Report on the Workshop to Review the Regulatory Test

This paper has been prepared for the RNPP as the basis for a submission to ACCC on The Regulatory Test.

It has been based on:

- Review of literature relating to the regulatory test;
- A workshop held with industry participants.

The report has consolidated issues specific to the regulatory test and, importantly, the context and processes that surround its application.

The report places the regulatory test principles and content into the Tasmanian context and provides recommendations that relate to both the Test and its complementary processes and systems.

1. Tasmanian Context

The Tasmanian Regulator has modelled the Tasmanian Regulatory Test on the ACCC's Regulatory Test together with guidelines provided to ensure increased certainty and transparency.

This is consistent with the general policy adopted in Tasmania of maintaining alignment with national codes, while recognising the significant differences betweenn the Tasmanian and mainland electricity markets.

One of the significant differences is that in Tasmania the primary focus of the Regulatory Test is on distribution and transmission rather than on

interconnectors and these distribution and transmission projects tend to be relatively small scale projects. The average age of network assets is significantly older than elsewhere in Australia and as a result, electricity network infrastructure replacement and augmentation are key investment issues, while the natural monopoly position of the generator and Tasmania's island status means that there is reduced emphasis on interconnects.Given that the initial emphasis of the Regulatory Test was to assess the market benefit of interconnects, it puts in questions the appropriateness of the current Regulatory Test within the Tasmanian context.

In essence, Tasmania represents an intra-regional rather than inter-regional context, and intra-regional augmentation is therefore a priority. The dual questions of scale and potential risk impact raise issues of the 'cost" of the test in its current form for regulated entities.

Notwithstanding the differences betweent he Tasmaniana and mainland situations, there is a a clear need for some form of a Regulatory Test to provide a mechanism to regulate the changes to the asset base on which prices are determined. The appropriate Regulator will also review how the test has been applied at the time of each price reset.

The Regulatory Test is complementary to a range of processes. It takes cognisance of the Planning Statement prepared by the System Controller, (equivalent to the Statement of Opportunities in the NEM), and the Annual Planning Review (APR) performed jointly by the distribution and transmission entities. The APR outlines the responses that have been developed to the identified network constraints, which, if modelled to the individual project level, would provide the basis for the first round consultations to flush out alternatives to identified network options.

Within this process, the Reliability and Network Planning Panel (RNPP) assesses Network Service Provider's (NSP) submissions and makes recommendations to the Regulator. The Panel is required to undertake

this task in line with the process as set out in the Tasmanian Electricity Code and the supporting Guidelines

The Panel is required to ensure that the process as set out in the Code has been followed in terms of public consultation and that the Regulatory Test analysis is robust and indicates that the recommended option has the greatest market benefit. The level of analysis required to make its determination needs to be sufficient to discriminate between projects and confirm that the proposed investment yields the greatest net market benefit over most credible scenarios.

An entity must undertake the consultation and analysis and may submit the project through the Regulatory Test process in order to obtain approval for inclusion in the regulated network asset base prior to proceeding with the investment. However, it is not compulsory to submit a project through the Regulatory Test process and re-optimisation at a later date can occur, if, for example forecast demands are not achieved, resulting in a variation of the asset value.

It should be noted that augmentations that are required to deliver minimum standards are currently required to meet the requirements of a cost-effectiveness test rather than a market benefit test.

RNPP has reviewed the application of the Tasmanian Regulator Test (applied by the NSP) to intra-regional transmission/distribution augmentation, for both small and large scale projects.

2. Scope of the Test and Participants

2.1. Issues

A range of issues impact on the scope of the Regulatory Test. Those identified include:

Review of the Regulatory Test

- Purpose and context
- Social and Environmental impacts, short run versus longer run analysis
- Standards
- Who determines the test and who is accountable?
- Rules and definitions

2.2. Discussion

Purpose and context

The principle underpinning the test is that in the absence of a competitive market, the determination of a regulatory decision framework that ensures investment in assets (a determinator of price) is made in the interests of the market. In effect it implies a minimum pricing outcome in the absence of differentiated pricing?

Where that investment is designed to achieve a predefined minimum standard, then that test is a cost effectiveness (minimisation) test. Where the investment is to meet a forecast level of demand it requires a broader market benefit test. Within the scope of the test, the market is defined as the producers, distributors and customers for electricity, with consumers limited to defined major consumers.

If the purpose of the test defines the scope, so does the context within which it is applied. The test as it exists is a special case of Social Benefit Cost Analysis (SBCA), one that is constrained to consider only market affects and within that only certain consumers (see Part 7). The current form potentially limits consultation and involvement of affected parties.

Social and Environmental impacts, short run versus longer run analysis

The above limitation potentially manifests itself in the intermediate stage of the process, obtaining planning approval. Dependent upon the nature of the project, approval must be gained from the State or Local Authority; in simpler forms this will require compliance with well-determined actions able to be costed. In other, more significant projects this will focus on compliance with a process to ensure that environmental impacts are identified, defined and amelioration strategies developed, approved and implemented. The low impact local example provides a "fit" with the current form of the test, and the higher impact example does not fit easily with the test.

There are strong grounds to only consider options that align with the planning approval guidelines within the scope of the test.

The social and environmental risk impacts from the project are excluded with the exception of the cost associated with meeting current and reasonably expected compliance costs, this arguably ignoring longer term and second round affects. This reduces the scope to a short run analysis in all aspects other than electricity supply and demand costs and benefits.

Standards

The provision of standards of supply to all locations (with an ability to provide above that standard on a beneficiary pays basis) provides a potential to reduce the analysis to a cost effectiveness analysis. This would require a public debate on what are appropriate standards, and who pays. In a uniform pricing model cross subsidisation exists between locations.

The land use and environmental planning requirements are expected to be satisfied and their costs included in the application of the test.

Who determines the test and who is accountable?

Workshop participants raised the above question as one of contention. With a specific project of limited broader policy impact, the proponent determines the test as the primary beneficiary bearing the cost.

In other instances where non-network solutions are proposed, or where aspects of public policy and /or high levels of uncertainty exist, there are grounds to question the suitability of the NSP as the appropriate determiner of the test. This question is also relevant in terms of the role and influence of the network as a determinant of generator competition.

Rules and Definitions

The differing project contexts create a need for a test and surrounding processes that effectively and efficiently achieve the underlying purpose of the test. For consistency and ease of application, the process requires a set of rules and definitions that create a level of certainty and "fit to purpose".

Just as standards support this end, so do rules and definitions. The purpose identified above, in some instances requires a "cost effective" solution, others a "market benefit" solution, still others will require a more complete SBCA solution. This continuum, available and utilised on a rule based model provides an opportunity to both simplify the process and provide increased value from the effort involved in applying the "test" and the overall approval process.

This set of rules should address scale, location and other threshold aspects

2.3 Conclusions

There is a need to ensure that the test and associated processes match the context within which the project is proposed.

The test and its processes should align with other aspects of affected public policy.

A rule based decision tree approach to applying the test, and a set of processes appropriate to a particular type / scale of project initiative, or program, would increase certainty for proponents and review panels

3. Test in Practice

This section of the report was derived from the workshop presentations of the two companies participating in the Tasmanian market: Transend (Transmission) and Aurora (Distribution). These comments are drawn from the experiences of the two companies applying the test to particular network projects.

3.1: Issues

The following issues arise from the practical application of the test:

- the determination of the discount rate.
- cost allocations between declared and other services supplied by the NSPs.
- the treatment of environmental (health, safety, natural environment) effects.
- the variables included in cost/benefit flow calculations.

3.2: Applications of the Test in Practice

The following project applications were reported:

Creek Road/West Hobart augmentation of the Transmission network.

This was a joint submission with Aurora and indicates how Transend/Aurora must cooperate on transmission projects. The Local Authority planing approval process in Tasmania favours distribution projects compared to transmisson projects. This market benefit test involved assessments of load growth and cost assessments relating to capital, maintenance and reliability.

Southern Region Security.

This project exposed a further questionable aspect of the test, namely, the issue of applying the test in conditions where there is a *low probability, but high costs* of systems failure and customer expectations about a secure supply.

Mowbray (Launceston) Augmentation.

This project was driven by DNSP requirements for augmentation and a cost effective analysis was conducted to ensure compliance with service standards. The project also involved the expansion of connection point capacity requiring a *Market Benefit Test*.

Smithton.

This project, which involved the security of the distribution network in the Smithton region, exemplifies the problems inherent in supplying regions with subsidised energy under a uniform pricing regime.

The sole Tasmanian distributor (Aurora) also reported on its experience and indicated the following:

- The cost of applying the test for small projects is expensive when compared to the total project cost.

- Aligning the test to external considerations, for example, the requirements of Aurora's Board and regional planning authorities can reduce costs.

3.3: Discussion

Workshop participants favoured the use of commercial interest rates (eg. WACC) in a Tasmanian context and agreed with the ACCC view that loading discount rates to account for risk was inappropriate. The alternative of adjusting the Benefit and Cost flows to account for risk and uncertainty (probabilistic adjustments) was favoured. The issue of separating transmission/distribution provision posed cost allocation problems; created confusion about which of the TNSP or DNSP's conducted the test on Tasmanian projects and emphasised the central features of Tasmanian energy projects which are focussed on transmission / distribution and are less concerned with inter connector projects. Some participants advocated the importance of post test evaluations and the need for rules to supplement the existing test. Some support the idea that the current test be applied only to larger projects and stressed the importance of having thresholds to govern the test's application. There was general agreement that consideration of external effects be confined to value of lost load and costs of complying with regulated environmental factors. This maintains the *partial equilibrium* nature of the current test and ignores the secondary benefits of energy provision decisions on the output, employment and prices levied by other industries.

3.4: Conclusions

- Commercial rates (WACC) was favoured as an appropriate basis for discount rates in Tasmania.

- Risk and uncertainty should be accommodated by adjusting periodic benefits/cost flows to allow for probabilistic outcomes.

- The test should be flexible enough to allow:

  – recognition of the small nature of some Tasmanian projects

  – the limited nature of interconnector investment in Tasmania

  – the emphasis on transmission issues in the Tasmanian market

  – the definition of market participant be confined to industry participants including customers.

  – costs to include environmental costs required by regulation or Code. This does not include the second round impacts of energy investments

4. Principles Arising from Tasmanian Experience of the Test

4.1: Issues

The following issues were identified by workshop participants:

- The imprecise nature of the test in relation to the following:
  - estimates of projected market demand
  - definition of network security standards
  - assessment of risk/uncertainty in market benefit test analyses
- the importance of ex-post evaluation

- Discount rate should reflect low risk operations with long lived asset structures
- The role of the RNPP

4.2: Discussion

Participants were of the view that there were some rubbery elements of the current test and to apply it without pre-testing left too much to chance. *Pre-tests* were required to assess reliability outcomes for each project and to ensure that each proposal conforms to relevant community standards. *Ex post determination* was deemed necessary to guide further applications of the test and to connect the test to the local policy framework.

Load forecasts were judged to be conservative and adjusted for the likelihood of outcomes before the market benefit test is conducted. Alternatively, the number of NPV scenario's varied widely making comparisons ineffective. Participants felt that the same principles should apply regardless of the scale of the project, noting the small scale of several Tasmanian projects. The preferred discount rate reflected the market conditions confronting organisations subject to low risk and durable assets structures. This preference was based on the prospect of sub optimal solutions in network development, a bias towards shorter-term solutions, higher losses and operating expenditures. The role of the RNPP was also discussed at length. The issues confronting the RNPP in Tasmania involves questions such as:

Do a NSP's public consultation process tease out all feasible non-network options?

- What level of analysis should be applied by NSP's to each project?
- Is there a need for a threshold in terms of project cost before it is required to be submitted through the regulatory test process, or do the

NSP's have an option as to whether they submit a project thereby giving rise to a self-imposed threshold?

- What are the appropriate scenarios that need to be used in the analysis?
- Are the load forecasts valid – whose forecasts should be used?
- The fact that there are no transmission reliability standards and how to deal with projects where the merits of the project appear to be intuitive based on reliability issues.
- How to ensure that the regulatory tests and the planning approval processes work in tandem smoothly
- How much latitude does the Panel have to make *judgements* in those areas where the above questions arise?

4.3: Conclusions

The small scale of many Tasmanian network projects and the rare occurrence of large-scale inter-connector projects suggests that a project cost threshold be considered and the test applied to projects above the threshold. There is then a requirement for an alternative process to deal with smaller projects. In relation to the format of the test, the discount rate requires further examination while more accurate estimated costs and benefits are required. Further, the imprecise nature of the current test suggests the need for both pre-test and post-test review.

5. Consultation

5.1 Issues

There are a range of issues identified as impacting on the consultation requirements of the Regulatory Test, these include:

Review of the Regulatory Test

- Who is consulted and to what level;
- What issues are to be resolved
- What of non network (eg. demand side) options where there is no champion

5.2 Discussion

Consultation with affected and interested parties is a key aspect of progress in a regulated market. The degree to which consultation occurs at a project level versus a policy and program level is important to resolve.

Again the project context in terms of impact provides the basis of an acceptable consultation focus and process. The probabilistic model and degree of impact across the economic, social and environmental dimensions should drive both the contents and comprehensiveness of the consultation.

The planning review provides the opportunity to consult with potential providers, both from the demand and supply side.

Consultation provides a powerful pool of information within an ex post analysis, informing future project analysis and the rule base that supports the scope of the test. Such analysis could be included in the performance review process.

5.3 Conclusions

Consultation as a key element of the RNPP requirement should conform to rules based on the context of the planning, program or project analysis

6. Review of Test

6.1. Economic Principles

The Test is currently designed to **maximise the welfare** of a community comprising producers, consumers and distributors of electricity.

Welfare maximisation is based on the achievement of **allocative efficiency**, which requires the electricity supply industry to provide a set of outputs, which is the **most highly valued set**. **Allocative efficiency** is distinguished from **technical efficiency** in which case inputs into the electricity supply process are minimised subject to a given level of electricity energy outputs or output maximised subject to available inputs. Economic efficiency encompasses both allocative and technical efficiency.

Decisions to augment or expand the electricity network services are subject to a Test which is based on a fundamental welfare principle: **Potential Pareto improvement**" some are made better off while no one is worse off".

Winners and losers are evident in this process, but welfare is restored if **benefits exceed losses** by a margin wide enough to **compensate losers**.

Social Cost Benefit Analysis (SCBA) measures are commonly applied to assess maximum welfare benefits because they capture the maximum of **consumer and producer surplus** gleaned from a project. For an individual energy supply option (i) the following net present value (NPV) stream applies:

$$NPV_i = \sum_j^n \left(B_{ij} - C_{ij}\right)\left(1+r\right)^{-n} \qquad (1)$$

where B_{ij} = Gross benefit from option i in period j=1,……., n

C_{ij} = Costs of option i in period j

r = discount rate

n = planning horizon in years

The decision rule applying here is that augmentation/expansion of an electricity supply option is only viable if:

$$NPV_i \rangle 0 \quad (2)$$

Further, there is likely to be more than one viable option i, so the final choice will be that option which maximises welfare:

$$\underset{i}{\text{Max}}\ NPV_i \rangle 0 \quad (3)$$

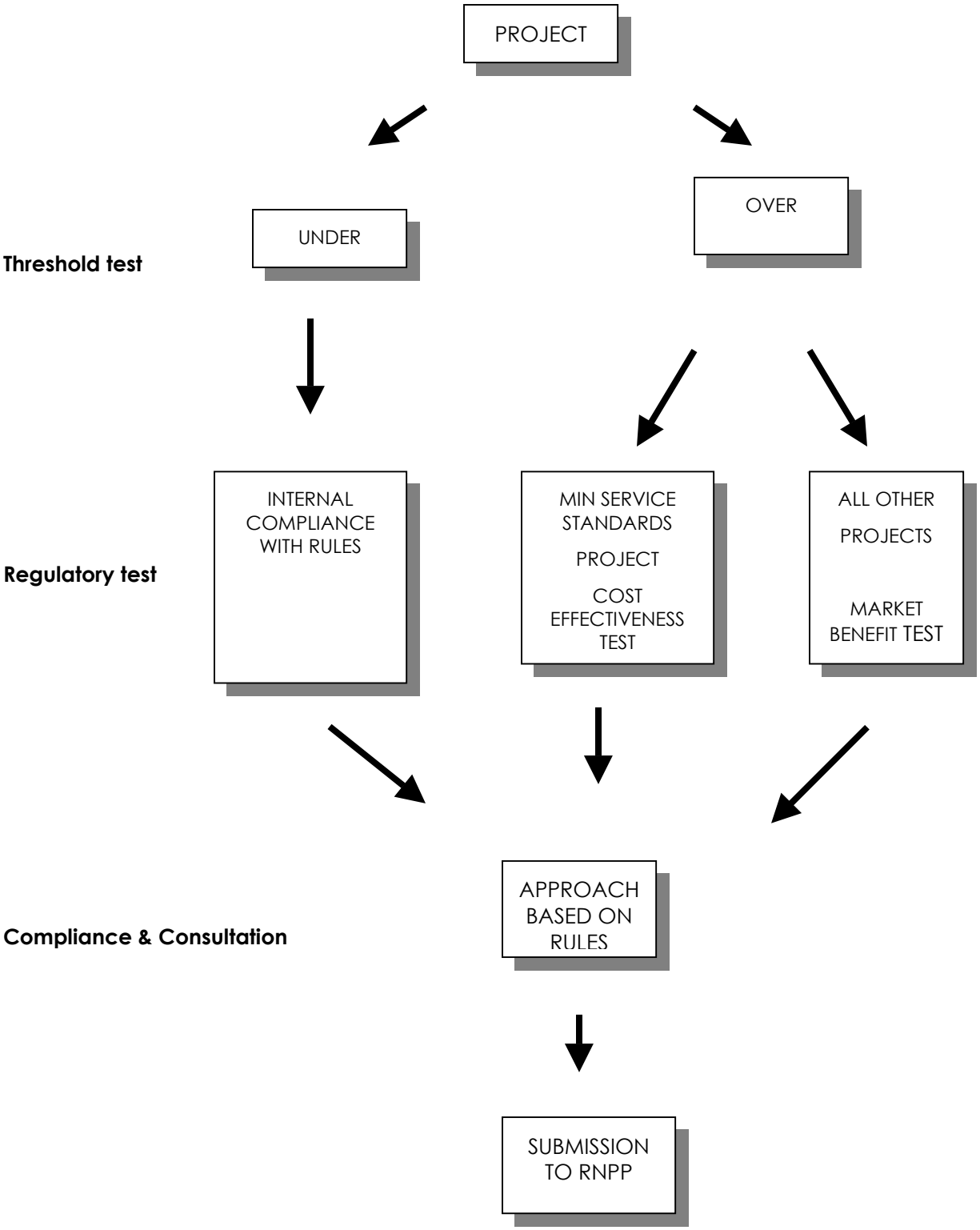
This rule appears to be the basis of the current regulatory test.

Cost Effectiveness

An important feature of SCBA is that benefits and costs are valued in dollars. An alternative when costs are valued in dollars, but benefits are expressed in physical units is a **cost effective analysis**. This involves the delivery of a safety/health/security standard at least cost. This method is appropriate as background to the current Test.

Financial Appraisal provides NPV calculations for an option or project from the individual agency perspective. **These measures are often confused. SCBA reduces to FA** when prices are competitive (which is violated in the electricity supply, naturally monopolistic industry), where there are no externalities, no taxes, free entry to the industry and market contestability.

6.2. The Test as a Process



6.3. Recommendations

It is recommended that:

1. The test be viewed as part of a system taking into account the scale of projects, the requirements for consultation, land use approval process, environmental issues and market options;

2. There be a threshold defined in terms of the value of project issues

    - below the threshold the test evaluate rules and standards compliance only

    - Threshold and above, the cost effectiveness test for projects aimed at achieving minimum standards and for others the market benefit tests are retained

3. The consultative process guarantee full consideration of the influences not included in the formal cost effectiveness of market benefit evaluations;

4. The project proposals conform to Tasmanian land Use Planning Legislation

5. In relation to the structure of the Test

    - The Tasmanian discount rate be commensurate with the rate applied by commercial enterprises facing low risk but high impact,

- That probabilities of outcomes be applied to benefit/cost calculation as part of the conclusion and associated sensitivity analysis.