Decision

Statement of principles for the regulation of transmission revenues

Service standards guidelines

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File no: C2000/1180

Commissioners:
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Contents

Glossary

ACCC	Australian Competition and Consumer Commission
AR	Annual revenue
Code	National Electricity Code
DRP	Draft Statement of Principles for the Regulation of Transmission Revenues
FI	Financial incentive
Guidelines	Service Standards Guidelines
MAR	Maximum allowed revenue
NEM	National Electricity Market
SKM	Sinclair Knight Merz
S	Service standards factor
TNSP	Transmission network service provider

Objective

This report contains the Australian Competition and Consumer Commission's (ACCC) service standards guidelines and the decision in relation to these guidelines. Using these two documents the ACCC aims to:

- explain its approach to setting performance-incentives within the transmission revenue cap process
- outline its information requirements to implement the service standards performance-incentive scheme.

1 Introduction

As part of its responsibilities under the *Trade Practices Act 1974* (TPA) the ACCC regulates various providers of monopoly services, including electricity transmission network service providers (TNSPs).

Under the current regulatory arrangements, the ACCC uses the building block approach to decide a maximum allowed revenue (MAR) or revenue cap for TNSPs.

The ACCC initially decides a TNSP's revenue cap based on forecast efficient costs. TNSPs can then maximise their profits by reducing actual costs below the forecast levels. While such cost reductions could occur because of improved efficiency, it could also be a sign of reduced service quality. This results in a perverse incentive for TNSPs to maximise profits at the expense of service quality.

The ACCC aims to improve these incentives by linking each TNSP's revenue cap to their performance, or service standards. The service standards should influence the revenue cap to ensure that TNSPs:

- are rewarded when performance standards increase and penalised when performance standards decline, thus providing incentives for continued performance improvement
- consider how their operations are valued by the national electricity market (NEM).

To do this the ACCC has developed a performance-incentive scheme, which is explained in this document.

2 Background

2.1 Code requirements

Chapter six of the National Electricity Code (code) sets out how the ACCC should regulate transmission revenues. Clause 6.2.3(b) states that 'the form of economic regulation applied is to be revenue capping'. The ACCC can move away from revenue capping when clause 6.2.3(c) is satisfied—that is, when the ACCC determines that enough competition exists to warrant a more light-handed approach to regulation.

The code recognises that the ACCC also determines the revenue cap based on the services that the TNSP provides and the level of service provided. This is reflected in clause 6.2.4 of the code:

> 'In setting a separate revenue cap to be applied to each Transmission Network Owner and/or Transmission Network Service Provider (as appropriate) in accordance with clause 6.2.4(b), the ACCC must take into account the revenue requirements of each Transmission Network Owner and/or Transmission Network Service Provider (as appropriate) during the regulatory control period, having regard for:
>
> (1) …
>
> (2) the service standards referred to in the Code applicable to the Transmission Network Owner and/or Transmission Network Service Provider (as appropriate) and any other standards imposed on the Transmission Network Owner and/or Transmission Network Service Provider (as appropriate) by any regulatory regime administered by the ACCC or by agreement with the relevant Network Users;
>
> (3) …'

2.2 Information requirements

In May 1999 the ACCC released its draft *Statement of Principles for the Regulation of Transmission Revenues* (DRP), to provide guidance on how the ACCC intends to regulate transmission revenues. In June 2002 the ACCC released its information requirements guidelines, as a part of the development of the DRP. These information requirements guidelines outline what information the ACCC requires from each TNSP as part of its regulatory regime.

To implement a performance-incentive scheme the ACCC requires performance information that is not specified in the information requirements guidelines. Therefore the service standards guidelines will clarify what information is required by the ACCC to effectively undertake its role as regulator of transmission networks.

These guidelines outline how the ACCC intends to decide the service standards underlying each revenue cap decision. Clause 6.2.5 (a1) of the code states that the ACCC may collect and publish this performance information.

> 'The certified annual financial statements provided by the Transmission Network Owner and/or Transmission Network Service Provider (as appropriate) under clause 6.2.5(a) must include:
>
> (1) such information as the ACCC may reasonably require to prepare and publish annual performance statistics in relation to the service standards published by the Transmission Network Owner and/or Transmission Network Service Provider (as appropriate) under clause 6.5.7(b);…'

TNSPs already report to their state-based regulators on performance standards. Reporting performance information to the ACCC is not intended to replace reporting to state regulators. Performance standards and other licence conditions imposed by state regulators are still vitally important to the functioning of TNSPs. The ACCC's performance-incentive scheme will complement existing state arrangements where necessary.

3 The ACCC's process

3.1 Sinclair Knight Merz review

The ACCC engaged Sinclair Knight Merz (SKM) to recommend a performance-incentive scheme for TNSPs. Both SKM and the ACCC consulted extensively with TNSPs and other interested parties throughout the review.

In March 2002 SKM produced a draft discussion paper[1] to stimulate debate. The ACCC and SKM held a number of meetings with NEMMCO, state regulators, TNSPs, consumer representatives, etc. SKM and the ACCC also held several public forums.

The draft discussion paper outlined the principles underpinning the development of performance-incentives and recommended five performance measures that could be employed in the scheme. These measures are explained in section 4.3.

In November 2002 SKM issued its final report to the ACCC noting Transend would provide a further submission to be included. As a result SKM re-issued its report in March 2003. SKM's report[2] is available on the ACCC internet site[3].

3.2 Submissions received on the SKM report

The ACCC posted SKM's report on its website and called for interested parties to comment. Many parties gave information directly to SKM throughout its review. Powerlink, TransGrid and NRG Flinders provided submissions to the ACCC.

The ACCC considered the issues when developing the draft guidelines, which was approved on 28 May 2003. Some of the discussion is repeated in section 4 of this report. Full submissions are on the ACCC's website.

3.3 Recent revenue cap decisions

The ACCC recently released revenue cap decisions for the transmission networks of South Australia (ElectraNet[4]), Victoria (SPI PowerNet and VENCorp[5]) and a draft decision for Tasmania (Transend[6]). Under the code, the ACCC must take into account the TNSPs service standards in setting an appropriate revenue cap.

The decisions outlining the revenue caps of ElectraNet, SPI PowerNet and VENCorp were finalised before the ACCC released the draft guidelines and were based on SKM's research and recommendations. The ACCC consulted on these particular service standards schemes during its revenue cap processes.

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1 SKM (March 2002), Transmission Network Service Provider (TNSP) – Service Standards Stage 1 – Discussion Paper
2 SKM (November 2002), Transmission Network Service Provider (TNSP) Service Standards
3 http://www.accc.gov.au
4 ACCC (11 December 2002), South Australian Transmission Network Revenue Cap 2003–2007/08
5 ACCC (11 December 2002),Victorian Transmission Network Revenue Caps 2003–2008
6 ACCC (24 September 2003), Tasmanian Transmission Network Revenue Cap 2004 – 2008/09

The draft guidelines adopted SKM's approach. Therefore the performance-incentives of the South Australian and Victorian decisions are consistent with the approach of the draft guidelines. The Transend draft revenue cap was also based on the draft guidelines.

During the consultation process, interested parties raised concerns regarding the ACCC's implementation of service standards. The ACCC addressed these concerns in its revenue cap decisions and took them into account in developing the guidelines.

3.4 Public forum and submissions

On 28 May 2003, the ACCC released the draft service standards guidelines and called for submissions from interested parties. Ergon Energy, TransGrid, EnergyAustralia–Networks, EnergyAustralia–Retail, ElectraNet SA, Hydro Tasmania, Tavis Consulting and Powerlink provided submissions. NGF and ERAA also provided a joint submission.

The issues raised in these submissions are discussed in section 4 of this report. Also the full submissions are available on the ACCC internet site.

The remainder of this report outlines the ACCC's intentions to set performance-incentives, and discusses the issues raised by submissions that were of key importance to the ACCC's decision.

4 The performance-incentive scheme

4.1 Best practice performance

In their submissions to the ACCC, Powerlink and TransGrid discussed the concept of best practice performance. The ACCC understands that best practice would represent the frontier of transmission service performance. Powerlink and TransGrid explain that under such a scheme, TNSPs should be rewarded for meeting the frontier.

However, in attempting to apply such a method, the ACCC would face the initial difficulty of determining the position of the frontier. The ACCC would then have to determine which TNSPs, if any, were operating at such a level. Given the measurement difficulties inherent in setting such a frontier, the ACCC has chosen not to refer to 'best practice' performance in setting performance targets.

4.2 Performance targets

In deciding how performance targets would be set, the ACCC explored two alternatives:

- applying industry benchmarks
- applying a TNSP's own recent performance as its benchmark.

The ACCC found that little common performance data existed in Australia and internationally, which created difficulties in applying industry benchmarks. Also, using

industry benchmarks requires consideration of unique and complex operating environments of the individual companies used to develop those benchmarks.

Therefore the ACCC has chosen to use the actual performance outcomes of each Australian TNSP from the last three to five years as a guide to set achievable performance targets (see appendix A). The advantages to this approach are as follows.

- As with most forecasting, the best guide to future outcomes can be derived from past performance. A TNSP's most recent performance would take into account all available historical information, making it a reliable method of setting achievable targets.

- Using actual performance data reduces complications arising from comparing companies with different operating environments. A TNSP with poor performance results may be operating very well given its local (difficult) conditions and hence an industry benchmark would be inappropriate. For example, it would not be appropriate to give two TNSPs the same industry benchmark, when one suffers many outages due to violent storms and the other does not.

- Applying actual performance data provides a self-check mechanism. Once the performance target is set for the regulatory period the TNSP would report its performance annually. The ACCC would then reassess the performance targets based on reported results. This removes the incentive for the TNSP to exaggerate its performance in an attempt to seek higher financial rewards.

The ACCC's performance-incentive scheme is designed to drive the TNSP's operating decisions as opposed to its capital decisions. However, capital decisions may affect a TNSP's performance and, therefore, its performance-incentives. Changes to the code and other regulatory arrangements may also affect its performance requirements.

Therefore, while the ACCC will rely mainly on historical performance data to set performance targets, it may also consider other information such as planned capital works programs and changes to regulations.

4.3 Performance measures

The five core performance measures that the ACCC will incorporate when determining a TNSP's revenue cap are (as defined by SKM):

- transmission circuit availability

- average outage duration

- frequency of 'off-supply' events

- inter-regional constraints

- intra-regional constraints.

The standard definitions of these performance measures are in schedule 1 of the guidelines (appendix E).

4.3.1 Flexible definitions

Applying standard definitions of performance measures will ensure that TNSPs have similar incentives. However, these definitions need to be flexible.

Historically, TNSPs have collected performance data mainly for internal management purposes and to fulfil the reporting requirements of state regulators. They did not have to collect data based on a uniform set of performance measures. Therefore no two TNSPs have collected exactly the same data. This has led to the need for definitions that would broadly measure the same parameters yet offer some flexibility.

For each revenue cap decision in the future, the standard definitions will be modified to align with appropriate information that the TNSP has been collecting in the past. Performance must be measured consistently over time to preserve the incentive for the TNSP to improve. However the ACCC would be reluctant to make substantial changes to the standard definitions as this may adversely affect performance-incentives.

SKM provided the ACCC with a schedule detailing the variations required for each TNSP (see appendix B).

4.3.2 Measure 1—Transmission circuit availability

Most TNSPs have been collecting data that broadly reflected the availability of transmission circuits. To set targets such a broad measure will have to be categorised into availability of circuits, transformers, etc.

Hydro Tasmania believes that this measure does not provide TNSP's with an incentive to increase their capability using existing assets. For example, the incentives will not prevent down-rating of a line (say to 5 per cent of its normal rating) as long as the line is in service.

Several submissions argue that the focus should be on the impact on the market rather than the availability of circuits, as some circuits are more important to customers than others.

The NGF and ERAA claim that the measure as currently planned may encourage TNSP's to spread risk mitigation effort and emergency response equally across all circuits, rather than to focus resources on critical circuits.

On a larger scale, the NGF and ERAA say that the guidelines should reflect the relative importance of the particular transmission asset to the wider effective operation of the market.

Several submissions suggest that the guidelines should consider the timing of a transmission failure (eg. peak versus off-peak times), reflecting that the cost of transmission failure which varies considerably over time.

The ACCC agrees in principle with the concept that incentives should depend on the impact of the event. However in its work to date, the ACCC has encountered measurement and data collection difficulties to put this concept to practice.

However wherever historical data was available, the circuit availability measure was categorised into peak, off-peak; critical circuits and non-critical circuits (e.g. SPI PowerNet).

EnergyAustralia pointed out that while appendix B of the draft guidelines stated that the application of transmission circuit availability to itself will be phased in over time due to lack of historical data, appendix A included it as a measure. It proposed that at least three years data should be collected before availability targets are established.

EnergyAustralia's transmission revenue cap is currently being considered by the ACCC. Therefore such specific issues will be addressed during that process.

4.3.3 Measure 2 – Average outage duration

The formula for the proposed measure is the sum of the outage duration times divided by the number of outage events in a specific period.

NGF and ERAA believe that in measuring outages the circumstances should also be considered because an outage at a critical time would disrupt the market more than an outage at a non-critical time. Therefore, they consider that service standards should be biased towards times of system stress and suggested alternatives (see Appendix 5 of NGF/ ERAA submissions).

Again, the ACCC considers that this matter should be up by the service standards working group, given the difficulties in definition and measurement.

4.3.4 Measure 3 - Loss of supply event frequency index

TransGrid notes small definitional issues specific to itself. The ACCC considers that these would be better addressed in the TransGrid revenue cap decision, which is currently underway.

Powerlink suggested several exclusions to the definitions:

- events where there is an agreed tripping or interruptability scheme with customers (measures 1, 2 and 3)
- loss of supply events where customers have agreed to a lower reliability standard.

The performance-incentive scheme is not intended to interfere with arrangements between TNSPs and their customers. Therefore, where a customer pays more (or less) for increased (or reduced) service standards, it should not be included in the performance results unless it affects other customers.

Specific exclusions for individual TNSPs should be proposed by them in their revenue cap applications. The guidelines (see guideline 3.2) foresee the possibility of each TNSP requesting amendments to the standard performance measure definitions.

4.3.5 Force Majeure

The definition of force majeure adopted in the draft guidelines was recommended by SKM, who based it on an early definition from the code. Interested parties have expressed the need for further clarification to provide certainty for its implementation.

The force majeure definition used in the draft guidelines included fire and lightening as *possible* force majeure events. Fire, particularly bush fires, and lightening are common in some areas and may not be considered as force majeure events.

Ergon Energy queries the inclusion of both fire and lightening in the force majeure definition, claiming that TNSPs have the ability to manage and control their impact. Ergon believes that including these events in the force majeure definition will remove the incentive for TNSP's to manage their effects.

EnergyAustralia considers that damage to a cable caused by a third party when cable locations were accurately recorded should be considered as a force majeure event, as it would be inequitable to penalise it for actions of a third party who negligently damage cables. The ACCC considers that this is an issue for deciding EnergyAustralia's revenue cap, rather than an issue for this decision.

The NGF and ERAA believe that the force majeure definition is too broad and could allow unplanned outages, resulting in incentives applying to planned outages only.

The ACCC certainly did not intend the definition to be so broad as to cover all unplanned outages. It emphasises that only in exceptional circumstances an event will be excluded from the performance-incentive scheme. The ACCC will do so only after carefully considering all relevant circumstances. Typically force majeure events are described as an 'act of God' or a 'natural disaster'.

It is not possible to apply a specific rule to cover all potential events, each event must be considered on a case-by-case basis. In doing so, the ACCC would consider the following:

- was the event unforeseeable and its impact extraordinary, uncontrollable or un manageable?
- does the type of event occur frequently? If so how did the impact of the particular event differ?
- could the TNSP, in practice, have prevented the impact of the event though not necessarily the event itself?
- could the TNSP have effectively reduced the impact of the event by adopting better practices?

4.4 Market impact incentives

The ACCC's initial objective in developing a performance-incentive scheme was to include performance measures linking market-impact to TNSP behaviour. It understands the importance of developing market impact measures, because TNSP operations have a substantial impact on market outcomes.

However the ACCC has been unable to fulfil this objective due to a number of reasons.

The main impediment for market-impact measures was the difficulty in establishing the market-impact *caused* by TNSP action (or inaction). Sometimes a market may be

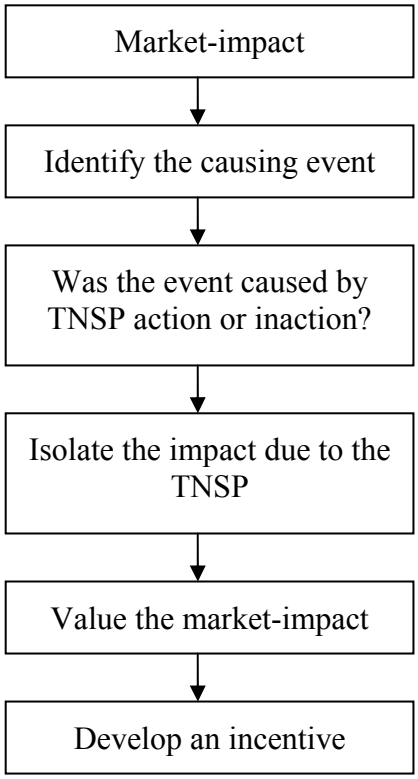
impacted by a constraint on the distribution network, generator tripping or another non-transmission event. Any transmission event that occurs at the same time may be just a coincidence.

ElectraNet SA argued that most transmission events in South Australia are caused by generator actions rather than TNSP actions.

In most cases it would be fairly straight forward to determine that the event affected the market. However, the difficulty then arises in assessing the cost to the market. Figure 4.1 shows the process the ACCC would need to follow to implement market-impact performance-incentives.

There is also another practical problem. The market impacts are usually huge compared to the asset or income of TNSPs. Hence if they were to bear the full market risk, they will demand high risk premiums which will eventually result in higher prices. It is not clear that this is a desirable outcome.

Figure 4.1 Market-impact incentives



The ACCC proposes that more specific market measures be looked at by the service standards working group (see section 6), with alternative solutions to be investigated, including those proposed by submissions to the draft guidelines.

The majority of submissions received in response to the draft decision commented on the lack of market impact measures in the proposed list of performance indicators.

However most of these submissions acknowledge the difficulty inherent in developing measures that would be able to quantify the effect on the market from a single TNSP's actions or inactions.

4.5 The incentive cap

The ACCC has decided to initially cap the financial incentives available from achieving performance targets to ±1 per cent of the TNSP's revenue-cap. As the incentive scheme is in the early stage of development, the ACCC is cautious about exposing TNSPs and customers to excessive risk and uncertainty.

The ACCC intends to monitor how performance-incentives are applied. When it is satisfied that the scheme is providing appropriate incentives for TNSPs it will be more confident of increasing the cap above 1 per cent of the revenue-cap.

4.5.1 Risk

Powerlink and TransGrid believe that the performance-incentive scheme will increase risk borne by TNSPs. However both note the importance of achieving a fair balance of upside and downside risk.

Powerlink also believes that some design aspects of the scheme may be used to manipulate the level of risk a TNSP faces. They believe that the ACCC could use these aspects to increase the power of incentives, and reduce any of these additional risks to the TNSP.

4.5.2 Asymmetric rewards and penalties

The underlying principle of this incentive regime is that the rewards available should equal the penalties. That is, the expected value of reward should equal the expected value of penalty.

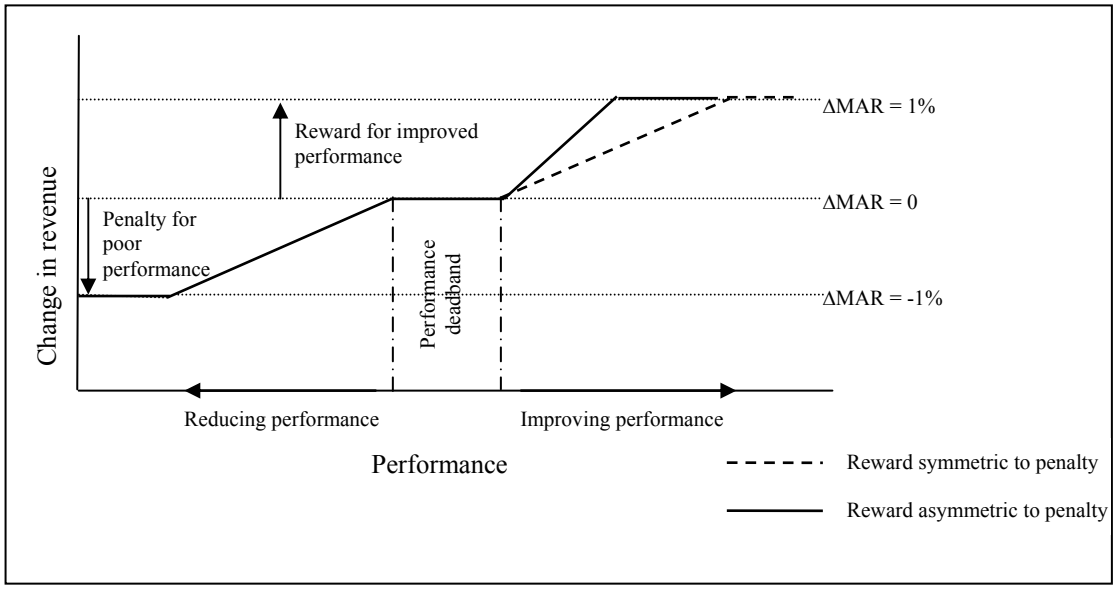
However the ACCC recognises that TNSPs may already be operating at a high-level of performance. For example, most TNSPs in Australia have a circuit availability rate of more than 99 per cent. At this level, for a particular TNSP, improvements of a certain magnitude could be harder than a similar deterioration. Therefore the gradient of the reward would be greater than that of the penalty, although at the extreme the maximum reward is 1 per cent of the revenue-cap and so is the penalty.

The scheme can also provide for events that can increase or decrease performance. For example, a high-level of capital expenditure to improve performance could result in targets that are higher than the historical average or change the gradient of rewards and penalties (see figure 4.2). The ACCC believes that such an approach would help balance the risk associated with achieving performance targets.

The ACCC could also set an asymmetrical performance-incentive curve where the rate of penalty is higher than the rate of reward. It would apply this approach when it believes that a TNSP is not facing a strong enough incentive to halt a decline in performance, especially if performance has fallen without good reason. While it is not

envisaged that such a situation is likely to arise, conditions may warrant this approach in the future.

Figure 4.2. Performance incentive curve



4.6 Timing of the financial incentives

The ACCC proposes to use a three to six-month lag between the annual performance being measured and the financial incentive being added to or subtracted from the annual revenue limit. Evaluating performance measured by calendar years would reduce the difference between measurement and reward/ penalty because most revenue cap decisions are based on the financial year cycle.

Example

Performance measured over the calendar year 2004 would not have a financial impact on a TNSP until the financial year beginning 1 July 2005. This would give the TNSP enough time to prepare its publication of transmission prices and report its performance results to the ACCC.

Six months beginning	Annual Revenue 'AR'	Performance 'S'
1 July 2003	\$100m	
1 January 2004		0.80%
1 July 2004	\$110m	
1 January 2005		0.85%
1 July 2005	\$120m	
1 January 2006		

In this example, the TNSP achieved a service standards factor (S) of 0.80 per cent in 2004. Under this performance-incentive scheme an S factor of 0.80 per cent results in an increase in the annual revenue (AR) of 0.80 per cent, or in this example an increase of $840 000, as shown below.

Financial incentive ($FI_{1\ January\ 2004}$) $= \left(\frac{(AR_{t-1} + AR_{t-2})}{2} \times S_{ct} \right)$

Note: ($FI_{1\ January\ 2004}$) is the financial incentive based on the TNSP's performance and regulated revenue in the calender year starting 1 January 2004

$= \left(\frac{(AR_{01\ July\ 04} + AR_{01\ July\ 03})}{2} \times S_{01\ January\ 04} \right)$

$= \left(\frac{(110 + 100)}{2} \times 0.008 \right)$

= $0.84m

The dollar amount of financial incentive is based on the average revenue for the year in which the performance was measured, that is, the calendar year 2004. The annual revenue for the calendar year is the simple average of the two adjacent financial years.

The financial incentive of $0.84 million in the above example would not affect the revenue cap until the year beginning 1 July 2005. Hence the maximum allowable revenue cap for that year would be:

$MAR_{1\ July\ 2005}$ = $AR_{1\ July\ 2005}$ + $FI_{1\ January\ 2004}$

= $120m + $0.84m

= $120.84m

4.7 Compliance issues

As part of the information requirements, TNSPs will be required to report their performance standards to the ACCC annually. The ACCC would then audit each annual report to ensure that TNSPs have complied with the parameters of their respective revenue caps.

The ACCC will publish this information as part of its audit process and will likely engage an expert consultant to check the accuracy of the information.

5 Way forward

The ACCC's service standards scheme provides incentives to TNSPs linked to the quality of service. It provides a solid foundation to build upon a scheme which is based on market impact.

The ACCC will refine and amend the existing measures and work towards developing a market based incentive scheme (see 6). Some examples of possible future changes are:

- Raising the ‘incentive cap’ above the current 1 per cent of the revenue
- Including measures that take into account the amount of energy delivered
- Including the impact TNSPs’ capital programs in setting targets
- Including specific interconnector and connection point performance in targets
- Taking into account of critical times and circuits in the scheme
- Including customer focused incentives such as processing connection enquiries.

6 Working group

Interested parties noted that the draft guidelines did not include market based incentives. The reasons for this were explained in section 4.4.

The ACCC considers that such a complex issue can only be solved with the active cooperation of all market participants. Therefore the ACCC has asked various parts of the industry to participate in a working group to further develop the performance-incentive scheme. The details of the working group are in appendix D.

At the time of writing the ACCC has received nominations from TNSP, NEMMCO, consumer, retailer and generator representatives to participate in the working group. The ACCC will now convene the working group and work towards evolving the current standards.

Appendix A – TNSP performance targets

Table 1. SKM's recommended performance targets

TNSP	Measure no	Measure	Unit	Weighting factor (%)	Proposed targets				
					Year 1	Year 2	Year 3	Year 4	Year 5
ElectraNet SA	1	Circuit availability (total)	%	35.0	99.25	99.25	99.25	99.25	99.25
	2a	Loss of supply event frequency index > 0.2 min	No	10.0	5	5	5	5	5
	2b	Loss of supply event frequency index > 1.0 min	No	30.0	2	2	2	2	2
	3	Average outage duration	Min	25.0	100	100	100	100	100
EnergyAustralia	1	Circuit availability (total)	%	100.0	95.50	95.50	95.50	95.50	95.50
	3	Average outage duration	Min	0.0	-	-	-	-	-
Powerlink	1a	Circuit availability (critical)	%	15.5	97.15	97.15	97.15	97.15	97.15
	1b	Circuit availability (non-critical)	%	8.5	97.98	97.98	97.98	97.98	97.98
	1c	Circuit availability (peak)	%	15.5	97.45	97.45	97.45	97.45	97.45
	2a	Loss of supply event frequency index > 0.2 min	No	15.5	4	4	4	4	4
	2b	Loss of supply event frequency index > 1.0 min	No	30.0	1	1	1	1	1
	3	Average outage duration	Min	15.0	800	800	800	800	800

TNSP	Measure no	Measure	Unit	Weighting factor (%)	Proposed targets				
					Year 1	Year 2	Year 3	Year 4	Year 5
SPI PowerNet	1	Circuit availability (total)	%	20.0	99.20	99.20	99.20	99.20	99.20
	1a	Circuit availability (critical)(peak)	%	15.0	99.90	99.90	99.90	99.90	99.90
	1b	Circuit availability (non-critical)(peak)	%	5.0	99.85	99.85	99.85	99.85	99.85
	1c	Circuit availability (critical)(intermediate)	%	5.0	99.85	99.85	99.85	99.85	99.85
	1d	Circuit availability (non-critical)(intermediate)	%	5.0	99.75	99.75	99.75	99.75	99.75
	2a	Loss of supply event frequency index > 0.05 min	No	0.0	2	2	2	2	2
	2b	Loss of supply event frequency index > 0.3 min	No	0.0	1	1	1	1	1
	3a	Average outage duration (lines)	Hrs	25.0	10	10	10	10	10
	3b	Average outage duration (transformers)	Hrs	25.0	10	10	10	10	10
Snowy Hydro[7]	1	Circuit availability (total)	%	40.0	99.50	99.50	99.50	99.50	99.50
	1a	Circuit availability (critical)	%	60.0	99.75	99.75	99.75	99.75	99.75
Transend	1	Circuit availability (total)	%	25.0	99.05	99.05	99.05	99.05	99.05
	1a	Circuit availability (transformers)	%	15.0	99.05	99.05	99.05	99.05	99.05
	2a	Loss of supply event frequency index > 0.1 min	No	20.0	15	15	15	15	15
	2b	Loss of supply event frequency index > 2.0 min	No	40.0	2	2	2	2	2

[7] The ACCC notes that the Snowy region transmission assets are now owned and operated by TransGrid.

TNSP	Measure no	Measure	Unit	Weighting factor (%)	Proposed targets				
					Year 1	Year 2	Year 3	Year 4	Year 5
Transgrid	1a	Circuit availability (lines)	%	20.0	99.40	99.40	99.40	99.40	99.40
	1a	Circuit availability (transformers)	%	15.0	99.00	99.00	99.00	99.00	99.00
	1b	Circuit availability (reactive plant)	%	10.0	98.50	98.50	98.50	98.50	98.50
	2a	Loss of supply event frequency index > 0.05 min		25.0	6	6	6	6	6
	2b	Loss of supply event frequency index >0.4 min		20.0	1	1	1	1	1
	3	Average outage duration	Min	10.0	1500	1500	1500	1500	1500
	4	Transmission constraints (intra-regional)	Hrs	0.0	-	-	-	-	-
	5	Transmission constraints (inter-regional)	Hrs	0.0	-	-	-	-	-

Appendix B – Individual TNSP performance measure definitions

Table 2. SKM's schedule of variations from standard definitions

Measure	ElectraNet SA	EnergyAustralia	Powerlink	SPI PowerNet	Snowy Hydro	Transend	TransGrid
Circuit availability	Data submitted for *transmission line circuits only* - where a line is considered available only when it is in service, as opposed to time during which circuit is available for return to service. No historical data including plant (e.g. power transformers, SVC's, etc.) is available.	Phase introduction of measure due to lack of historical data. Primary measure used only with no sub-measures.	Data submitted for critical circuits, non-critical circuits and peak periods. Sub-measures only used, as primary measure would be only an aggregate of the sub-measures and duplicate the result. Applies to all lines, transformers and reactive devices.	Implemented as per standard definition using primary and sub-measures. Data recorded for existing availability incentive scheme. Excludes third party initiated construction and connection assets.	Implemented as per standard definition using primary and 1 sub-measure	Data submitted for transmission lines and transformers. Sub-measures only used.	Data submitted for transmission lines, transformers and reactive plant. Sub-measures only used, as primary measure would be only an aggregate of the sub-measures and duplicate the result.
Loss of supply event frequency index	Implemented as per standard definition LOSEFI thresholds 0.2 min and 1 min	Not applicable	Implemented as per standard definition LOSEFI thresholds 0.2 min and 1 min	Implemented as per standard definition LOSEFI thresholds 0.05 min and 0.3 min	Not applicable	Implemented as per standard definition LOSEFI thresholds 0.1 min and 2 min	Implemented as per standard definition LOSEFI thresholds 0.05 min and 0.4 min

Measure	ElectraNet SA	EnergyAustralia	Powerlink	SPI PowerNet	Snowy Hydro	Transend	TransGrid
Average outage duration	Data submitted for *customer outages only*. Exit point outages that result in customer interruption is well recorded. For other plant, only time to restore system to safe operating state is recorded.	Not applied due to extreme volatility of data and very limited level of control possible	Data for unplanned outages only on lines, transformers and reactive devices. Effect of any single event capped to 7 days.	Data for unplanned outages only, for lines, transformers separately. Data adjusted for SPI PowerNet force majeure.	Future measure not currently included	Future measure not currently included – historical data shows performance volatile as a result of small number of events. Appropriate target not feasible at this time.	Data for primary measure as an aggregate of all forced and emergency events. Effect of any single event capped to 14 days.
Intra-regional constraints	No intra-regional critical circuits	No data currently available	No data currently available	No data currently available	No data currently available	No data currently available	No data currently available
Inter-regional constraints	No data currently available	No data currently available	No data currently available	No data currently available	No data currently available	No data currently available	No data currently available

Appendix C – Calculation of the MAR

The building block formula is:

AR = return on capital + return of capital + opex + tax

= (WACC * WDV) + D + opex + tax

Where:

AR = annual revenue

WACC = post-tax nominal weighted average cost of capital

WDV = written down (depreciated) value of the asset base

D = depreciation

opex = operating and maintenance expenditure

tax = expected business income tax payable

The MAR is derived by adding the financial incentive component, FI, to the annual revenue. The annual revenue is rolled forward separate from the financial incentive to ensure the effects of the financial incentive are not compounded into future periods.

The annual revenue is rolled forward from one period (i-1) to the next period (i) as follows:

$AR_i = AR_{i-1} \times (1+\Delta CPI_i) \times (1- X)$

To determine the MAR the financial incentive component is added to the annual revenue, that is:

MAR = (allowed revenue) + (financial incentive)

= AR + FI

The formula for the financial incentive is below. There is also an example in section 4.6.

$$FI = \left(\frac{(AR_{t-1} + AR_{t-2})}{2} \times S_{ct} \right)$$

Appendix D – Working group terms of reference

Service standards development

1. Background

The ACCC held a public forum on 15 July 2003 in relation to its draft service standards guidelines.

In summary, most interested parties stated that the draft guidelines were a good first step. However they claimed that some changes should be made to improve the guidelines. But there was no consensus on how this should be done.

There was agreement that in the long run TNSPs should have market based incentives. Parties suggested that the ACCC should involve all industry segments in the development of such a performance-incentive scheme.

2. Objective

The ACCC would like form a working group of industry participants to provide input to develop a sound and practical market based performance-incentive scheme.

3. Structure of the group

The service standards scheme is likely to affect parties such as retailers, generators and network service providers in different ways. Hence the ACCC values input from all parties in the industry. As such the group will be made up of:

- 2 TNSP representatives
- 2 retail representatives
- 2 generator representatives
- 2 consumer representatives
- 1 NEMMCO representative
- 1 NECA representative
- ACCC staff and nominees.

Participation would be voluntary. The ACCC will convene periodic meetings (perhaps quarterly), rotating the location of the meetings among cities. Informal meetings are preferred as it considers it would facilitate the free exchange of ideas.

The members of the group will consult via the ACCC's internet site and will be contactable by phone and email.

4. Terms of reference

The following points provide an idea about the expectations of the working group. The ACCC envisages that the working group will:

- provide input as to how the guidelines can be improved, specifically how to incorporate market based performance measures in the scheme

- provide input as to how TNSPs can be given appropriate and balanced incentives
- consider how performance-incentives would work in practice including:
    - collection of data
    - testing of the scheme prior to implementation
    - administrative arrangements.

The ACCC reserves the right to review papers submitted by the group in order to preserve its objectives.

5. Outcomes

The working group will issue a discussion paper, outlining the proposed scheme. This paper may be presented in a public forum and could form the basis of a Commission paper.

Appendix E – Service Standards Guidelines

Guidelines

Statement of Principles for the Regulation of Transmission Revenues

Service standards guidelines

Date: 12 November 2003

File no: C2000/1180

Commissioners:
Samuel
Sylvan
Martin
McNeill
Willett

Contents

Glossary

ACCC	Australian Competition and Consumer Commission
AR	Annual revenue
Code	National Electricity Code
DRP	Draft Statement of Principles for the Regulation of Transmission Revenues
FI	Financial incentive
Guidelines	Service Standards Guidelines
MAR	Maximum allowed revenue
NEM	National Electricity Market
SKM	Sinclair Knight Merz
S	Service standards factor
TNSP	Transmission network service provider

1 Application of the Service Standards Guidelines

These guidelines will:

1.1 be used by the ACCC to decide the service standards component of transmission revenue cap decisions as required by the code

1.2 provide guidance about the approach the ACCC will take in setting performance-incentives within each transmission revenue cap decision

1.3 provide guidance to TNSPs about the service quality information to provide in its revenue cap application

1.4 provide TNSPs with guidance about the information it should give the ACCC annually, to indicate its compliance with the incentive component of the transmission revenue cap decision.

2 The ACCC's treatment of service standards

The ACCC will include a performance-incentive component in each transmission revenue cap decision.

2.1 The ACCC will use the TNSP's performance history to set performance targets within each revenue cap decision. If this performance history is not available the ACCC will use other appropriate information to set targets (see 2.2 of these guidelines). The performance measures will include:

- circuit availability
- average outage duration
- frequency of 'off-supply' events
- inter-regional constraints
- intra-regional constraints.

These performance measures are defined in Schedule 1—Definitions of performance measures.

2.2 In the case this information is not available, the ACCC may:

- use an appropriate benchmark to set performance targets and incentives for each performance measure
- apply other methods to set performance targets and incentives
- consider the TNSP's request to include additional and/or amendments to performance measures when it makes its transmission revenue cap decision.

2.3 The ACCC may consider additional performance measures.

2.4 The ACCC will decide the appropriate performance targets before the regulatory period begins.

2.5 The ACCC will decide the financial incentives before the regulatory period begins.

2.6 The ACCC may decide collars and caps to limit the financial incentives.

2.7 The ACCC may decide to use performance dead-bands around performance targets, where appropriate.

2.8 The ACCC will use an open and transparent decision making process.

2.9 The ACCC will audit the annual compliance of the TNSP.

3 Information for the revenue cap decision

The following outlines the information the ACCC requires the TNSP to report to make a transmission revenue cap decision.

3.1 The TNSP's performance for, at least, the three years before its revenue cap application.

- The TNSP should report this information annually in the two months after the service standards reporting year ends
- This should include those five measures as described in section 2.1 of these guidelines.

3.2 Where the TNSP applies for additional performance measures, it must:

- demonstrate why such the proposed performance measure would be supported by other NEM participants
- provide its performance history of the most recent three years as measured by its proposed performance measure
- recommend performance-incentives for its proposed performance measure
- propose a weight relative to the base performance measures, for the proposed measure.

4 Information for annual compliance

The TNSP should report its annual performance to indicate its compliance with the ACCC's revenue cap decision by providing the following information.

4.1 Annual performance for the period of the revenue cap decision as measured by the performance measures decided by the ACCC in the revenue cap decision. Performance over time should be reported according to the same definition.

- TNSPs' must report their actual performance before any exclusion. They may apply to the ACCC to exclude events giving reasons. If the ACCC decides to exclude them, then they will be clearly identified and shown separately.

4.2 A list of events that the TNSP believes should be excluded from the performance measurements clearly showing, for each event:

- description
- description of the impact
- quantification of the impact of on the network and performance
- the reasons for exclusion request

4.3 Calculation of the financial incentive as per the revenue cap decision.

4.4 The TNSP should report this information annually in the two months after the reporting period ends.

5 Annual performance statement

The ACCC intends to annually release a summary of each TNSP's performance results.

5.1 The objective of the annual performance statement is to provide information to the market.

5.2 Looking forward, the statement will include a table of performance results as measured by the five performance measures described in section 2.1 of these guidelines and any additional measures included in the TNSPs revenue cap.

5.3 The ACCC will give each TNSP the opportunity to provide a commentary on the reported performance results and include this commentary in the annual performance statement.

Schedule 1—Definitions of performance measures

Measure 1	**Transmission circuit availability**
Sub-measures	Transmission circuit availability (critical circuits) Transmission circuit availability (non-critical circuits) Transmission circuit availability (peak periods) Transmission circuit availability (intermediate periods) Transmission lines Transmission transformers Transmission reactive
Unit of measure	Percentage of total possible hours available.
Source of data	TNSP outage reports and system for circuit availability Agreed Schedule of Critical Circuits and plant Nominated peak/off-peak hours Currently peak-7:00 am to 10:00 pm weekdays Or as otherwise defined by the TNSP/NEMMCO Off peak-all other times May include intermediate time periods and seasonal periods
Definition/formula	Formula: $\left(\frac{\text{No. hours per annum defined (critical/non - critical) circuits are available}}{\text{Total possible no. of defined circuit hours}}\right)\times 100$ Definition: The actual circuit hours available for defined (critical/non-critical) transmission circuits divided by the total possible defined circuit hours available. Note that there shall be an annual review of the nominated list of critical circuits/system components
Exclusions	Exclude unregulated transmission assets. Exclude from 'circuit unavailability' any outages shown to be caused by a fault or other event on a '3rd party system' e.g. intertrip signal, generator outage, customer installation (TNSP to provide list) Excluded force majeure events
Inclusions	'Circuits' includes overhead lines, underground cables, power transformers, phase shifting transformers, static var compensators, capacitor banks, and any other primary transmission equipment essential for the successful operation of the transmission system (TNSP to provide lists) Circuit 'unavailability' to include outages from all causes including planned, forced and emergency events, including extreme events

Measure 2	**Loss of supply event frequency index**
Unit of measure	Number of significant events per annum
Source of data	TNSP outage reports and system for circuit availability
Definition/formula	Number of events greater than x system minutes per annum Number of events greater than y system minutes per annum Such that: • a x system minutes event has a return period of one year • a y system minutes event has a return period of two years
Exclusions	Exclude unregulated transmission assets (e.g. some connection assets) Exclude any outages shown to be caused by a fault or other event on a 'third party system' e.g. intertrip signal, generator outage, customer installation Planned outages Excluded force majeure events
Inclusions	All unplanned outages exceeding the specified impact (that is, x minutes and y minutes) Includes outages on all parts of the regulated transmission system Includes extreme events

Measure 3	**Average outage duration**
Sub-measures	Transmission lines Transmission transformers/plant
Unit of measure	Minutes
Source of data	TNSP Outage Reporting System
Definition/formula	Formula: $\frac{\text{Aggregate minutes duration of all unplanned outages}}{\text{No. of events}}$ Definition: The cumulative summation of the outage duration time for the period, divided by the number of outage events during the period
Exclusions	Planned outages Excludes momentary interruptions (< one minute) Excluded force majeure events
Inclusions	Includes faults on all parts of the transmission system (connection assets, interconnected system assets) Includes all forced and fault outages whether or not loss of supply occurs

Measure 4	**Transmission constraints (Intra-regional)**
Unit of measure	Hours per annum
Source of data	NEMMCO and TNSP
Definition/formula	Formula: Aggregate number of hours per annum that binding constraints exist on any part of the interconnected transmission system within a region (excludes interconnectors)
Exclusions	Hours of binding constraints at or near (>95 per cent) the capacity determined by the constraint equation describing all transmission elements in service Excludes connection assets Hours of binding constraints where non-credible generation contingencies coincide with previously notified planned outages Excluded force majeure events
Inclusions	Includes binding constraints requiring 'out-of-merit-order' scheduling of generation or rotational load shedding Includes binding constraints from all causes including planned, forced and emergency events, including extreme events

Measure 5	**Transmission constraints (Inter-regional)**
Unit of measure	Hours per annum
Source of data	NEMMCO and TNSP
Definition/formula	Formula: Aggregate number of hours per annum that binding constraints exist on an inter-regional interconnector. Hours of binding constraints to be accumulated against 'importing' TNSP.
Exclusions	Hours of binding constraints at or near (>95 per cent) the capacity determined by the constraint equation describing all transmission elements in service Hours of binding constraints where non-credible generation contingencies coincide with previously notified planned outages Any event which was clearly as a consequence of action or inaction of another TNSP Excluded force majeure events
Inclusions	Events where binding constraints occur due to unavailability of interconnector support assets Includes binding constraints from all causes including planned, forced and emergency events, including extreme events

Schedule 2—Definition of force majeure

For the purpose of applying the service standards performance-incentive scheme, 'force majeure events' means any event, act or circumstance or combination of events, acts and circumstances which (despite the observance of good electricity industry practice) is beyond the reasonable control of the party affected by any such event, which may include, without limitation, the following:

- fire, lightning, explosion, flood, earthquake, storm, cyclone, action of the elements, riots, civil commotion, malicious damage, natural disaster, sabotage, act of a public enemy, act of God, war (declared or undeclared), blockage, revolution, radioactive contamination, toxic or dangerous chemical contamination or force of nature

- action or inaction by a court, government agency (including denial, refusal or failure to grant any authorisation, despite timely best endeavour to obtain same)

- strikes, lockouts, industrial and/or labour disputes and/or difficulties, work bans, blockades or picketing

- acts or omissions (other than a failure to pay money) of a party other than the TNSP which party either is connected to or uses the high voltage grid or is directly connected to or uses a system for the supply of electricity which in turn is connected to the high voltage grid

- where those acts or omissions affect the ability of the TNSP to perform its obligations under the service standard by virtue of that direct or indirect connection to or use of the high voltage grid.

In determining what force majeure events should be 'Excluded force majeure events' the ACCC will consider the following:

- Was the event unforeseeable and its impact extraordinary, uncontrollable and not manageable?

- Does the event occur frequently? If so how did the impact of the particular event differ?

- Could the TNSP, in practice, have prevented the impact (not necessarily the event itself)?

- Could the TNSP have effectively reduced the impact of the event by adopting better practices?