a reasonably high degree of accuracy can be attributed to forecasts based on committed projects which have commenced construction and are anticipated to be commissioned within three years. Somewhat less reliability can be attached to anticipated projects that have commissioning dates within five years (eg a number of the anticipated projects may be competing alternatives but not all of which will proceed).

Beyond this, the forecasts have to be based on projections of likely market developments (ie modelled projects). These forecasts will be particularly important in attempting to identify the timing (commissioning) of modelled projects and what impact the proposed network investment and the competing alternatives will have on the commissioning dates of longer term projects. That is, these forecasts will have a large bearing on the estimated capital cost savings attached to the network investment and its alternatives.

As already outlined, the Commission has developed the regulatory test on the basis that net public benefits be estimated with reference to the least cost outcomes; that is, to limit reliance on projected market behaviour as this is both highly speculative and may not provide a good indication of economic costs. Consistent with this approach the Commission sees merit in developing projections of modelled projects based on a set of least cost assumptions. In the regulatory test, this option is referred to as the “least cost market development scenario”.

Moreover, the Commission also sees merit in the Ernst & Young proposal that forecasts of future modelled projects also be based on projections of likely market outcomes. The reason being that competitive market alternatives (eg generation and demand side options) will be responding to market based incentives and not to incentives based on economic cost savings as included in a cost/benefit framework. In the regulatory test, this option is referred to as the “market driven market development scenario”.

Views of interested parties

In responding to the staff paper, TransGrid noted that the regulatory test, as proposed in the Commission staff paper, included two expansion scenarios, namely a “market driven” and a “least-cost” expansion scenario. TransGrid argued that the only circumstances in which the “market driven” and “least-cost” modelling results should be different is if the market was not competitive. TransGrid argued that in such circumstances, a generator with market power would do everything possible to undermine pro-competitive interconnectors. TransGrid concluded that there are practical problems with using the market driven expansion approach as:

there is currently no systematic modelling framework that allows anything to be said about what the market is likely to do or how participants are likely to behave in the future.

The South Australian DTF view was that the staff paper appeared to be based on the unstated assumption that the market simulations used to determine market benefits would arise from a proper simulation of the market. The South Australian DTF added that this market simulation should attempt, as much as possible, to model actual participant behaviour rather than a simpler model (eg SRMC bidding).

Commission's draft regulatory test

In developing the draft regulatory test, the Commission noted the concerns of interested parties but did not alter this part of the regulatory test.

Interested parties' views on the draft regulatory test

TransGrid reiterated the concerns expressed in their earlier submission about modelling non-competitive market behaviour. TransGrid also argued that the draft of the regulatory test was internally inconsistent in a number of areas. For instance, while the market benefit is defined in terms of the *minimum competitive cost*, the inclusion of a market expansion scenario could well involve non-competitive bidding behaviour. TransGrid concluded that the regulatory test be amended by:

- replacing the requirement that modelled projects be assessed on the basis of both a least cost and market driven expansion, with a requirement that modelled projects be assessed on the basis of an efficient competitive electricity market (note 6);
- deleting the requirement that consultation be conducted on modelling market behaviour and considering the realism of the expansion scenarios.

The South Australian DTF noted its concern that in modelling market behaviour there were parties that believed that Short Run Marginal Cost (SRMC) modelling was sufficient to measure market benefits. However, the South Australians noted that:

... the extent of inter-regional power flows is determined by the actual bids and resulting prices in the interconnected regions, *not* by SRMC levels in the two regions.

The South Australians argued that as the levels of flows between the two regions will affect the levels of benefits, then the regulatory test should be based on modelling that reflects actual market conditions. The South Australian DTF suggested inserting a new paragraph (1)(b) vii:

vii *a range of market outcomes, ranging from SRMC bidding behaviour to simulations that approximate actual market bidding and prices, with inter-regional power flows to be those most likely to occur under actual system and market outcomes.*

Commission's views

The Commission maintains its view that the net benefits of a network augmentation or an interconnector be measured on the basis of economic costs and benefits. However, to the extent that regulated network investments impact on competitive markets, then this impact should be reflected in the assessment of the net benefits. That is, the scenarios developed to assess the likely impacts of a regulated investment on market behaviour should reflect, as far as possible, actual market behaviour. In contrast to the views expressed by TransGrid, the Commission does not believe that this position is internally inconsistent.

An assessment of future market behaviour in the short term should be based on market intelligence relating to committed and anticipated projects. However, in the medium to longer term, predictions of future market behaviour will have to be based on realistic forecasts (ie modelled projects). It is the responsibility of the network planner to develop robust forecasts that stand public scrutiny. In addition, the more realistic are the forecasts then it is less likely that the assets will be optimised downwards at some future time.

On this basis, the Commission acknowledges TransGrid's argument that it is difficult to model future market behaviour under assumptions of an uncompetitive market. However, the

Commission believes that this difficulty is not a sufficient reason to remove an obligation for networks to develop realistic forecasts as part of the assessment of regulated investments. The Commission has accepted the merits of the South Australian DTF's arguments to include into the regulatory test clearer directions for how market bidding strategies are to be included into forecasts. However, rather than inserting a new note 1(b)vii the Commission has revised note 6 which deals specifically with the market development scenario.

3.6 Administration

Issues for the Commission

In drawing up the regulatory test, the Commission has accepted the need for the proponents to have some discretion over elements of their network augmentation or interconnection project. However, the Commission considers it reasonable that the proponent's discretion be constrained in a number of ways.

As outlined above, the Commission believes that regulatory test should seek to identify options that maximise the net public benefit. Consistent with this principle, the Commission believes that the assessment process should be transparent and subject to scrutiny by interested parties. While the Code outlines the major requirements for public consultation, the regulatory test outlines some additional requirements.

Further, the Commission believes that once a proponent has received regulatory approval for an investment, then they should be required to construct and commission that investment within the time lines outlined in the assessment process. That is, a regulatory approval should be time constrained to ensure that a proponent does not seek regulatory approval well before it is justified in order to get a decision on uncertain information or in an attempt to pre-empt other unregulated investments. Requirements to this effect were included in the earlier staff paper and the Commission sought to clarify the requirement in the subsequent draft regulatory test.

Interested parties' views on the draft regulatory test

TransEnergie argued that the revision to this clause in the draft regulatory test would:

... have the effect of encouraging proponents of regulated options to begin construction (any construction) as soon as practical after receiving regulated status.

While TransEnergie maintained that the barriers to market driven investments should be removed:

A practical interim solution would be to require proponents of regulated projects to develop a realistic project schedule for construction and commissioning. The project schedule would be required to be submitted with the application for regulated status, so that if a market failure occurred (and no entrepreneurial alternative emerged), the Regulator would know exactly how late regulated status could be granted so that power system reliability and security was not compromised.

The South Australian DTF also expressed some concerns about the wording in item 7 which specify time limits for the regulatory test based on when construction of the proposed augmentation commences. South Australia was concerned that the project could be commenced on time but no further work be undertaken for a long period of time yet the regulatory approval is still retained. South Australia suggested the following changes to the wording of Item 7:

The proposed augmentation should not pre-empt nor distort potential unregulated developments including ~~both~~ transmission, generation and demand side developments. If a proposed augmentation project has not started construction commenced by a time that will reasonably allow the project to commence operation by the date where market benefits are maximised in the analyses leading to regulated status, within 12 months from the date on which it was initially granted regulated status, then regulated status will cease to apply to that augmentation. Also, if the proposed augmentation has not commenced operation by 12

months after the date where market benefits are maximised in the analyses leading to the granting of regulated status, regulated status will cease to apply to that augmentation.

The South Australian DTF argued that market participants should be able to dispute decisions on inter-connectors on the same basis that participants can dispute intra-regional augmentations.

In addition, Powerlink argued that the regulatory test should provide greater flexibility as it may not always lead to the customer's preferred option. Powerlink argued that greater flexibility is required to: select the option which maximises the benefit/cost ratio; or vary the timing of the selected development if the consultation process concluded this is justified.

Commission's views

The Commission accepts the merits of the arguments of Transenergie and the South Australian DTF that the time limitations on the duration of the regulatory approval should be clearer and should refer to both the commencement of construction and commissioning of the project. However, the Commission did not accept South Australia's suggested revisions to note 7. Rather, the Commission has established a criterion where the duration of the regulatory approval is based on the construction start and commissioning dates as nominated by the augmentation proponent. The onus, therefore, is on the proponent to nominate a construction timetable that can satisfy the regulatory test; that is it can maximise market benefits relative to alternative projects. Consistent with this change, the Commission has altered the regulatory test to allow sensitivity testing of the commissioning date and that, consistent with other key parts of the augmentation decision, the proponent's construction timetable be subject to the public consultation process.

The Commission also notes South Australia's concerns about the ability for interested parties to dispute an inter-connector decision. However, it is not clear to the Commission that this is necessary as a NEMMCO inter-connector decision is a reviewable decision (cl. 5.6.6(h) of the Code). Moreover, this could be a matter which South Australia could take up with NECA.

Finally, in contrast to Powerlink's views, the Commission believes that there is sufficient flexibility in the regulatory test for networks to vary the timing and to implement that option which maximises the benefit/cost ratio. Indeed, it has been for this reason why the Commission has developed a regulatory test that emphasises maximising net benefits.

3.7 Market failure component

Issues for the Commission

The Commission staff's paper raised concerns that proposed regulated augmentations should not unreasonably pre-empt nor distort potential unregulated proposed augmentations. The paper suggested the possibility of including a market failure criterion into the regulatory test. This entailed that an interconnector would only be deemed regulated if it generated net public benefits, but it would not be profitable under the rules that will apply to entrepreneurial interconnectors. Further, if construction of an entrepreneurial option had not commenced within 18 months of the date of the decision, the interconnector was entitled to be regulated.

Views of interested parties

Submissions differed on the appropriateness of a market failure criterion. Hazelwood Power, Transenergie and the South Australian Department of Treasury and Finance supported the inclusion of a market failure criterion, while NEMMCO, TransGrid and VENCORP did not. For instance, Transenergie stated:

The Net Market Benefits Test should be applied in conjunction with a Market Failure Test. The Market Failure test is necessary to ensure that regulated projects do not pre-empt the development of competitive market outcomes — whether those outcomes be generation, demand side or market network service outcomes.

The South Australian DTF, NEMMCO and VENCORP all noted that it would be difficult for a regulator to determine the profitability of an entrepreneurial project. NEMMCO also argued that an 18 month standing down period may lead to unnecessary delays and NEMMCO suggested that, if a standing down period is included in the test, then:

... where the information necessary to develop an entrepreneurial options has been in the public domain for a period of time then this should be deducted from any standing down period.

Similarly, VENCORP argued that the competition is encouraged through the consultation processes which form part of NEMMCO's Statement of Opportunities and in the transmission network's annual planning reviews. VENCORP suggested that the market failure element could consist of determining: whether ample opportunity has been provided for a market solution to evolve; that no market solution has been committed; and whether the critical date for committing to a regulated solution has arrived.

TransGrid raised the issue that the standing down period may lead to gaming, whereby a party, with a vested interest in maintaining high prices in a region, may falsely indicate they will build an unregulated interconnector to prevent development of regulated options.

TransGrid also made the point that under the suggested market failure criterion, a profitable unregulated interconnector may be of sub-optimal capacity in the context of maximising net public benefits.

Commission's draft regulatory test

In releasing the draft regulatory test the Commission accepted the merits of the arguments of interested parties that there are practical difficulties associated with implementing a market failure criterion; in particular, in relation to the gaming of the standing down period and in assessing the profitability of alternative options. Accordingly, the Commission decided to set aside the inclusion of a market failure element in the draft regulatory test.

Given, the Commission's concerns that proposed augmentations should not unnecessarily pre-empt nor distort potential unregulated proposed augmentations, the Commission amended item 1(b)(vi) of the regulatory test to include a requirement that proponents of regulated augmentations must demonstrate that regulated options provide greater market benefit than unregulated options.

Interested parties' views on the draft regulatory test

In responding to the Commission's draft regulatory test, GPU PowerNet argued that it understands:

... why several stakeholders hold reservations about the market failure test. However, as experience with unregulated augmentation grows over time, the need for incorporating the market failure test should be re-evaluated. The periodic review of the performance of the entire regulatory test would provide an appropriate opportunity.

TransEnergie stated that it was disappointed that the market failure criterion had not been included in the regulatory test at this time and noted that:

- in an electricity market with nodal energy prices and financial transmission rights, the only network investments that need (or deserve) regulated status are those investments required to maintain specific and objective reliability criteria;
- competitive markets have introduced considerable uncertainty into network planning, since generators make decentralised and independent decisions about where to locate new generation investments. ... This uncertainty in generation investment and operation also leads to uncertainty in transmission utilisation. Further, that this risk of under-utilisation is particularly great for networks making large "lumpy" investments and for those investments facing a large number of competitive alternatives.

- That the gaming referred to by TransGrid is a natural part of competitive markets. In addition, a non-regulated option could proceed even if the regulated option is determined to maximise the net public benefit. Regulated alternatives will always be exposed to competitive pressures and risks from entrepreneurial investors;

The South Australian DTF argued that a stand down period is a critical part of the regulatory test. South Australia's concerns were heightened in the current situation where the arrangements for non-regulated interconnectors have yet to be finalised yet there are competing regulated and non-regulated options to build an interconnector between South Australia and New South Wales. South Australia supported similar stand down provisions as proposed by VENCORP. However, South Australia added that, as the market network services Code changes have not been finalised and there has been only limited experience with the NEM, that they would be comfortable:

... with a stand down period of 18 months that started on the date the NECA Transmission and Distribution Pricing Review Code Changes receive Interim Authorisation or 1 January 2000 whichever is later.

Commission's views

Since the release of the draft regulatory test, the Commission received a number of submissions that argued that a market failure criterion could be included in the regulatory test but without the concerns raised by interested parties. This proposal is based on the notion that the networks' annual planning reviews and NEMMCO's statement of opportunities can be used to provide information to the market on likely future needs for network augmentations and extensions. Once the need for an augmentation has been publicly identified, there could be an 18 month period in which regulated network opportunities cannot start construction and in which market based alternatives can be developed. In addition, the South Australian DTF argued that given the undeveloped nature of the market network service provider Code changes, this stand down period should end, at the earliest, from 30 June 2001.

The Commission believes this revised proposal for a market failure criterion has some merit. In particular, it differs from that originally proposed in the Commission staff paper on the bases that: it requires no assessment of the profitability of an unregulated option; and the commencement of the stand down period is controlled by the networks and NEMMCO and therefore cannot be gamed by those parties that might lose from a network investment. However, the Commission has not been convinced by the South Australian DTF argument that this stand down period should end, at the earliest, from 30 June 2001. The Commission acknowledges the South Australian DTF's point that the arrangements for market network services is currently undeveloped. However, the Commission believes that a market failure criterion should provide the scope for unregulated networks to respond to market signals and opportunities. The purpose of the market failure criterion is not to prevent the construction of projects that would otherwise provide net benefits. In a similar vein, the Commission would not want the market failure criterion to prevent augmentations in response to unforeseen circumstances or emergencies.

The Commission has amended note 7 of the regulatory test to introduce a market failure criterion for inter-regional augmentations and new interconnectors.

4. Commission decision on the regulatory test

Preamble

The Australian Competition and Consumer Commission promulgates this regulatory test in accordance with clause 5.6.5(q)(1) of the National Electricity Code (the Code).

The regulatory test is to be applied:

- (a) to *transmission system* or *distribution system* augmentation proposals in accordance with clause 5.6.2 of the Code (*augmentation*);
- (b) by NEMMCO and the Inter-regional Planning Committee to augmentation options identified under clause 5.6.5 of the Code other than applications for new interconnectors in accordance with clause 5.6.6 of the Code (*augmentation option*); and
- (c) by NEMMCO and the Inter-regional Planning Committee to applications for new interconnectors across regions in accordance with clause 5.6.5 and 5.6.6 of the Code (*new interconnectors*).

In this test, *augmentations*, *augmentation options* and *new interconnectors* are called *proposed augmentations*.

The regulatory test

The Commission has determined that the regulatory test is as follows:

A *new interconnector* or an *augmentation option* satisfies this test if it maximises the *net present value* of the *market benefit* having regard to a number of alternative projects, timings and market development scenarios; and

An *augmentation* satisfies this test if -

- (a) in the event the *augmentation* is proposed in order to meet an objectively measurable service standard linked to the technical requirements of schedule 5.1 of the Code – the *augmentation* minimises the net present value of the *cost* of meeting those standards; or
- (b) in all other cases – the augmentation maximises the net present value of the *market benefit*

having regard to a number of alternative projects, timings and market development scenarios.

For the purposes of the test:

- (a) *market benefit* means the total net benefits of the *proposed augmentation* to all those who produce, distribute and consume electricity in the National Electricity Market. That is, the increase in consumers' and producers' surplus or another measure that can be demonstrated to produce equivalent ranking of options in most (although not all) credible scenarios;
- (b) *cost* means the total cost of the *augmentation* to all those who produce, distribute or consume electricity in the National Electricity Market. Any requirements in notes 1 to 9, inclusive, on the methodology to be used to calculate the *market benefit* of a *proposed augmentation* should also be read as a requirement on the methodology to be used to calculate the *cost* of an *augmentation*;
- (c) the net present value calculations should use a discount rate appropriate for the analysis of a private enterprise investment in the electricity sector;
- (d) the calculation of the *market benefit* or *cost* should encompass sensitivity analysis with respect to the key input variables, including capital and operating costs, the discount rate and the *commissioning* date, in order to demonstrate the robustness of the analysis;

- (e) a *proposed augmentation* maximises the *market benefit* if it achieves a greater *market benefit* in most (although not all) credible scenarios; and
- (f) an *augmentation* minimises the *cost* if it achieves a lower *cost* in most (although not all) credible scenarios.

Notes on the methodology to be used in the regulatory test to a proposed augmentation

- (1) In determining the *market benefit*, the following information should be considered:
 - (a) the cost of the *proposed augmentation*;
 - (b) reasonable forecasts of:
 - i. electricity demand (modified where appropriate to take into account demand side options, variations in economic growth, variations in weather patterns and reasonable assumptions regarding price elasticity);
 - ii. the value of energy to electricity consumers as reflected in the level of VoLL;
 - iii. the efficient operating costs of competitively supplying energy to meet forecast demand from existing, *committed, anticipated and modelled projects* including demand side and generation projects;
 - iv. the capital costs of *committed, anticipated and modelled projects* including demand side and generation projects and whether the capital costs are completely or partially avoided or deferred;
 - v. the cost of providing sufficient ancillary services to meet the forecast demand; and
 - vi. the capital and operating costs of other regulated network and market network service provider projects that are augmentations consistent with the forecast demand and generation scenarios.
- (c) the proponent's nominated *construction timetable* must include a *start of construction, construction time* and *commissioning*, where:
 - i. *start of construction* means the date at which construction is required to commence in order to meet the *commissioning* date, taking into consideration the *construction time* nominated by the proponent;
 - ii. *construction time* is the time nominated by the proponent to order equipment and build the project and does not include the time required to obtain environmental, regulatory or planning approval; and
 - iii. *commissioning* means the date, nominated by the proponent, on which the project is to be placed into commercial operation.
- (2) In determining the *market benefit*, it should be considered whether the *proposed augmentation* will enable:
 - (a) a *Transmission Network Service Provider* to provide both *prescribed* and other services; or
 - (b) a *Distribution Network Service Provider* to provide both *prescribed distribution services* and other services

If it does, the costs and benefits associated with the other services should be disregarded. The allocation of costs between *prescribed* and other services must be consistent with the *Transmission Ring-Fencing Guidelines*. The allocation of costs

between *prescribed distribution services* and other services must be consistent with the relevant *Distribution Ring-Fencing Guidelines*.

- (3) The costs identified in determining the *market benefit* should include the cost of complying with existing and anticipated laws, regulations and administrative determinations such as those dealing with health and safety, land management and environment pollution and the abatement of pollution. An environmental tax should be treated as part of a project's cost. An environmental subsidy should be treated as part of a project's benefits or as a negative cost. Any other costs should be disregarded.
- (4) In determining the *market benefit*, any benefit or cost which cannot be measured as a benefit or cost to producers, distributors and consumers of electricity in terms of financial transactions in the market should be disregarded. The allocation of costs and benefits between the electricity and other markets must be based on principles consistent with the *Transmission Ring-Fencing Guidelines* and/or *Distribution Ring-Fencing Guidelines* (as appropriate). Only direct costs and benefits (associated with a partial equilibrium analysis) should be included and any additional indirect costs or benefits (associated with a general equilibrium analysis) should be excluded from the assessment.
- (5) In determining the *market benefit*, the analysis should include modelling a range of reasonable alternative market development scenarios, incorporating varying levels of demand growth at relevant load centres (reflecting demand side options), alternative project *commissioning* dates and various potential generator investments and realistic operating regimes. These scenarios may include alternative *construction timetables* as nominated by the proponent. These scenarios should include projects undertaken to ensure that relevant reliability standards are met.
These market development scenarios should include:
 - (a) projects, the implementation and construction of which have commenced and which have expected commissioning dates within three years (*committed projects*);
 - (b) projects, the planning for which is at an advanced stage and which have expected commissioning dates within 5 years (*anticipated projects*);
 - (c) generic generation and other investments (based on projected fuel and technology availability) which are likely to be commissioned in response to growing demand or as substitutes for existing generation plant (*modelled projects*); and
 - (d) any other projects identified during the consultation process.
- (6) Modelled projects should be developed within market development scenarios using two approaches: 'least-cost market development' and 'market-driven market development'.
 - (a) The least-cost market development approach includes modelled projects based on a least-cost planning approach akin to conventional central planning. The proposals to be included would be those where the net present value of benefits, such as fuel substitution and reliability increases, exceeds the costs.
 - (b) The market-driven market development approach mimics market processes by modelling spot price trends based on existing generation and demand and includes new generation developed on the same basis as would a private developer (where the net present value of the spot price revenue exceeds the net present value of generation costs). The forecasts of spot price trends should

reflect a range of market outcomes, ranging from short run marginal cost bidding behaviour to simulations that approximate actual market bidding and prices, with power flows to be those most likely to occur under actual systems and market outcomes.

- (7) In determining the *market benefit*, the *proposed augmentation* should not pre-empt nor distort potential unregulated developments including network, generation and demand side developments. To this end:
- (a) a *proposed augmentation* must not be determined to satisfy this test more than 12 months before the *start of construction* date;
 - (b) a *proposed augmentation* will cease to satisfy this test if it has not commenced operation by 12 months after the *commissioning* date unless there has been a delay clearly due to unforeseen circumstances;
 - (c) unless there are exceptional circumstances, *new interconnectors* must not be determined to satisfy this test if *start of construction* is within 18 months of the project's need being first identified in a network's annual planning review or NEMMCO's statement of opportunities (or in some similar published document in the period prior to 13 December 1998).
- (8) The consultation process for determining whether a *proposed augmentation* satisfies this test must be an open process, with interested parties having an opportunity to provide input and understand how the benefits have been measured and how the decision has been made. Specific consultation is required on:
- (a) identifying *committed projects* and *anticipated projects*;
 - (b) setting input assumptions such as fuel costs and load growth;
 - (c) modelling market behaviour and considering whether the market development scenarios are realistic;
 - (d) the proponent's *construction timetable*;
 - (e) understanding how benefits will be allocated; and
 - (f) understanding how a decision has been made.
- (9) Any information which may have a material impact on the determination of *market benefit* and which comes to light at any time before the final decision must be considered and made available to interested parties.