

# Note

## Network Planning

### Network Demand Management Consultation Working Group

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#### 1 Introduction

The Independent Pricing and Regulatory Tribunal of New South Wales (the Tribunal) currently regulates pricing for electricity distribution services in New South Wales under the National Electricity Code. On 11 June 2004, the Tribunal released a final report and final determination in relation to network pricing over the period 1 July 2004 to 30 June 2009.

The report and determination set out actions and decisions designed to provide incentives for *network* demand management. These decisions include establishing a working group to examine distribution network service providers' (DNSPs) network planning processes.

The final report discusses a number of issues related to network planning in the context of the determination and demand management. It notes a range of issues that the Tribunal decided should be considered by a working group. The final report set out the following working group objectives:

- promote greater clarity in network planning processes as to the treatment of investment in non-network projects and demand management
- clarify how the regulatory framework assesses the prudence of investments in non-network projects and demand management
- identify any changes required to ensure the regulatory framework consistently assesses the prudence of investments in non-network projects and demand management
- identify options for encouraging more open processes that allow DNSPs to test the market for demand management solutions
- identify means of reflecting the option value benefits from demand management projects in project assessment and ensuring the regulatory framework recognises these benefits in assessing prudence.

In October 2004, the Tribunal established a demand management consultation group to develop principles and guidelines on a number of matters and to consider the network planning processes.

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#### 2 Purpose and scope of note

This note summarises the demand management consultation group's analysis, findings and recommendations in relation to network planning processes and the matters raised in the final report.

The recommendations include matters and actions to be considered by the Tribunal. The recommendations also include actions to be taken by other stakeholders outside the regulatory framework.

The note focuses on network planning processes in the context of the Tribunal's determination and final report. The note is targeted at the specific objectives set out in the final report and is not a comprehensive review of network planning processes in relation to demand management.

The structure of the note is set out below.

**Table 1 – Structure of note**

Ref	Section	Details
3	Context	Provides information and extracts from the final report that affected the analysis and recommendations in this note
4	Principles and analysis	Sets out the principles factored into the group's recommendations. Summarises a number of points raised and issues considered by the group and of relevance to the findings and recommendations
5	Findings and recommendations	Summarises the group's findings and recommendations on network planning processes

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### 3 Context

The recommendations and findings set out in this note explicitly considered the following contextual issues and work:

- issues noted in the Tribunal's final report
- work undertaken and completed since the determination and final report on the NSW Demand Management Code, including the formal issuing of this Code and the change in its regulatory status for DNSPs
- broader obligations on DNSPs, including through the National Electricity Code
- work being undertaken on developing guidelines for avoided distribution costs and foregone revenue.

These issues are briefly discussed below.

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#### 3.1 Tribunal's final report

The Tribunal's final report on NSW Electricity Distribution Pricing 2004/05 to 2008/09 sets out the Tribunal's decisions associated with providing incentives for network demand management.

Extracts from the final report of particular relevance to network planning processes are set out in Table 2.

**Table 2 – Final report references**

Reference	Details
8.3.6 A working group will be established to examine DNSP network planning processes	As the Tribunal's 2002 demand management inquiry identified, one of the major barriers to the greater use of demand management options is a culture within DNSPs that favours traditional engineering solutions. For this reason, the Tribunal's report on this inquiry recommended that it work with DNSPs and other stakeholders to develop planning processes that allow better consideration of demand management by DNSPs.  The Tribunal is of the view that there are significant benefits to be gained

Reference	Details
	<p>by improving DNSPs' network planning processes. For example, DNSPs face a difficult planning task in terms of providing sufficient capacity in their network to meet demand that is inherently uncertain over time. In some cases, they have augmented networks to meet an anticipated growth in demand, only to see that demand disappear as a result of dips in economic activity, leaving them with excess network capacity. One of the advantages of demand management projects is that they might allow DNSPs to defer network investments until demand conditions are more certain or established. The demand management project therefore has an 'option value' benefit. The Tribunal would like to work with DNSPs to ensure that this option value benefit is adequately reflected in their network planning processes, and to ensure that the regulatory framework recognises these benefits when assessing the prudence of capital expenditure.</p> <p>There is also a need for the market to play a greater role in promoting demand management solutions. This requires DNSPs to embrace more open processes where they test the market through standard offers rather than relying on internal assessment processes.</p> <p>To help capture these benefits, the Tribunal has decided to establish a network planning working group. The working group will involve members of the Tribunal's secretariat, DNSPs and other relevant stakeholders. Its objectives will be to:</p> <ul style="list-style-type: none"> <li>▪ promote greater clarity in network planning processes as to the treatment of investment in non-network projects and demand management</li> <li>▪ clarify how the regulatory framework assesses the prudence of investments in non-network projects and demand management</li> <li>▪ identify any changes required to ensure the regulatory framework consistently assesses the prudence of investments in non-network projects and demand management</li> <li>▪ identify options for encouraging more open processes that allow DNSPs to test the market for demand management solutions</li> <li>▪ identify means of reflecting the option value benefits from demand management projects in project assessment and ensuring the regulatory framework recognises these benefits in assessing prudence.</li> </ul> <p>It is expected that the working group will finalise a methodology soon after the commencement of the 2004-09 determination period, to provide the greatest amount of certainty for DNSPs faced with capital expenditure decisions. The results of the working group process that have implications for the regulatory framework will be submitted to the Tribunal for its consideration and published as a guideline.</p>

### **3.2 Legal and regulatory obligations**

The DNSPs' network planning processes are impacted by a range of legal and regulatory requirements and by broader community and stakeholder expectations.

Table 3 below identifies a range of legislation and regulations relevant to the network planning processes associated with non-network solutions and demand management.

The NSW Demand Management Code of Practice 2004 and the National Electricity Code are of particular relevance to this note. These are discussed in sections 3.3 and 3.4 respectively.

**Table 3 – Examples of relevant legislation, regulations, codes and guidelines**

<b>National</b>	National Electricity Code ACCC Regulatory Test Statement of Principles for the Regulation of Electricity Transmission Revenues (August 2004)
<b>New South Wales</b>	NSW Electricity Supply Act 1995 NSW Demand Management Code of Practice 2004 NSW Treasury Total Asset Management Guidelines Tribunal Guidance on Prudency Test for Capital Expenditure by Electricity Distributors, IPART, letter to DNSPs, 2001 Energy Services Corporations Act 1995 State Owned Corporations Act 1989 Electricity Safety (Safety & Network Management) Regulation 2002

In accordance with the Electricity Supply (Safety & Network Management) Regulation 2002 a DNSP must prepare and implement the following plans:

- Network Management Plan
- Customer Installation Safety Plan
- Public Electrical Safety Awareness Plan
- Bush Fire Risk Management Plan.

DNSPs are required to prepare comprehensive Energy Network Performance Reports (the "report") on the DNSP's performance against each of the above four plans; this report is usually prepared annually. Department of Energy, Utilities and Sustainability (DEUS) specifies the content of this report in an outline document issued to DNSPs each year. The report must also be independently appraised to assure the integrity of information supplied. The report is submitted to DEUS and published on the DNSP's web site. The report includes details of the DNSP's activities and achievements in the area of demand management.

In addition, DNSPs must also adhere with licence conditions imposed by the *Electricity Supply Act 1995*, regulations under that Act, as well as licence conditions imposed by the Minister. One such Ministerially-imposed licence condition requires DNSPs, prior to expanding their distribution systems or capacity of their systems, to investigate whether implementation of cost-effective demand management initiatives would avoid or postpone the expansion. DNSPs must also prepare and publish annual reports in relation to these investigations. These activities are generally undertaken in accordance with the NSW Demand Management Code of Practice.

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### **3.3 The NSW Demand Management Code**

Since the final report and determination, the Demand Management for Electricity Distributors, NSW Code of Practice, September 2004 (the "NSW demand management code") has been finalised and issued to DNSPs.

The NSW demand management code is a comprehensive document. The NSW demand management code requires the DNSPs to:

- "publish information that makes transparent the underlying assumptions and decision-making process relating to investments that expand their distribution networks;
- publish detailed information regarding the need for network expansion in a way that enables interested parties to identify likely locations of forthcoming constraint;
- use a formal process to determine whether demand management investigations are warranted for identified emerging constraints, and publish the results;
- carry out demand management investigations that provide opportunities for market participation;
- analyse demand management and network expansion options on an equal basis according to the published methodology and assumptions and publish the result of those determinations;
- implement demand management options where they are determined to be cost effective; and
- prepare and publish reports on these activities annually."

It was prepared by a working group comprising the NSW DNSPs, the NSW transmission network service provider (TNSP), the NSW economic regulator, electricity user representatives, environmental and consumer groups and a university representative, chaired by Integral Energy and facilitated by DEUS.

The purpose of the NSW demand management code is to provide guidance to DNSPs in implementing the requirement in the NSW *Electricity Supply Act 1995* to investigate and report on demand management strategies when it "would be reasonable to expect that it would be cost-effective to avoid or postpone the expansion [of a distribution system] by implementing such strategies".

DNSPs are required (under Clause 6 of the Electricity Supply (Safety and Network Management) Regulation 2002) to take the NSW demand management code into account in the development and implementation of their network management plans. Revised network management plans were to be lodged by 1 January 2005.

This requirement means that:

- in developing and implementing its network management plan, the DNSP must take into account the NSW demand management code
- the network management plan must specify where it or its implementation departs from the provisions of the NSW demand management code and, if so, what arrangements are in place to ensure an equal or better outcome.

The revised NSW demand management code (September 2004) replaces the earlier code (May 2001). Important changes include:

- greater focus on transparency and disclosure, including specification of a range of tables and maps to be produced by DNSPs as part of the planning and procurement process
- specification of recommended processes for procuring network support through demand management, including negotiable and standard offers
- commenting on matters to be taken into account in analysing the relative costs and benefits of the demand management and network options
- the change in legal status. The NSW demand management code has been formally issued in accordance with Clause 6 of the Electricity Supply (Safety and Network Management) Regulation 2002 and must be taken into account by the DNSP in developing and implementing the network management plans.

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### **3.4 National Electricity Code**

The National Electricity Code includes a number of obligations on DNSPs and TNSPs in relation to network planning and development. Examples of these obligations are set out in Table 4 below.

**Table 4 – National Electricity Code obligations**

<b>Planning and development obligations of DNSPs</b>	<ul style="list-style-type: none"> <li>▪ Forecasts for connection points to transmission network- clause 5.6.1</li> <li>▪ Analysing expected future operation of network and joint involvement with TNSPs in annual planning review 5.6.2(a),(b)(c) and (d)</li> <li>▪ Identifying and notifying of the need for augmentations as part of annual planning review or as a result of separate analysis –Clause 5.6.2(e)</li> <li>▪ Consultation on, and analysis of, distribution network augmentations- Clause 5.6.2(f)</li> <li>▪ Carrying out economic cost effectiveness analysis –clause 5.6.2(g)</li> <li>▪ Preparation of Report- Clause 5.6.2(h)</li> <li>▪ Code Participants may dispute recommendations- clause 5.6.2(i)</li> <li>▪ Impact of augmentation on connection agreements clause 5.6.2(l)</li> <li>▪ Implementation of generation option 5.6.2(m)</li> <li>▪ Link between distribution network planning and price setting process(5.6.2(k) (5.6.2(m)).</li> </ul>
<b>Planning and development obligations of TNSPs</b>	<ul style="list-style-type: none"> <li>▪ Forecasts for connection points to transmission network- Clause 5.6.1</li> <li>▪ Analysing expected future operation of network and joint involvement with DNSPs in annual planning review – Clauses 5.6.2(a)(b)(c) and (d)</li> <li>▪ Identifying and notifying of need for augmentations as part of annual planning review or as a result of separate analysis- Clause 5.6.2(e)</li> </ul>

- Annual Planning Report 5.6.2A
- New Small Network Assets – Clause 5.6.6A
- New small network assets not included in Annual Planning Report or materially changed since reported in Annual Planning Report – Clause 5.6.2A(b)
- New large network assets- Clause 5.6.6
- Dispute may be raised as to whether a “reliability augmentation” and satisfaction of regulatory test – Clauses 5.6.6(h) and 5.6.6.(l)
- Further or initial dispute may be raised that regulatory test not satisfied but only if new large network asset is not a reliability augmentation 5.6.6(l)
- Implementation of generation option - Chapter 6 (5.6.2(m)).

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### **3.5 Guidelines for avoided distribution costs and foregone revenue**

In addition to considering network planning processes, the demand management consultation group has also developed guidelines on the calculation of avoided distribution costs and the methodology for calculating foregone revenue in the context of the D-factor arrangements. These guidelines clarify points about calculation and assessment of costs associated with demand management measures. As such, these guidelines clarify how the regulatory framework assesses non-network projects and demand management.

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## **4 Principles and analysis**

### **4.1 Principles applied by group**

In assessing the issues identified by the Tribunal in relation to network planning processes, the working group considered the following principles:

- The over-riding objective of facilitating demand management and the need to ensure that effort and costs are aimed at achieving appropriate demand management outcomes rather than administrative processes where these do not have a clear link with outcomes.
- The need for regulatory guidelines and detailed specifications to, where possible, take account of and evolve in response to practical problems and issues.
- The need to avoid duplication of obligations or priorities with other codes, guidelines and regulations, both external and internal to the DNSPs.

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### **4.2 Analysis of issues**

The following table summarises the working group's analysis in relation to each of the objectives and issues raised in the final report.

Issue	Analysis
<ul style="list-style-type: none"> <li>▪ Promote greater clarity in network planning processes as to the treatment of investment in non-network projects and demand management</li> </ul>	<p>The 2004 NSW demand management code sets out comprehensive guidelines for the DNSPs on how the opportunities for non-network projects and demand management should be considered in the network planning process. Stakeholders assessed that application of this code (or equivalent) would significantly improve the clarity about how decisions were made.</p> <p>The National Electricity Code also places numerous obligations on the DNSPs' planning processes. In particular, the National Electricity Code requires the DNSPs to consult with interested parties and to undertake an economic cost effectiveness analysis of options, including non-network, to address an emerging constraint on their networks.</p> <p>The working group assessed that no further guidelines or prescription was required at this stage to clarify the approach being taken by the DNSPs in network planning processes as to the treatment of investment in non-network projects and demand management.</p> <p>The group noted that documents such as the network management plans would demonstrate the approach to network planning. The need for further guidelines could be re-considered following experience with development of network management plans and implementation of the associated projects.</p>
<ul style="list-style-type: none"> <li>▪ Clarify how the regulatory framework assesses the prudence of investments in non-network projects and demand management</li> <li>▪ Identify any changes required to ensure the regulatory framework consistently assesses the prudence of investments in non-network projects and demand management</li> </ul>	<p>The prudence of investments is assessed by the Tribunal as part of the decision on the roll-forward of the regulatory asset base at the time of the regulatory review.</p> <p>The Tribunal will assess the prudence of non-network projects and demand management on the same basis and utilise the same principles and processes as those used to assess the prudence of network investments.</p> <p>The National Electricity Code also requires the DNSPs to undertake an economic cost effectiveness analysis of potential options, including non-network, to address an emerging constraint. When assessing the prudence of investments the Tribunal takes into consideration the National Electricity Code obligations of the DNSPs.</p> <p>The Tribunal's decisions on the regulatory framework as part of the determination were designed to facilitate demand management. As such, the regime provides incentives for the DNSPs to invest in demand management projects and therefore increases the economic attractiveness and viability of projects (relative to the economic assessment of the</p>



	<p>project without D-factor regime).</p> <p>In addition, the Tribunal's decisions consciously note that, in assessing the avoided distribution costs and other aspects related to demand management measures, the Tribunal will be considering the information that existed at the time the decision was made. The final report notes that a decision to invest in a demand management measure that, on implementation, did not achieve the reasonably expected benefits, would still be compensated for under the D-factor regime. As such, there is clear direction that prudence will not be reconsidered <i>ex post</i>.</p> <p>The valuation of avoided distribution costs and foregone revenue are being addressed in separate guidelines. These separate guidelines provide DNSPs and interested parties with clarity on how the Tribunal will assess the calculation of avoided distribution cost and foregone revenue, including how information on these parameters may be considered by the Tribunal early on in the network planning processes, particularly once the business cases for demand management measures have been developed.</p> <p>As set out in the avoided distribution costs and foregone revenue guidelines, there would be benefits in providing opportunities for the DNSPs to seek the Tribunal's preliminary assessment on aspects of its network planning processes once the business cases for demand management measures have been developed.</p> <p>The working group concluded that further clarification on prudence was not required and that no changes were required to the regulatory framework.</p>
<ul style="list-style-type: none"> <li>▪ Identify options for encouraging more open processes that allow DNSPs to test the market for demand management solutions</li> </ul>	<p>The options for considering processes that are more open were considered in detail as part of developing the NSW demand management code.</p> <p>The working group considered that application of the processes in the NSW demand management code, or similar, could significantly improve "openness" and increase the incidence of DNSPs testing the market for demand management solutions. The group considered that the perception of greater openness might be facilitated through broader "publishing" of demand management solutions undertaken by the DNSPs – including both successes and failures.</p>
<ul style="list-style-type: none"> <li>▪ Identify means of reflecting the option value benefits from demand management projects in project assessment and</li> </ul>	<p>DNSPs reported that option value benefits of demand management measures are currently taken into account in network planning; demand management can provide flexibility for delay and deferral of network assets. At the</p>

<p>ensuring the regulatory framework recognises these benefits in assessing prudence</p>	<p>same time, demand management can be considered as a fallback or further option in the event a network solution is not feasible or is delayed.</p> <p>The group considered that a more formal assessment of “option value” from a risk management or actuarial perspective was not necessary at this stage. However, it was important that network planning processes and the resulting network management plans demonstrated how demand management and non-network projects had been factored into the DNSP’s analysis.</p>
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### 4.3 Least cost network planning

An issue raised during the broader consultation on the draft guidelines and network planning note was the role of the network planning note in ensuring the DNSPs’ networks are being developed in a cost effective method; in particular, ensuring that, all things being equal, demand management and other non-network options are chosen over network options where they are the most cost effective alternative.

The network planning note highlights existing regulatory obligations on the DNSPs’ network planning processes; in particular, those imposed by the revised NSW demand management code and the National Electricity Code. These obligations on the DNSPs include: the need to consider and assess non-network options when developing their networks; and to consult with interested parties on the outcome of their assessments. The National Electricity Code requires the DNSPs to develop their networks in a cost effective method.

In addition, as raised during the consultation process, the DNSPs are subject to commercial scrutiny through the normal management and board governance processes.

The prudence of investments is assessed by the Tribunal as part of the decision on the roll-forward of the regulatory asset base at the time of the regulatory review.

The Tribunal when assessing the prudence or efficiency of DNSPs’ investments would seek verification that the DNSPs are developing their network in a cost effective manner. Furthermore, the Tribunal would seek verification that the DNSPs are considering both network and non-network solutions to address constraints on their networks. DNSPs that are not developing their networks in a least-cost method run the risk of having investments excluded from their asset bases at the time of the next regulatory review.

The Tribunal wrote to the DNSPs in November 2001 setting out guidance on a prudency test for capital expenditure<sup>1</sup>. This letter notes that:

“Prudency requires that the capital expenditure option and its timing be consistent with good industry practice given:

- current and projected capacity
- current condition of assets and renewal requirements

<sup>1</sup> A copy of the letter can be found on the Tribunal’s website, [www.ipart.nsw.gov.au](http://www.ipart.nsw.gov.au).

- alternatives of contracting for support through demand management and distributed generation.”

When undertaking its total cost review as part of the 2004 network pricing determination the Tribunal engaged a consultant to review the prudence of the DNSPs' past capital expenditure and the efficiency of their forecast capital projects. The consultant's terms of reference required them to consider “the potential to contract for distributed generation and/or demand management to defer or reduce network capital expenditure” when assessing the prudence and efficiency of the DNSPs' capital projects. The terms of reference also required the consultant to comment on the DNSPs' compliance with the NSW demand management code (the 2001 version).

In addition, the terms of reference required the consultant to:

“...assess the rigour of the DNSP's approach to managing their assets and developing their asset plans having regard to the following:

- least cost planning.”

The Tribunal will consider its previous advice on the prudence of investment to see if it needs to provide further guidance on its approach to the DNSPs and stakeholders. In particular, the Tribunal will consider the issue of assessing prudence and comparing network and non-network projects in light of the demand management incentives contained within the 2004 network pricing determination. The Tribunal would conduct such an assessment over the coming months and inform stakeholders of its outcome.

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## **5 Summary of findings and recommendations**

The working group's findings in relation to network planning processes, given the developments and progress made since the Tribunal's determination, were as follows:

- No further guidelines or prescription is required to clarify the DNSPs' approach to the treatment of investment in non-network projects and demand management.

Greater clarity has already been achieved through the combination of D-factor arrangements and associated decisions, and the guidelines being developed for avoided distribution costs and foregone revenue.

- No regulatory changes or further clarification on prudence is required.

Greater clarity is achieved through the avoided distribution cost and foregone revenue guidelines, and the Tribunal's advice of 2001 on assessing the prudence of investments. However, the Tribunal will consider its previous advice on the prudence of investments and determine whether it needs to provide further guidance to stakeholders.

- No further guidelines are required to encourage open processes.

DNSPs are now required to take into account the requirements and protocols of the NSW demand management code in developing and implementing their network management plans.

- A more formal assessment of "option value" from a risk management or actuarial perspective is not necessary.

Consistent with these findings, the working group's recommendations in relation to network planning processes were as follows:

- If appropriate, the need for guidelines on network planning processes should be reviewed following implementation of the revised framework for demand management and application of the D-factor regime in 2006 and 2007.

There would be benefits in providing opportunities for the DNSPs to seek the Tribunal's preliminary assessment on aspects of its network planning processes once the business cases for demand management measures have been developed (see the foregone revenue and avoided distribution costs guidelines).

In addition, there may be some benefits in the Tribunal reviewing the DNSP's network management plans to gain a better understanding of how consideration of demand management solutions are being incorporated in the DNSPs planning processes. Neither of these actions would require changes to the regulatory framework.

- The perception of greater openness may be facilitated through broader "publishing" of demand solutions undertaken by the DNSPs – including both successes and failures. However, the determination did not consider mandating the provision of such information; therefore, the guidelines do not set out any specific obligations of this form.