NETWORKS PRICING:
2009 REGULATORY RESET

DRAFT DECISION PAPER:
PRICE CONTROL MECHANISM

MARCH 2008

Level 9, 38 Cavenagh Street Darwin NT 0800

GPO Box 915, Darwin NT 0801

utilities.commission@nt.gov.au

www.utilicom.nt.gov.au

Table of Contents

CHAPTER

1

INTRODUCTION

Background

1.1 Prices paid by network users for the conveyance of electricity through a prescribed electricity network in the Northern Territory are regulated under the Electricity Networks (Third Party Access) Code ("the NT Code")[1] which is a schedule to the *Electricity Networks (Third Party Access) Act 2000*.

1.2 Part 3 of the NT Code specifies the price regulation framework to be observed by the Commission (as the regulator) and by the network service provider[2] when setting the prices to be paid by network users. The Commission has been undertaking network price regulation under these provisions of the NT Code since 1 April 2000.

1.3 The network service provider in all regulated networks in the Northern Territory is the networks business division of the Power and Water Corporation ("Power and Water").

1.4 The current regulatory period – the second regulatory period – began on 1 July 2004 and ends on 30 June 2009. A regulatory period is defined in clause 3 of the NT Code as the period between major price reviews (or 'resets') during which time the price control mechanism used in setting network prices is held constant.

1.5 The third regulatory period is the five-year period commencing 1 July 2009. In the lead-up to the commencement of the third regulatory period, the NT Code requires the Commission as regulator – in consultation with interested parties – to review the price control mechanism used in the second regulatory period, with a view to modifying the price control mechanism as appropriate. The Commission is referring to the process of establishing the price control mechanism to apply from 1 July 2009 as the "2009 Reset".

1.6 The 2009 Reset was initiated by an Issues Paper published in October 2007. The Issues Paper sought to identify the main issues to be dealt with at the initial broad design stage of the Reset, and invited interested parties to add to or modify that list and to put forward preferred approaches.

1.7 Submissions on the Issues Paper were received from:

- Power and Water Corporation (Power and Water);
- Northern Territory Major Energy Users (NTMEU); and
- Northern Territory (NT Treasury).

[1] The NT Code can be viewed on the legislation page of the Commission's website (www.utilicom.nt.gov.au).

[2] The NT Code uses the term "network provider". References throughout this Paper to network service provider should be read as referring to the network provider, as defined in the Code.

Purpose of this Paper

1.8 This Paper presents the Commission's draft decision on price control mechanism issues ("draft Price Control Mechanism Decision"). The price control mechanism involves the practical and technical detail for the administration of network price regulation over which the Commission as regulator – in consultation with stakeholders – has a degree of discretion.

1.9 The final Price Control Mechanism Decision will be prepared following the Commission's consideration of the submissions received in response to this draft decision.

Content of the Paper

1.10 Chapter 2 provides an overview of the Commission's draft decision on the price control mechanism to apply to regulated electricity networks in the Northern Territory during the forthcoming regulatory period.

1.11 Chapter 3 addresses the central decisions regarding the price control mechanism to be applied during the forthcoming regulatory period, namely the form of the price control mechanism for standard control services.

1.12 The matters addressed in chapter 3 were the focus of the Issues Paper. As such, most of the matters addressed in the following chapters have not yet been subject to public consultation.

1.13 Chapter 4 outlines the procedures which the Commission proposes to follow in order to make its subsequent Determination giving effect to its final Price Control Mechanism Decision.

1.14 Chapter 5 addresses in detail matters associated with implementing the base year adjustment component of the price control mechanism for standard control services.

1.15 Chapter 6 addresses in detail matters associated with implementing the prospective CPI minus X component of the price control mechanism for standard control services.

1.16 Chapter 7 addresses in detail various matters associated with the determination and approval of individual network access tariffs.

Consultation process and timetable

1.17 When reviewing the price control mechanism, clause 62(2) of the NT Code requires the Commission:

> *"…to conduct all its determination and approval processes in an open, transparent and competitively-neutral manner, including by consulting with network users, end-use customers, members of the public and all licensed electricity entities that may be affected, directly or indirectly, by the resultant prices."*

1.18 The Commission is therefore required to determine the price control mechanism to be used in regulating network access prices in the third regulatory period by facilitating public consultation and promoting wide-ranging discussion of the issues by all stakeholders.

1.19 The timetable guiding the Commission's consultation process is now as follows:

Due Date	Event
18 April 2008	submissions due on the draft Price Control Mechanism Decision
2 May 2008	publication of the Commission's Final Decision on the price control mechanism to apply in the third regulatory period, and the accompanying regulatory information instrument
1 September 2008	submission by Power and Water of an initial regulatory proposal
mid October 2008	publication of the Commission's Draft Determination, based on whether or not it approves the initial regulatory proposal and, if not, what revisions would be required before a revised regulatory proposal could be approved by the Commission
mid November 2008	submissions due from all parties (including Power and Water) on the Draft Determination
31 December 2008	submission by Power and Water of a revised regulatory proposal, and publication
end March 2009	publication of the Commission's Final Determination, based on whether or not it approves the revised regulatory proposal and, if not, its own determination of the regulatory arrangements to apply during the third regulatory period

Submissions

Call for submissions

1.20 Submissions are invited from interested parties concerning the draft price control mechanism decision.

1.21 Submissions, comments or inquiries regarding matters arising should be directed in the first instance to:

Executive Officer
Utilities Commission
GPO Box 915
DARWIN NT 0801

Telephone: (08) 8999 5480
Fax: (08) 8999 6262
Email: utilities.commission@nt.gov.au

1.22 The closing date for submissions is **Friday, 18 April 2008**.

Confidentiality

1.23 In the interests of transparency and to promote informed discussion, the Commission intends to make submissions publicly available. However, if a person making a submission does not want their submission to be public, that person should claim confidentiality in respect of the document (or any part of the document). Claims for confidentiality should be clearly noted on the front page of the submission and the relevant sections of the submission should be marked as confidential, so that the remainder of the document can be made publicly available. In addition, a copy of the submission suitable for publication (i.e., with any confidential material removed) should also be provided.

Public access to submissions

1.24 Subject to the above, submissions will be made available for public inspection at the office of the Commission and on its website (www.utilicom.nt.gov.au).

1.25 To facilitate publication on the Commission's website, submissions should be made electronically by disk or email. However, if this is not possible, submissions can be made in writing.

1.26 Information about the role and current activities of the Commission, including copies of reports, papers and submissions, can also be found on the Commission's website.

CHAPTER

2

PRICE CONTROL MECHANISM: DRAFT DECISION

2.1 This chapter sets out the Commission's draft decision regarding the price control mechanism to apply during the third regulatory period. The constituent decisions[3] are developed in the following chapters. As such, this chapter only lists the decisions and provides no statement of reasons for those decisions.

2.2 The Commission recognises that the constituent decisions of the Final Determination required for the 2009 Reset, consistent with the draft Price Control Methodology Decision, are as set out in Appendix A.

Commission's draft decision

2.3 The financial variable subject to price control will be Power and Water's network prices rather than its network revenue.

2.4 The price cap form of price control will be based upon a 'tariff basket' and so the weighted average of each year's network access tariffs for standard control services.

2.5 Power and Water's network costs at the end of the second regulatory period will be subject to a rigorous zero-based assessment to determine whether a Po adjustment is warranted in order that the weighted average of network access tariffs to apply at the commencement of the third regulatory period are sufficient to recover the efficient costs of supply of regulated network access services.

2.6 The values of the relevant X factors to apply to the prospective CPI minus X basis of the control mechanism for standard control services will be as determined by the Commission. These X factors will be derived using a productivity-based approach rather than a multi-year building block approach.

2.7 The weighted average tariff for each individual end-use customer for a particular year of the regulatory period must not exceed the corresponding weighted average tariff for each individual end-use customer for the preceding regulatory year by more than a permissible percentage (i.e., the side constraint). For the third regulatory period the permissible percentage will be the greater of the following:

- CPI – X + Po plus 2%; and
- CPI plus 2%.

2.8 For the purposes of the 2009 Reset, to the maximum extent possible under the NT Code and consistent with the final Price Control Mechanism Decision, the Commission will follow the procedures which have recently been enshrined in the

[3] The constituent decisions are the decisions that are required to be made by the Commission for the 2009 Reset when the Commission makes its Final Determination.

National Electricity Rules[4] (Version 18) for arriving at a Final Determination, to achieve consistency with procedural practice now evident elsewhere in Australia in the regulation of infrastructure networks.

2.9 The following process will be followed by the Commission to arrive at the Final Determination:

- by 1 September 2008, within the constraints and guidance contained in the Commission's final Price Control Mechanism Decision (due to be published on 2 May 2008), Power and Water is required to submit an 'initial regulatory proposal';
- by mid-October 2008, the Commission will publish its draft determination, based on whether or not it approves the initial regulatory proposal and, if not, what revisions would be required before a revised regulatory proposal could be approved by the Commission;
- by mid-November 2008, submissions are due from all parties (including Power and Water) in response to the Commission's draft determination;
- by 31 December 2008, Power and Water is required to submit a 'revised regulatory proposal'; and
- by end-March 2009, the Commission will publish its final determination based on whether or not it approves the revised regulatory proposal and, if not, its own determination of the regulatory arrangements to apply during the third regulatory period.

2.10 The regulatory proposal must include (but need not be limited to):

- proposals in relation to all elements specifically required under the final Price Control Mechanism Decision; and
- an indication of the parts of the proposal (if any) Power and Water submits as confidential and not suitable for publication.

2.11 A single regulatory proposal is required covering all of Power and Water's regulated networks. However, proposed prices should be provided separately for each network.

2.12 In its revised regulatory proposal, Power and Water may only include revisions required to address matters raised by the draft determination or the Commission's statement of reasons.

2.13 The regulatory proposal must comply with the final Price Control Mechanism Decision and any accompanying relevant regulatory information instrument.

2.14 Unless the Final Decision (and its constituent decisions) expressly states the decision criteria that the Commission will apply with regard to a particular decision, the Commission will only refuse to approve an element of the regulatory proposal if it is inconsistent with the requirements or intent of the final Price Control Mechanism Decision or (otherwise and as applicable) the relevant provisions of chapter 6 of *National Electricity Rules* or the NT Code's pricing principles.

2.15 In general, the Commission will apply the following decision hierarchy. A proposal by Power and Water will be approved:

- first, where the proposal complies with the Commission's final Price Control Mechanism Decision (which, by definition, must be consistent with the NT Code in general and the NT Code's pricing principles in particular);

[4] The Version of the *National Electricity Rules* used by the Commission for the purposes of this Draft Decision can be viewed on the networks pricing page (2009 Regulatory Reset) of the Commission's website (www.utilicom.nt.gov.au). This version is an extract of the *National Electricity Rules* Version 18.

- secondly, where the proposal relates to a matter not specified in the final Price Control Mechanism Decision *but* is subject to a specific requirement in the NT Code, as long as it is consistent with the Code's requirement;
- thirdly, where the proposal relates to a matter not specified in the final Price Control Mechanism Decision *and* is not subject to any specific requirement in the NT Code, as long as it is consistent with the relevant provision of chapter 6 of the *National Electricity Rules*; and
- fourthly, where the proposal relates to a matter not specified in the final Price Control Mechanism Decision *and* is not subject to any specific requirement in either the NT Code or chapter 6 of the *National Electricity Rules*, as long as it is not inconsistent with the NT Code's pricing principles.

2.16 The regulatory proposal to be made by Power and Water must include, for direct control services classified under the proposal as standard control services, a Po building block proposal.

2.17 Power and Water's Po building block proposal must include its calculation of the Po adjustment factor to apply to the weighted average of network tariffs in the final year (2008/09) of the second regulatory period, together with:

- the total of the estimated operating expenditure for 2008/09 in accordance with clause 6.5.6(c) of the *National Electricity Rules*;
- the proposed rate of return, including any proposed departure from the values, methods or credit rating levels set out in the transitional chapter 6 of the *National Electricity Rules*[5] as applicable to the upcoming NSW and ACT determinations, including:
  - an equity beta (βe) of 1.0;
  - the market risk premium (MRP) of 6.0%;
  - the proportion of debt funding (D/V) of 0.6; and
  - the assumed utilisation of imputation credits (γ) of 0.5.
- the post-tax revenue model completed to show its application to Power and Water for the final year (2008/09) of the second regulatory period, and the completed roll-forward model;
- the cost of corporate income tax for the final year (2008/09) of the second regulatory period;
- the regulatory asset base for the final year (2008/09) of the second regulatory period based upon the regulatory asset base value of $350 million (as at 1 July 2002 in July 2002 dollars) rolled forward using the roll forward model referred to in clause 6.5.1 of the *National Electricity Rules*;
- the depreciation schedules nominated by Power and Water for the purposes equivalent of clause 6.5.5 of the *National Electricity Rules*, which categorise the relevant assets for these purposes by reference to well accepted categories such as:
  - asset class (e.g., distribution lines and substations); or
  - category driver (e.g., regulatory obligation or requirement, replacement, reliability, net market benefit, and business support), together with:

[5] The transitional arrangements for the ACT and NSW 2009-2014 distribution determinations are set out in appendix 1 to chapter 11 of the *National Electricity Rules*. The *National Electricity Rules* and the AER refer to this appendix as the 'transitional chapter 6'.

  - details and an explanation of the calculation of all amounts, values and other inputs used by Power and Water to compile those depreciation schedules, with default use of the straight-line depreciation method; and
  - a demonstration that those depreciation schedules conform with the requirements set out in clause 6.5.5(b) of the *National Electricity Rules*;
- the total annual revenue expected from all related network tariffs during the final year (2008/09) of the second regulatory period;
- all of which must be accompanied by:
  - details of all amounts, values and inputs relevant to the calculation;
  - an explanation of the calculation and the amounts, values and inputs involved in the calculation; and
  - a demonstration that each calculation, and the resultant amounts, values and inputs on which it is based, comply with relevant requirements of the Commission's final Price Control Mechanism Decision.

2.18 Power and Water's regulatory proposal must be consistent with the values of the CPI and the X factors applying to the control mechanism for standard control services as has been determined at the time by the Commission.

2.19 With regard to year-on-year movements in the weighted average of each year's network access tariffs for standard control services:

- cost pass through arrangements will apply if events occur which, if not passed through, could put at risk the efficiency of Power and Water's decisions and actions; and
- unless Power and Water proposes a service target performance incentive scheme, a "paper trial" only will be implemented for the third regulatory period.

2.20 Power and Water may propose an efficiency benefit sharing scheme to apply to the fourth regulatory period and a demand management scheme if it so wishes. Otherwise, no such schemes will be implemented.

2.21 Power and Water's regulatory proposal must include:

- a classification proposal:
  - showing how the network services to be provided by Power and Water should, in Power and Water's opinion, be classified under the classification in Part B, Division 1 of the *National Electricity Rules*; and
  - if the proposed classification differs from the current classification included in this Price Control Mechanism Decision – the reasons for the difference;
- for direct control services classified under the proposal as standard control services, a draft Network Pricing Principles and Methods Statement to apply to the setting of individual network tariffs;
- for direct control services classified under the proposal as alternative control services – the proposed control mechanism;
- for direct control services – for the regulatory year commencing 1 July 2009, the proposed Network Tariff Schedules consistent with all other elements of the regulatory proposal and using the values of the CPI and the X factors applying to the control mechanism for standard control services as determined at the time by the Commission (i.e., 'the initial pricing proposal'); and
- for services classified under the proposal as negotiated network services – the proposed negotiating framework.

2.22 The Commission will approve the estimated annual revenue requirement for the final year of the second regulatory period in relation to standard control services, as set out in Power and Water's current Po building block proposal, if the Commission is satisfied that those amounts have been properly calculated using:

- the post-tax revenue model on the basis of amounts calculated, determined or forecast in accordance with the requirements of the final Price Control Mechanism Decision or (otherwise) Part C of Chapter 6 of the *National Electricity Rules*; and
- with respect to the regulatory asset base, the roll forward model on the basis of amounts calculated, determined or forecast in accordance with the requirements of clause 6.5.1 of the *National Electricity Rules* (unless, in accordance with the final Price Control Mechanism Decision and independent of any DORC valuation, Power and Water can demonstrate that a further adjustment is required to ensure Power and Water's ongoing financial viability during the third regulatory period).

2.23 The Commission will approve the estimated revenue being raised during the final year of the second regulatory period from existing network tariffs applying to standard control services, as set out in Power and Water's current Po building block proposal, if the Commission is satisfied that those amounts have been properly calculated, determined or forecast in accordance with the requirements of the final Price Control Mechanism Decision or (otherwise) the NT Code's pricing principles.

2.24 If the Commission refuses to approve an amount or value required as part of the constituent decisions, the substitute amount or value on which the determination is based will be:

- determined on the basis of all approved components of the current regulatory proposal; and
- amended from that basis only to the extent necessary to enable it to be approved in accordance with the final Price Control Mechanism Decision or (otherwise and as applicable) the relevant provisions of chapter 6 of *National Electricity Rules* or the NT Code's pricing principles.

2.25 The classification of services will be the current classification as set out at Appendix C unless the Commission considers that, in the light of Power and Water's regulatory proposal and the submissions received, there are good reasons for departing from the current classification in order to meet the requirements in the NT Code or (otherwise) clause 6.2.1 of the *National Electricity Rules*.

2.26 The Commission will approve the control mechanism(s) proposed for alternative control services if it complies with the requirements of clause 6.2.5 of the *National Electricity Rules*.

2.27 The Commission will approve the proposed negotiating framework provided it is consistent with:

- the applicable requirements of the final Price Control Mechanism Decision;
- any applicable requirements of the NT Code, including the requirements in the Code's chapter 2 Negotiation of Access and chapter 3 Access Terms; and
- the minimum requirements for a negotiating framework listed in clause 6.7.5(c) of the *National Electricity Rules*.

2.28 The Commission will approve the draft Network Pricing Principles and Methods Statement submitted by Power and Water if the Commission is satisfied that this statement is consistent with:

- the applicable requirements of the final Price Control Mechanism Decision;
- any applicable requirements of the NT Code; and
- clause 6.18.3, clause 6.18.4 and clause 6.18.5 of the *National Electricity Rules*.

2.29 The Commission will approve Power and Water's annual pricing proposal for standard control services if the Commission is satisfied that the proposed tariffs in the Network Tariff Schedules:

- comply in full with the final Price Control Mechanism Decision; and
- in all other respects are consistent with the Network Pricing Principles and Methods Statement.

2.30 The Commission's approval of annual network tariffs will be conditional on Power and Water maintaining on its website:

- the approved Network Tariff Schedules for the relevant year; and
- a statement of expected network tariff trends (to be updated for each year) giving an indication of how Power and Water expects network tariffs to change over the regulatory period and the reasons for the expected changes.

CHAPTER

3

FORM OF PRICE CONTROL

Introduction

3.1 This chapter addresses the central decision in the methodology that will be applied in the 2009 Reset, namely the form of the price control mechanism for standard control services.

3.2 Whether the control is over prices or revenues (or both) is the first part of this decision.

3.3 The price or revenue variable used, whether any adjustments are to be made at the end of the preceding regulatory control period and the determinants of the allowed annual path (especially the X factor), form subsequent parts of the decision.

Price control variable

NT Code requirements

3.4 In the first regulatory period, the NT Code specified the form of price control, and hence prescribed the network price control mechanism to be used in some detail.

3.5 The NT Code is much less prescriptive in relation to the form of price control to be applied by the Commission during the second and subsequent regulatory periods. As a result, for the second regulatory period, the Commission adopted a price cap form of price control, rather than continue with the revenue cap approach used in the first regulatory period.

3.6 The requirements in the *National Electricity Rules* regarding the form of price control involved in the price control mechanism for standard control services are consistent with the NT Code's requirements. The control mechanism can impose controls over the prices of direct control services or the revenue to be derived from direct control services or both.

3.7 Specifically, under clause 6.2.5(b) of the *National Electricity Rules*, the price control mechanism may consist of:

- a schedule of fixed prices; or
- caps on the prices of individual services; or
- caps on the revenue to be derived from a particular combination of services; or
- tariff basket price control; or
- revenue yield control; or
- a combination of any of the above.

2004 price control mechanism

3.8 For the second regulatory period, the Commission adopted a price cap form of price control, rather than continue with the revenue cap approach used in the first regulatory period.

Commission's preliminary position

3.9 In its Issues Paper, the Commission put the view that the factors that attracted it to the price cap form of price control adopted in 2004 – and the value of continuity and consistency across periods – remains valid. Accordingly, the Commission proposed placing the principal focus of the 2009 Reset on the operational features of the price cap control mechanism adopted in 2004, rather than on a reconsideration of the form of price control.

Views expressed in submissions

3.10 Power and Water supported the continued use of the price cap form of price control, stating that it:

> *" • agrees that the focus of the Reset should take advantage of the learning that has taken place over the past four years and build on a working and successful regime; and*
>
> *• considers that the decisions taken by the Commission in 2004 in relation to the form of price control and other structural matters were robust, consistent with general regulatory precedent at that stage and have been successfully integrated into Power and Water's operational and business practices.*
>
> *There is no obvious reason to depart from the weighted average price cap form of regulation." (p.1)*

3.11 The NTMEU however expressed some concern over what it saw as the potential shortcomings of the price cap approach (as compared to a revenue cap approach). In particular, the NTMEU considered that the price cap approach:

- increases the incentive for Power and Water to 'game' the system, by manipulating tariffs in order to maximise revenue; and
- does not encourage efficient investment in the provision and use of the network, as it discourages demand management options and increases the likelihood of over investment in the network.

3.12 Manipulation of tariffs to maximize revenue is a major concern for the NTMEU:

> *"Price caps are readily amenable to manipulation. It has already been seen in other jurisdictions that regulated businesses devote considerable attention to setting of prices with services, in order to maximise revenue without providing any additional service. For example, in Victoria it was identified that by this practice alone, the electricity distribution businesses gained up to 5% more revenue (effectively unearned) by adjusting tariffs. This 5% increase in revenue effectively added some 50% to the profit expected by the regulator."(p.9)*

3.13 Nevertheless, the NTMEU acknowledged that these concerns could be alleviated as long as appropriate and effective Network Pricing Principles and Methods are adopted at the outset:

> *"… it is the attention provided to network pricing rather than the form of regulation that is critical. Thus the pricing rules setting out the appropriate pricing principles and the price guidelines setting out the pricing methodology that must be adopted by the distribution network business should be the main consideration …" (p.11)*

3.14 Also:

> *"If the UC considers that the basket of tariffs is the most economically efficient approach to tariff price movements, then it will be necessary to ensure that the initial tariffs are as close to cost reflectivity as possible." (p.18)*

3.15 Summarising its position, the NTMEU provided qualified support for the Commission's proposed approach:

> *"The NTMEU agrees, in the interests of certainty, that the price cap methodology applies to the 2009 Reset." (p.3)*

Commission's analysis and proposed decision

3.16 The Commission can see no grounds for reversing its decision in 2004 to move from a revenue cap to a price cap.

3.17 The Commission also remains reluctant to change an approach for which, in 2004, the benefits of continuity and consistency across periods were an important attraction.

3.18 The Commission understands the NTMEU's concerns in relation to the disadvantages of the price cap form of price control. Where there are variations in the growth rate in different tariff bases, an incentive to load price increases onto the tariffs with the fastest growing quantities can be created. There is also an incentive to load price rises on the least price responsive tariff categories.

3.19 However, there are also incentives for a regulated utility to align tariff structures with cost structures to minimise risk, which should mitigate the 'perverse' incentives to some extent.

3.20 Moreover, the potential for 'gaming' under the tariff basket and price cap approach is limited by the individual tariff approval arrangements put in place under the NT Code (the secondary price controls) and the Commission's capacity to intervene if it considers any proposed change in tariff structures to be inconsistent with the approved Network Pricing Principles and Methods Statement.

3.21 On balance, the Commission agrees with the NTMEU that Power and Water's proposed Network Pricing Principles and Methods Statement and the initial schedule of individual network access tariffs should be closely scrutinised. This issue is discussed further under chapter 7. In fact, the Commission has decided to consider Power and Water's Network Pricing Principles and Methods Statement, and resultant prices, as an integral part of the 2009 Reset. This is provided for in the processes outlined in chapter 4 and also dealt with in chapter 7, and will therefore make these aspects subject to the same degree of public consultation as the key price control mechanism decisions canvassed in this chapter.

3.22 Against this background, the Commission's proposes to retain the price cap form of price control.

Tariff basket price control mechanism

NT Code requirements

3.23 NT Code leaves the precise form of any price cap to the Commission (clause 66(1) of the NT Code).

3.24 Likewise, the *National Electricity Rules* say nothing beyond recognising in clause 6.2.5(b) that a tariff basket price control is a rule-compliant price control mechanism.

2004 price control mechanism

3.25 Under the 2004 price control mechanism, price control is exercised over the weighted average of individual network access tariffs (or 'the tariff basket'). Effectively, the method used for calculating the associated weighted average of network tariffs is to express a particular year's weighted average tariff in index form as a multiple of the previous year's average.

3.26 Specifically, under the 2004 price control mechanism:

- a single weighted average is calculated combining the network access tariffs for the regulated networks (Darwin/Katherine, Tennant Creek and Alice Springs); and
- each network access tariff is represented, and weighted according to quantities sold to customers in the most recent year for which actual figures are available (that is, effectively lagged two years).

3.27 Under the 2004 methodology, the index representing the weighted average of individual network access tariffs for each forthcoming year "t" is calculated as follows:

$$P_t = P_{t-1} * [\Sigma_{i=1...n}[p^i_t * q^i_{t-2}] / \Sigma_{i=1...n}[p^i_{t-1} * q^i_{t-2}]]$$

where:

P_{t-1} = the index value, set a year earlier, of the weighted average of individual network access tariffs approved for the current year;

p^i = the proposed or approved price (or price component) for an individual network access tariff item as the case may be; and

q^i = the quantity weight associated with the price (or price component) for the individual network access tariff item;

and:

the "i" superscript denotes an individual network access tariff item, or a component of an individual network access tariff item where a multi-part tariff is involved; and

the "Σ" symbol denotes the summation of all relevant values across all individual network access tariff items, or components of such items.

3.28 The approach to the introduction of new tariffs or tariff components in the 2004 price control mechanism requires Power and Water to estimate the quantities that would have been sold had the network tariff or tariff component been in place in the previous year. The Commission assesses the reasonableness of these estimates and the supporting evidence before determining the weights to apply to any new tariffs or tariff components.

3.29 The 2004 price control mechanism also requires Power and Water to introduce an explicit network tariff category for any customer being offered a discounted tariff in the same way as any other new tariff. Power and Water's proposed network tariffs to other customers on non-discounted tariffs may then be increased to the extent permitted by the tariff basket control. In this way, Power and Water is able to recover part of the cost to it of offering the discounted network tariff (subject to the negotiated prices meeting the Commission's discounting guidelines).[6]

Commission's preliminary position

3.30 To promote regulatory certainty and minimise regulatory risk, the Commission proposed in the Issues Paper to continue with the tariff basket approach and the use of two years' lagged quantity weights, unless any undesirable outcomes could be established.

3.31 For similar reasons, the Commission also proposed to continue with the current new-tariff arrangements, unless any undesirable outcomes could be established.

Views expressed in submissions

3.32 Power and Water supported continuation of the tariff basket approach and regarded the use of two years' lagged quantity weights as the only practical method to calculate quantity weights.

[6] The Commission's discounting guidelines are outlined in the *Framework for Negotiation of Discounted Network Tariffs*, May 2002.

3.33 The NTMEU stated that it had no reason not to support the tariff basket approach. However, the NTMEU again expressed concern that this approach could lead to the manipulation of tariffs in order to maximise revenue.

3.34 As to incorporating new tariffs into the tariff basket, Power and Water considered that the current new-tariff arrangements remain the most effective means to introduce new tariffs within a regulatory period.

3.35 The NTMEU had no objections to the current approach to the introduction of new tariffs, where such a change is necessary. However, the NTMEU considered that the frequency of introducing new network tariffs (and conversely, the removal of existing tariffs) by Power and Water should be restricted. The NTMEU argued that the introduction of new tariffs should only be considered:

- at the time of a reset;
- when there is a new service being provided; or
- when the basis for tariff setting has changed.

3.36 The NTMEU argued that, by encouraging tariff flexibility through the introduction of new tariffs and the removal of existing tariffs, network service providers are better able to manipulate tariffs in order to maximise revenue.

> *"There should be no reason for the introduction of a new tariff within the first 2-3 years of a period because if there is it implies that the business does not have a good understanding of the business it is in." (p.21)*

3.37 However, the NTMEU considered that this risk could be minimised by increased controls on the introduction of new tariffs as part of the tariff approval process.

> *"Overall, the NTMEU sees that its concerns could be addressed by the UC requiring very stringent controls on the introduction of new tariffs and the demise of old tariffs. As a matter of principle the UC should make it very clear to PWC that tariff changes are not expected to be made as it implies that PWC has not devoted sufficient attention to the matter during the reset review. To justify the introduction of a new tariff PWC should be required to demonstrate why the existing tariff is no longer even remotely applicable and why it did not raise this as an issue during the time of reset review." (p.22)*

Commission's analysis

3.38 Submissions broadly supported the continued use of a weighted average tariff basket. The Commission therefore sees no reason for change.

3.39 The Commission proposes to continue with the use of two years' lagged quantity weights. The use of quantity weights which are lagged two periods is well established regulatory practice, reflecting the availability of verifiable quantity data.

3.40 The development of new network tariffs or tariff components that better reflect cost or service characteristics is supported by the Commission. Tariff development that achieves improved economic cost signalling and hence resource allocation is a primary objective of network access pricing.

3.41 Nevertheless, the Commission would expect introduction of new network tariffs or tariff components to be an infrequent occurrence. Frequent and extensive changes to tariffs and tariff structures are generally undesirable. The Commission expects the approved Network Pricing Principles and Methods Statement will provide adequate discipline on the development of new tariffs or tariff components.

Adjustments to base year costs or revenues (Po adjustment)[7]

NT Code requirements

3.42 Neither the NT Code nor the *National Electricity Rules* place any particular requirements on the transition between one regulatory period and another. Consistency with the Code's or Rules' objectives and principles instead is the main requirement.

2004 price control mechanism

3.43 Under the 2004 price control mechanism, Power and Water's network costs were re-examined to ensure that the opening weighted average tariff at least recovered the efficient costs of supply of regulated network access services. As a result of this examination, a percentage adjustment (the Po adjustment) was applied to the weighted average of network access tariffs applying at the end of the first regulatory period in order to form an appropriate basis for network access tariffs at the commencement of the second regulatory period.

3.44 In choosing the form of price control applying during the second regulatory period, the Commission indicated that its desire was to put in place a price control mechanism that could continue to operate effectively over a number of subsequent regulatory periods and, in particular, provide a basis for the eventual transition towards a 'pure' price cap approach.[8] In effect, this indicated that Po adjustments were not expected to be automatic or even desirable.

Commission's preliminary position

3.45 In its Issues Paper, the Commission signalled its desire not only to retain the form of price control applied in 2004, which employed external efficiency benchmarks in preference to detailed cost projections, but also to extend the underlying logic by restricting the scope for base year (Po) cost of service adjustments.

Views expressed in submissions

3.46 Power and Water in effect argued for a repeat of the Po adjustment process on account of developments during the second regulatory period:[9]

> *"• Power and Water acknowledges the Commission's criticism in the 2004 Determination which led to its Off-Ramp Review but will argue that sufficient improvements have since been made through a number of important financial and asset management initiatives for the Commission to reconsider its approach;*
>
> *• Power and Water submits that the parameters which underpinned the Commission's 2004 Determination no longer adequately reflect Power and Water's costs of supply. As noted in the covering letter, our indicative analysis shows that a positive [Po adjustment factor] would be a likely outcome for the 2009 Reset if the base year was established using the 2006/07 year (even without adjustment for forward looking costs); …" (p.2-3)*

3.47 While Power and Water claimed not to have under- or over- recovered to any material degree during the current regulatory period, it maintained that, as a minimum, a base year adjustment is necessary because its costs of supply have changed to the extent that they no longer adequately reflect the parameters which underpinned the Commission's 2004 price control mechanism decision.

---

[7] This type of adjustment was referred to in the 2004 Reset as the Z factor adjustment. All references in the 2009 Reset will now instead be to the "Po adjustment".

[8] Utilities Commission, *Networks Pricing: 2004 Regulatory Reset Final Methodology Decision*, November 2003, p.16.

[9] Power and Water also expressed a preference for a Po adjustment that took account of changes in costs projected for the third regulatory period. This however is a separate issue, and is dealt with instead in the following section.

3.48 In particular, Power and Water stated that current costs incurred in network operations and maintenance are significantly above both cost levels at the time of the 2004 Reset and the allowance for cost increases included in the Reset decision.

3.49 In contrast, the NTMEU argued against a cost-based adjustment in the base year:

> *"…the NTMEU would point out strongly that it is unlikely the PWC costs have reached a level of certainty for consumers to be certain that the benchmark cost levels have been reached to support the contention implicit in the use of a [Po adjustment factor], that the PWC costs have reached demonstrable maximum economic efficiency." (p.23)*

Commission's analysis

3.50 The Commission notes that a price cap with a regular Po adjustment (or gains sharing arrangement in one form or another) is in reality what can be termed a 'cost of service approach'. A cost of service approach involves use of a forward looking, multi-year building block approach. Only a price cap without any Po adjustment or gains sharing mechanism would qualify as a 'pure' price cap approach.

3.51 A pure price cap aims to provide a light-handed regulatory approach with low compliance and regulatory costs and good incentive properties. Prices are uncoupled from the network service provider's costs of operation. However, this assumes that the existing price levels and initial cost base are 'about right'.

3.52 The Commission acknowledges that there is no certainty that closing prices in the second regulatory period align with efficient costs, with the possibility being that they could fall short of, or be over recovering, efficient costs.

3.53 Where the required level of confidence is lacking about the general equivalence of starting price levels and the cost base, the Commission acknowledges that a 'base year' cost analysis is required and, if necessary, an opening price level adjustment needs to be made. Costs may diverge from prices for valid reasons – that is, reasons that are outside the control of management. For example, commencing year efficient costs and X factors applying subsequently may have been over- or under-estimated (regulatory error), or CPI movements may have diverged from movements in relevant input prices in ways not foreshadowed when the X factor values were set.

3.54 If the rationale underlying the external benchmarking approach is applied consistently, the divergence of closing prices from efficient costs would be regarded as largely cyclical in nature, and therefore self-balancing, or the result of either good management, which should be rewarded with higher profits (thereby removing the requirement for additional gains sharing mechanisms), or poor management, for which compensation should not be provided in the following period.

3.55 In practice, it would be unwise for a regulator, when considering whether to continue to apply the benchmarking approach, to ignore the claims of a network service provider that its costs have indeed moved significantly above previous experience *for reasons that are outside its control*.

3.56 Power and Water has indicated that this has happened and, as a consequence, current network prices do not cover reasonable capital and operating costs.

3.57 While cautious with regard to Power and Water's contention, the Commission recognises that its analysis in 2004 was, to a degree, constrained both by data limitations and experience. To an extent this is an unavoidable consequence of moving away from cost of service methods. Regulators that have taken this decision have recognised that there will be a transitional period during which the methods of external benchmarking are refined and the outcomes made more robust. It is reasonable in these circumstances to periodically review base year costs.

3.58 Accordingly, the Commission proposes to include a base year cost review in the 2009 Reset. The Commission's intention is to apply, just to a base year, a building block

analysis and evaluation of efficient costs at a standard commensurate with the requirements of the *National Electricity Rules* regarding such an analysis. If a Po adjustment is indicated, the quantum will be determined so as to be consistent with the X factor incorporated into the final price cap.

Basis for X factors

NT Code requirements

3.59 Clause 70 of the NT Code includes the following requirement:

> *"(2) The methodology to be used by the regulator to adjust the revenue or price cap [between years] is to involve increasing the previous year's cap in line with both –*
>
> *(a) the factors which the regulator considers to be the main real-terms drivers affecting the network provider's costs (such as the growth in the quantity of electricity transported annually over the electricity network); and*
>
> *(b) inflation (as measured by the rate of change in the consumer price index),*
>
> *and decreasing it by an efficiency gains factor ("X factor").*
>
> *(3) The use of an efficiency gains factor is to ensure that the benefits of efficiency gains are shared between end-use customers (those gains achieved up to the X factor level) and the network provider (any gains achieved in excess of the X factor)."*

3.60 Under the NT Code, the Commission is responsible for determining the basis and measurement of the X factor. Clause 2(1A) of Schedule 10 of the NT Code states that:

> *"The methodology for determining the value of X to apply in the second and subsequent regulatory control periods is to be determined by the regulator in a manner that most effectively achieves the outcomes in subclauses (1) and (3) and is consistent with generally accepted regulatory practice at the time."*

3.61 Likewise, clause 6.2.6 of the *National Electricity Rules* requires that, for standard control services, the price control mechanism must be of the prospective CPI minus X form, or some incentive-based variant of the prospective CPI minus X form.

3.62 The X factor for use in a price control mechanism under the *National Electricity Rules* is the subject of clause 6.5.9 of those Rules. In contrast to the NT Code, the *National Electricity Rules* currently restricts the X factor to being a factor that is to equalise (in terms of net present value) the revenue to be earned by the network service provider from the provision of standard control services over the regulatory period with the provider's total revenue requirement for the regulatory period. Within this framework, the *National Electricity Rules* permit different X factors for different years of the regulatory period.

2004 price control mechanism

3.63 Under the 2004 price control mechanism, the X factor used to escalate the weighted average of network access tariffs was calculated based on externally benchmarked expected efficiency improvements. The 2004 price control mechanism explicitly rejected the 'cost of service' building block approach in which the network price path is derived from a projection of required revenues based on estimates of Power and Water's future operating and capital costs.

Commission's preliminary position

3.64 In its Issues Paper, the Commission signalled its desire to continue calculating the X factor based on externally benchmarked expected efficiency improvements.

Views expressed in submissions

3.65 Both Power and Water and the NTMEU favoured a forward-looking multi-year building block (or cost of service) approach as the basis for calculating the X factor, involving an assessment of projected demand, costs and efficiency levels.

3.66 Power and Water argued in favour of a forward-looking cost of service analysis as a means of accounting for specific cost factors:

> *"Power and Water … considers that these forecast costs and asset values should provide the basis for the development of a weighted average price cap index." (cover letter)*

3.67 However:

> *"Power and Water supports the continued use of a X_1 and X_2 factor, and notes that:*
>
> - *while decisions on its own efficiency compared to a benchmark new entrant are best left to the Commission to determine, its own costs are increasing, not decreasing, with others in the industry in the same situation; and*
> - *the work underpinning the selection of new X factors should seek to understand the national and Territory wide factors that are causing these increases, and reflect them into X factors as appropriate."(p.6)*

3.68 Hence, Power and Water's preferred method of providing for future cost movements is to build projected future costs not specifically covered by productivity-based X factors into an initial year or Po adjustment:

> *"Power and Water … considers that a forward looking cost based assessment is an essential part …*
>
> - *there is a pattern of evidence that network companies are facing cost increases that are higher than CPI (some as large as 6-7% per annum), caused by rising labour costs from skilled labour shortages and strong enterprise bargaining outcomes for employees, which suggests that forward looking costs may be higher than current costs; and*
> - *there are significant events scheduled to occur during the next regulatory period which must be taken into account in establishing the base year costs. The first is the possible introduction of full retail contestability in 2010, which will make transparent a 'capability gap' within Power and Water that will require significant future expenditure. Secondly, the current policy consideration being given to electricity market reform will, even if FRC does not occur, impose considerable costs in meeting whatever new regulatory and technical obligations are required." (p.2-3)*

3.69 Power and Water argued that due to the extensive process review and information gathering that it has recently undertaken, the accuracy and reliability of its financial information has improved to an extent sufficient to support a detailed forward-looking cost of service analysis.

3.70 The NTMEU argued that a full building block cost of service analysis has specific advantages:

- the prevention of monopoly rents extraction, as Power and Water would be prevented from charging network prices that are above efficient costs;
- Power and Water's costs are unlikely to have reached demonstrable maximum economic efficiency; and
- alternate approaches are not currently generally accepted regulatory practice.

3.71 In support, it referred to the position taken by the Australian Energy Market Commission (AEMC) in 2006 and in recent changes to the *National Electricity Rules*:

> *"The AEMC in its review of the transmission networks (Chapter 6A) noted the existence of TFP and commented (page 40 of its final determination).*
>
> > *'The Commission has also concluded that the building block approach remains preferable to alternative regulatory approaches which utilize industry-wide benchmarks (such as total factor productivity (TFP) based approaches) in view of the lumpiness and uniqueness of shared transmission network costs.'*
>
> *The NTMEU considers that the AEMC and the other jurisdictional regulators are correct that regulation in Australia has not sufficiently mature to warrant a transition such as is contemplated by the [Po adjustment], and accordingly does not consider the UC should deviate from that. This view is supported by the most recent draft of the new Chapter 6 Rules of the NER (distribution network services) which state quite clearly in clause 6.3*

that a building block approach is to be used for the development of revenue for an electricity distribution business." (p.24)

3.72 NT Treasury was supportive of the Commission's proposed approach to the form of price control:

"This approach has merit as it is consistent with the objective of the 2004 Regulatory Reset … to institute a methodology that would ensure there is continuity over time in the setting of network access charges. As a result it provides greater certainty to the local electricity industry and network users about the cost of electricity services." (p.1)

3.73 Nevertheless, NT Treasury also raised the importance of maintaining consistency with national electricity market arrangements in relation to distribution network pricing (generally accepted regulatory practice).

"…Treasury considers it important that regulatory practice in the Territory remain consistent with the national framework for electricity distribution networks, including proposed amendments now being developed by the Ministerial Council on Energy." (p.1)

Commission's analysis

3.74 Submissions differed on the mechanism for converting projected future costs into a price cap escalator.

3.75 Major users support calculating a single X factor that yields the present value of projected required revenues, built up using a multi-year building block approach.

3.76 Rather than a single X factor, Power and Water was comfortable with an initial Po adjustment that took full account of projected future costs not covered by any productivity-based X factor applying in all subsequent years. This different initial year X factor would serve to equalise (in terms of net present value) the network revenue to be earned by Power and Water from the provision of standard control services over the regulatory period with the total revenue requirement for the regulatory period.

3.77 Hence, both the major energy users and Power and Water have expressed a strong preference for the Commission to place more weight on cost of service analysis when determining the quantum of the price control, and consequently less weight (or possibly no weight) on external efficiency benchmarks. Both favoured changes to the 2004 price control mechanism that go beyond the limited scope envisaged by the Commission in its Issues Paper.

3.78 There are two aspects to these calls for a move away from the basis of calculating the X factor as adopted in the 2004 price control mechanism.

Regulatory consistency

3.79 The first set of arguments in favour of reverting back to a cost of service approach to calculating the X factor is that not to do so is at odds with the *National Electricity Rules*.

3.80 The Commission acknowledges the requirement under the NT Code to determine the revenue or price caps that are to apply during each regulatory period in a manner that, in the Commission's opinion, most effectively achieves the desired outcomes set out in clause 63 and *"is consistent with generally accepted regulatory practice at the time"* (clause 66(3)).

3.81 In the Commission's view, it is important that efforts are made where possible to align the regulatory regime in the Northern Territory with national developments.

3.82 The national regime and rules are currently undergoing significant change. Amendments have been made to the National Electricity Law, Rules and Regulations and the regulation of electricity distribution networks is being transferred from the States to the Australian Energy Regulator (AER). The AER will take responsibility for regulating the

prices and revenues of electricity distributors after the current determinations of State regulators have finished their terms.[10] As such, some uncertainty still exists as to how the AER will interpret certain aspects of the Rules. For example, while the Rules currently make no allowance for alternative approaches to the control setting method (e.g., productivity-based approaches) and so rely entirely on a full multi-year building block approach, this may still be subject to amendment.

3.83 The Commission notes that the AEMC has scheduled a review of the use of productivity-based methods as an alternative to the cost of service building block approach, and Victoria has flagged its intention to submit a rule change application to include total factor productivity (TFP) approaches in the *National Electricity Rules*. Internationally, external benchmarking approaches are currently applied in New Zealand and Holland.

3.84 Consequently, the Commission considers that, in terms of both generally accepted regulatory practice and the direction in which the *National Electricity Rules* may be moving, external benchmarking approaches of the kind applied by the Commission in 2004 are acceptable. In the Commission's view, neither the requirements of the NT Code in regard to generally accepted regulatory practice nor the Commission's own desire for convergence with the *National Electricity Rules* constrain it to apply cost of service regulation.

Giving weight to future developments

3.85 The second set of arguments in favour of reverting back to a cost of service approach is that this is the only approach that can effectively take into account future cost pressures and demand developments.

3.86 Major energy users are concerned they will be paying too much for network service, unless it can be demonstrated that prices are based on projected operating and capital costs that have been rigorously assessed and validated as necessary and efficient by independent experts (and if not then such costs will be disallowed).

3.87 On the other hand, Power and Water is concerned that capping allowable network price increases by reference to external efficiency benchmarks will not provide sufficient revenue to cover all the cost contingencies that the future holds. Unless it can be demonstrated that network prices will yield revenues that cover projected costs, there is a risk of artificially low returns.

3.88 At issue for the Commission is whether to maintain the external benchmarking approach applied in 2004, or to forego the benefits of continuity and consistency for which it argued in the Issues Paper and change its approach to place more reliance on a cost of service methodology.

3.89 The Commission is wary of placing undue weight on Power and Water's view that special factors will cause future costs to rise significantly above present costs. Variations in individual costs over time are to be expected. Some may rise above trend and some may fall, and the net benefit to Power and Water will sometimes be positive and sometimes negative. Arguably, the management of individual cost cycles within a broad, inflation-based price constraint is the responsibility of management.

3.90 In the Commission's view, cost movements cannot be forecast over a five-year period with reasonable certainty. Building forecasts into regulated prices only provides insurance against losses for Power and Water if actual network costs follow forecast costs. Moreover, there is a natural tendency for a network service provider to draw attention to possible cost increases but not decreases.

3.91 The Commission has previously experienced considerable difficulty in reconciling cost data provided by Power and Water. Notwithstanding the improvements that may

[10] The NSW and ACT distribution reset processes commenced in 2008 under the AER.

have been achieved by Power and Water in capturing accurate information on current network costs and developing forward cost estimates, the Commission is obliged to rigorously test such estimates before it could make a judgement regarding an appropriate level of forecast costs on which to base future prices, if it elected to apply a cost of service analysis. The credibility hurdle needs to be set high.

3.92 The Commission has considered the logistics of a comprehensive cost of service analysis directed at identifying detailed expected future efficient costs. The Commission would, first, specify the current and forecast capital and operating cost information required, including information on demand factors, cost drivers and other relevant assumptions. Power and Water would then prepare and submit the required information; while some may be readily available, there would be elements that would take time to prepare to the required standard. Once the information was complete the Commission would begin the process of review, using independent experts where necessary. The Commission's findings would be published and an opportunity provided for Power and Water and other interested parties to comment. Following consideration of these comments the Commission would make its final determination.

3.93 It is unlikely that these steps could be completed to the required standard prior to the commencement of the next regulatory period. If the underlying case in favour of a detailed cost of service analysis was strong enough, the 2009 Reset could be postponed or a mid-period review scheduled. Both options have significant downsides through their impact on regulatory certainty and stability.

3.94 The Commission is dismayed at the increasing complexity, expense and intrusiveness of cost of service analyses. It has been frustrated by the continuing poor quality of Power and Water data and the limitations this has placed on data-based analysis. And it considers that there is intrinsic merit in the incentive properties of a lighter-handed, externally benchmarked approach, particularly for a small and relatively less-complex network.

3.95 Overall, the Commission is not persuaded that the future costs argument is sufficient to justify reversing its 2004 decision and moving back to a detailed cost of service methodology. Since the 2004 decision, considerable progress has been made in the refinement of the external benchmark approach and, in New Zealand and elsewhere, useful experience has been gained in its application to networks. Similar future cost issues have been addressed in these cases, and the Commission will, as far as reasonably possible, apply the available best practice solutions.

Commission's draft decision

3.96 The main elements of the price control mechanism that the Commission proposes to use in the third regulatory period are therefore as follows:

- The financial variable subject to price control will continue to be Power and Water's network prices rather than its network revenue.
- The price cap form of price control will continue to be based upon a 'tariff basket' and so the weighted average of each year's network access tariffs for standard control services.
- Power and Water's network costs at the end of the second regulatory period are to be subject to a rigorous zero-based assessment to determine whether a Po adjustment is warranted in order that the weighted average of network access tariffs to apply at the commencement of the third regulatory period are sufficient to recover the efficient costs of supply of regulated network access services.
- The X factor in the allowed CPI-X price path will be derived once again using a productivity–based approach, and so based on relative efficiency improvements that can be reasonably expected to be achieved by Power and Water in its networks business over the course of the third regulatory period.

CHAPTER

4

REGULATORY PROPOSAL

4.1 This chapter sets out the procedures that the Commission proposes to use to arrive at its Final Determination giving practical effect to its decisions on the price control mechanism to apply to regulated electricity networks in the Northern Territory during the forthcoming regulatory period. These decisions are those made throughout this paper, and overviewed in chapter 2.

NT Code requirements

4.2 Under the NT Code, the Commission is charged with determining the following matters:

- the methodologies for determining:
  - the revenue caps in the first year of a regulatory control period,
  - the WACC,
  - the revenue or price caps for the second and subsequent years of a regulatory control period, and
  - the efficiency gains factor (X factor),
- the methodology to be used for valuing network assets for regulatory purposes;
- the methodology to be used to assess which network access services are subject to effective competition and can be excluded from the revenue cap applying to regulated network access services;
- the approaches to be used for assessing whether, in the Commission's opinion:
  - the network service provider's pricing principles statement is consistent with the clause 74 network pricing objectives, and
  - the network service provider's proposed individual tariffs and charges complies with the principles laid down in chapter 7 or is consistent with requirements elsewhere in the Code; and
- the approaches to be used for assessing:
  - what form its 'oversight' of the network service provider's broad application of the principles set out in chapter 8 of the Code should take; and
  - whether, in the Commission's opinion, the network service provider's capital contributions principles and methods statement is consistent the requirements in chapter 8 or elsewhere in the Code.

4.3 Clause 62(2) of the NT Code requires the Commission:

> *"…to conduct all its determination and approval processes in an open, transparent and competitively-neutral manner, including by consulting with network users, end-use customers, members of the public and all licensed electricity entities that may be affected, directly or indirectly, by the resultant prices."*

4.4 Also, clause 66(3) of the NT Code requires the Commission to determine the revenue or price caps that are to apply during each regulatory period in a manner that, in the Commission's opinion, most effectively achieves the desired outcomes set out in clause 63 and *"is consistent with generally accepted regulatory practice at the time"*.

4.5 Within this framework, and subject to specific requirements elsewhere in the NT Code, it is up to the Commission to decide on the procedures that the Commission uses to arrive at its Final Determination giving practical effect to its decisions on the price control mechanism to apply to regulated electricity networks in the Northern Territory during the forthcoming regulatory period.

2004 procedures

4.6 For the 2004 Reset, the Commission adopted a two-stage process, namely:

- first, it issued its determination of the key price control mechanism issues (termed the 'Methodology Decision'); and
- secondly, based on information obtained from Power and Water, it then proceeded to make its own assessment of the values and parameters required to implement the price control mechanism (termed the 'Implementation Decision').

4.7 The Final Determination effectively combined these two decisions.

4.8 After the Final Determination, the Commission went through a separate and subsequent process with Power and Water to approve the required Network Pricing Principles and Methods Statement.

4.9 Besides providing necessary information for the Commission's assessments, Power and Water participated in these processes much like any other interested party.

4.10 The Commission's decision criteria for the 2004 Reset were effectively that it would determine what methods, parameters and values were most consistent with the NT Code's requirements.

Commission's analysis

4.11 For the purposes of the 2009 Reset, to the maximum extent possible under the NT Code and consistent with the final Price Control Mechanism Decision, the Commission proposes to follow the procedures which have recently been enshrined in the *National Electricity Rules* for arriving at a Final Determination regarding the price control mechanism to apply to regulated electricity networks during a forthcoming regulatory period.

4.12 In this way, the Commission seeks to achieve greater consistency with procedural practice now evident elsewhere in Australia in the regulation of infrastructure networks.

Regulatory proposal

4.13 A noteworthy feature of the procedures adopted by the *National Electricity Rules* is the focus on the regulated entity making certain proposals and the regulator restricting its activities mainly to responding to those proposals. The approach is loosely based on the 'propose/respond' features of the National Gas Code.

4.14 Rather than the Commission being in the driver's seat when it comes to developing much of the implementation detail of any price control mechanism, under the *National Electricity Rules* it would be Power and Water, as the network service provider, that is called upon to develop and submit its own proposals about how best, and most practically, to implement decisions regarding the final Price Control Mechanism Decision.

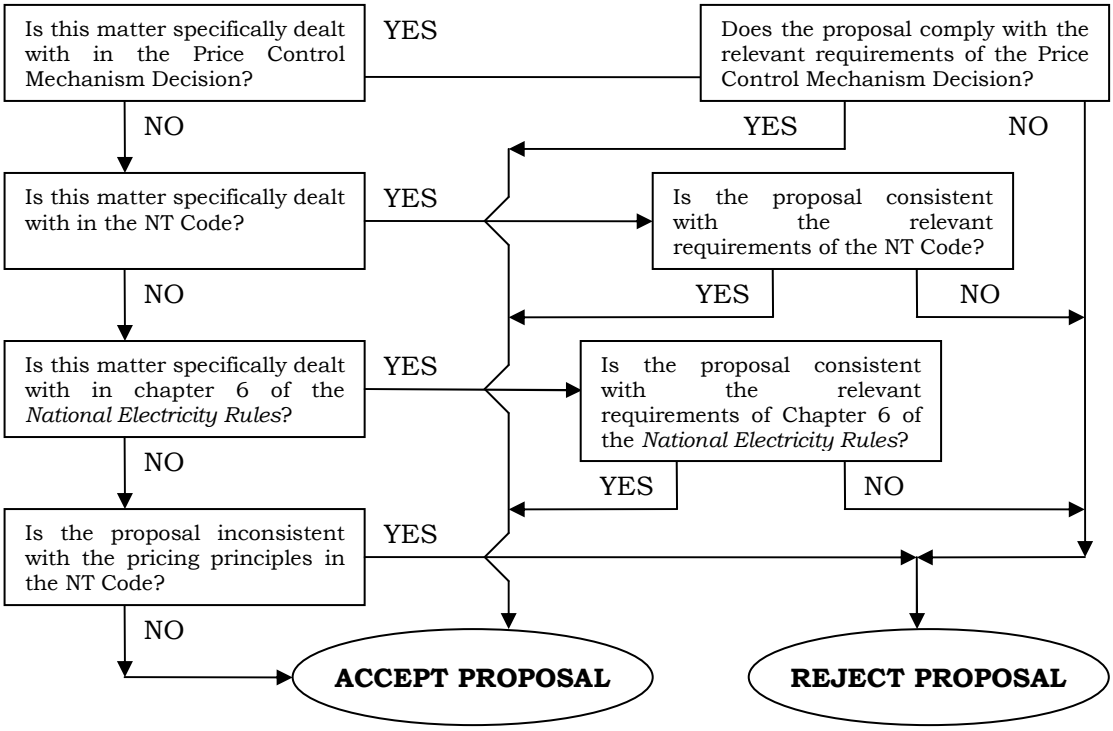
4.15 Under such procedures, it is then for the Commission as regulator to approve or not approve what Power and Water has proposed, within the framework of the final Price Control Mechanism Decision and the NT Code's objectives and principles.

Criteria for approving a proposal

4.16 In addition to formalising the requirement for a 'regulatory proposal' to be made by Power and Water in response to the final Price Control Mechanism Decision, the Commission also proposes to be guided by the requirements of the *National Electricity Rules* wherever this is not in conflict with any specific requirements in the NT Code.

4.17 Consequently, the Commission proposes to apply the following decision hierarchy (as illustrated in the chart below). A proposal by Power and Water will be approved:

- first, where the proposal complies with the Commission's final Price Control Mechanism Decision (which, by definition, must be consistent with the NT Code in general and the NT Code's pricing principles in particular);
- secondly, where the proposal relates to a matter not specified in the final Price Control Mechanism Decision *but* is subject to a specific requirement in the NT Code, as long as it is consistent with the Code's requirement;
- thirdly, where the proposal relates to a matter not specified in the final Price Control Mechanism Decision *and* is not subject to any specific requirement in the NT Code, as long as it is consistent with the relevant provision of chapter 6 of the *National Electricity Rules*; and
- fourthly, where the proposal relates to a matter not specified in the final Price Control Mechanism Decision *and* is not subject to any specific requirement in either the NT Code or chapter 6 of the *National Electricity Rules*, as long as it is not inconsistent with the NT Code's pricing principles.



4.18 The pricing principles and objectives set out in the NT Code (NT Code's pricing principles) are cited in **Box 1**.

Box 1: NT Code's pricing principles

Clause 63 of the Code requires the Commission to administer access price regulation under the Code in a way that achieves the following outcomes:

"(a) efficient costs of supply;
(aa) expected revenue for a regulated service or services that is at least sufficient to meet the efficient long-run costs of providing that regulated service or services, and includes a return on investment commensurate with the commercial and regulatory risks involved;
(b) prevention of monopoly rent extraction by the network provider;
(c) promotion of competition in upstream and downstream markets and promotion of competition in the provision of network services where economically feasible;
(ca) an efficient and cost-effective regulatory environment;
(d) regulatory accountability through transparency and public disclosure of regulatory processes and the basis of regulatory decisions;
(e) reasonable certainty and consistency over time of the outcomes of regulatory processes;
(f) an acceptable balancing of the interests of the network provider, network users and the public interest; and
(g) such other outcomes as the regulator determines are consistent with the underlying principles set out in clause 2."

Clause 68 of the Code requires the Commission, in setting a revenue or price cap, to have regard to the following factors:

"(a) the demand growth that the network provider is expected to service using any appropriate measure including but not limited to –
(i) energy consumption by category of network users or other relevant groups of persons who consume energy;
(ii) demand by category of network users or other relevant groups of persons who consume energy;
(iii) numbers of network users or other relevant groups of persons who consume energy by category of network users; and
(iv) length of the electricity network;
(b) the service standards applicable to the network provider under this Code and any other standards imposed on the network provider by any regulatory regime administered by the regulator and by agreement with the relevant network users;
(c) the potential for efficiency gains to be realised by the network provider in expected operating, maintenance and capital costs, taking into account the expected demand growth and service standards referred to in paragraphs (a) and (b);
(d) the network provider's cost of capital applicable to the relevant network access service, having regard to the risk-adjusted rate of return required by investors in commercial enterprises facing similar business risks to those faced by the network provider in the provision of that service;
(e) the provision of a return on efficient capital investment undertaken by the network provider in order to maintain or extend network capacity that is commensurate with the commercial and regulatory risks involved;
(f) the right of the network provider to recover reasonable costs incurred by the network provider in connection with the operation and maintenance of the network, including those arising from but not limited to –
(i) any Territory and Commonwealth taxes or equivalent taxes paid in connection with the operation of its business as a provider of network access services; and
(ii) the tariffs and charges paid to other network providers irrespective of whether these tariffs and charges are regulated under this Code;
(g) any increase in the rate of a tax or any new tax, whether it is a tax or tax equivalent imposed by the Territory, a State or the Commonwealth that directly increases the cost of providing the access services that are directly attributable to the increase in the rate or to the new tax;
(h) any reduction or increase in network energy losses; and
(j) the on-going commercial viability of the network provider."

Clause 74 of the Code sets out the objectives of network tariffs to be observed under the Code as follows:

"The reference tariffs are –
(a) to reflect efficient costs of supply;
(b) to involve a common approach for all network users, with the actual tariff with respect to a particular network access service only differing between users because of –
(i) the user's geographical and electrical location;
(ii) the quantities in which the relevant network access service is to be supplied or is supplied;
(iii) the pattern of network usage;
(iv) the technical characteristics or requirements of the user's load or generation;
(v) the nature of the plant or equipment required to provide the network access service; and
(vi) the periods for which the network access service is expected to be supplied;
(c) to be transparent and published in order to provide pricing signals to network users;
(d) to promote price stability; and
(e) to reflect a balancing of the quest for detail against the administrative costs of doing so which would be passed through to end-use customers."

4.19 Power and Water's regulatory proposal must be consistent with the Commission's final Price Control Mechanism Decision. This Paper contains the Commission's Draft Decision. The Final Decision is to be published in early May 2008.

4.20 Some of the constituent decisions comprising the final Price Control Mechanism Decision will mandate particular approaches or methods to be used by Power and Water in developing and making its regulatory proposal. Most (but not all) of these mandatory elements are the subject of chapter 3 of this Paper.

4.21 Other constituent decisions comprising the final Price Control Mechanism Decision will only establish the broad parameters of a required approach, leaving Power and Water to propose details of the required approach. These discretionary elements are mainly the subject of chapters 5, 6 and 7 of this Paper.

4.22 Unless the Final Decision (and its constituent decisions) expressly states the decision criteria that the Commission will apply with regard to a particular decision, the Commission will only refuse to approve an element of the regulatory proposal if it is inconsistent with the requirements or intent of the final Price Control Mechanism Decision or (otherwise and as applicable) the relevant provisions of chapter 6 of *National Electricity Rules* or the NT Code's pricing principles.

***Reasons for decisions*[11]**

4.23 Finally, and consistent with the relevant requirements of the *National Electricity Rules*, the reasons the Commission gives for a draft determination or a final determination will set out the basis and rationale of the determination, including:

- details of the qualitative and quantitative methods applied in any calculations and formulae made or used by the Commission;
- the values adopted by the Commission for each of the input variables in any calculations and formulae, including:
  - whether those values have been taken or derived from Power and Water's current Po building block proposal; and
  - if not, the rationale for the adoption of those values;
- details of any assumptions made by the Commission in undertaking any material qualitative and quantitative analyses; and
- reasons for the making of any decisions, the giving or withholding of any approvals, and the exercise of any discretions for the purposes of the determination.

Commission's draft decision

4.24 The following process will be followed by the Commission to arrive at the Final Determination:

- by 1 September 2008, within the constraints and guidance contained in the Commission's final Price Control Mechanism Decision (due to be published on 2 May 2008), Power and Water is required to submit an 'initial regulatory proposal';
- by mid-October 2008, the Commission will publish its draft determination, based on whether or not it approves the initial regulatory proposal and, if not, what revisions would be required before a revised regulatory proposal could be approved by the Commission;

[11] Based on clause 6.12.2 of the *National Electricity Rules*.

- by mid-November 2008, submissions are due from all parties (including Power and Water) in response to the Commission's draft determination;
- by 31 December 2008, Power and Water is required to submit a 'revised regulatory proposal'; and
- by end-March 2009, the Commission will publish its final determination based on whether or not it approves the revised regulatory proposal and, if not, its own determination of the regulatory arrangements to apply during the third regulatory period.

4.25 The regulatory proposal must include (but need not be limited to):

- proposals in relation to all elements specifically required under the final Price Control Mechanism Decision; and
- an indication of the parts of the proposal (if any) Power and Water submits as confidential and not suitable for publication.

4.26 A single regulatory proposal is required covering all of Power and Water's regulated networks. However, proposed prices should be provided separately for each network.

4.27 In its revised proposal, Power and Water may only include revisions required to address matters raised by the draft determination or the Commission's statement of reasons.

4.28 The regulatory proposal must comply with the final Price Control Mechanism Decision and any accompanying relevant regulatory information instrument.

4.29 Unless the Final Decision (and its constituent decisions) expressly states the decision criteria that the Commission will apply with regard to a particular decision, the Commission will only refuse to approve an element of the regulatory proposal if it is inconsistent with the requirements or intent of the final Price Control Mechanism Decision or (otherwise and as applicable) the relevant provisions of chapter 6 of *National Electricity Rules* or the NT Code's pricing principles.

4.30 In general, the Commission will apply the following decision hierarchy. A proposal by Power and Water will be approved:

- first, where the proposal complies with the Commission's final Price Control Mechanism Decision (which, by definition, must be consistent with the NT Code in general and the NT Code's pricing principles in particular);
- secondly, where the proposal relates to a matter not specified in the final Price Control Mechanism Decision ***but*** is subject to a specific requirement in the NT Code, as long as it is consistent with the Code's requirement;
- thirdly, where the proposal relates to a matter not specified in the final Price Control Mechanism Decision ***and*** is not subject to any specific requirement in the NT Code, as long as it is consistent with the relevant provision of chapter 6 of the *National Electricity Rules*; and
- fourthly, where the proposal relates to a matter not specified in the final Price Control Mechanism Decision ***and*** is not subject to any specific requirement in either the NT Code or chapter 6 of the *National Electricity Rules*, as long as it is not inconsistent with the NT Code's pricing principles.

CHAPTER

5

Po ADJUSTMENT FOR STANDARD CONTROL SERVICES

5.1 This chapter addresses in detail matters associated with implementing the base year adjustment component of the price control mechanism for standard control services.

Po building block proposal

5.2 Under the *National Electricity Rules* for the economic regulation of network services, each distributor must submit a building blocks proposal to the AER for the provision of its standard control services specifying the distributor's annual revenue requirement for each year of the regulatory period. The building blocks proposal must be prepared using the post-tax revenue model developed by the AER, and comply with the requirements of the *National Electricity Rules*. The AER's determination on the distributor's building block proposal is a component of the draft and final distribution determinations.[12]

5.3 For the 2009 Reset, the Commission proposes that Power and Water submit a proposed Po adjustment ('Po building block proposal') to the Commission. The Po building block proposal must be prepared in accordance with the AER's post-tax revenue model where relevant and schedule 6.1 of the *National Electricity Rules* where relevant.

5.4 The post-tax revenue model is the model referred to in clause 6.4.1 of the *National Electricity Rules* as prepared and published by the AER and in force at the time of the relevant determination. The post-tax revenue model sets out the manner in which the network service provider's annual revenue requirement for each regulatory year is to be calculated.

5.5 The Commission will request ACIL Tasman, as the Commission's expert adviser on this matter, to undertake an appraisal of the proposed Po adjustment and make a recommendation to the Commission as to whether that proposed adjustment should be accepted or rejected (and why).

5.6 The main distinction between the Commission's draft Price Control Mechanism Decision and the building block methodology as used under the *National Electricity Rules* is that:

- the building block analysis is being undertaken to determine the Po factor, rather than determining the X value in the price path; and
- the building block analysis is based on costs at the end of the second regulatory period (one year building block assessment), rather than determining the annual revenue requirements for each year of the third regulatory period.

[12] See Part C of Chapter 6 of *National Electricity Rules* Version 18.

5.7 The Po building block proposal must comply with the requirements of, and must contain or be accompanied by the information required by, the regulatory information instrument accompanying the final Price Control Mechanism Decision. The regulatory information instrument will include an MS Excel workbook similar to the AER's post-tax revenue model[13] as guidance for Power and Water.

Measuring the Po adjustment factor

5.8 The Commission proposes that the Po adjustment factor be estimated by undertaking a building block (i.e., cost-based) exercise with respect to 2008/09 estimates.

5.9 The intention of the Po adjustment is to ensure that the weighted average of network access tariffs to apply at the *commencement* of the third regulatory period are sufficient to recover the efficient costs of supply of regulated network access services. As 2008/09 is the year prior to the commencement of the third regulatory period, the use of 2008/09 financial information to measure the Po adjustment is preferable. Since only estimates (as opposed to actuals) will be available for 2008/09, the use of 2008/09 financial information will be dependent on the robustness of the estimates.

5.10 The Po adjustment factor is to be measured as follows:

$$Po = {}^{(R^* - R)}/_{R}$$

where:

R* is the latest estimate of the total cost (in $ millions) in 2008/09 of supplying the network access services whose tariffs are to be included in the tariff basket in 2009/10; and

R is the latest estimate of the total revenue (in $ millions) in 2008/09 derived from the existing tariffs applying to the network access services that are to be included in the tariff basket in 2009/10.

5.11 A single Po adjustment factor is to be calculated covering all regulated networks – Darwin/Katherine, Alice Springs and Tennant Creek.

Return on capital

5.12 The rate of return for Power and Water's networks business for the final year of the second regulatory period is the cost of capital, as measured by the return required by investors in a commercial enterprise with a similar nature and degree of non-diversifiable risk as that faced by the network business of the provider. The return on capital for that year is calculated by applying a rate of return to the value of the regulatory asset base for the relevant network systems as at the beginning of that year.

5.13 Consistent with clause 6.5.2 of the *National Electricity Rules*, the Commission requires the use of a nominal post-tax weighted average cost of capital ('WACC') in accordance with the following formula:

$$WACC = k_e \left({}^{E}/_{V}\right) + k_d \left({}^{D}/_{V}\right)$$

where:

[13] Under clause 6.4.1 of the *National Electricity Rules*, the AER must prepare and publish a post-tax revenue model to be used by distributors and the AER, to propose and determine annual revenue requirements and X factors for each year of the impending regulatory period.

k_e is the return on equity (determined using the Capital Asset Pricing Model) and is calculated as:

$r_f + \beta_e$ x MRP

where:

r_f is the nominal risk free rate for the regulatory period;

β_e is the equity beta; and

MRP is the market risk premium;

k_d is the return on debt and is calculated as:

r_f + DRP

where:

DRP is the debt risk premium for the regulatory period;

(E/V) is the value of equity as a proportion of the value of equity and debt, which is 1 – (D/V); and

(D/V) is the value of debt as a proportion of the value of equity and debt.

5.14 Consistent with clause 6.5.2(c) of the *National Electricity Rules*, the nominal risk free rate (r_f) is the rate determined by the Commission on a moving average basis from the annualised yield on Commonwealth Government bonds with a maturity of 10 years, using indicative mid rates published by the RBA.

5.15 Consistent with clause 6.5.2(e) of the *National Electricity Rules*, the debt risk premium (DRP) is the premium determined by the Commission as the margin between the 10 year Commonwealth annualised bond rate and the observed annualised Australian benchmark corporate bond rate for corporate bonds which have a maturity of 10 years and a credit rating from a recognised credit rating agency.

5.16 Consistent with clause 6.5.3 of the *National Electricity Rules*, the estimated cost of corporate income tax (ETC) for the final year of the second regulatory period (2008/09) is to be calculated in accordance with the following formula:

$ETC = (ETI \times r)(1 - \gamma)$

where:

ETI is an estimate of the taxable income that would be earned by a benchmark efficient entity as a result of the provision of standard control services if such an entity, rather than the network service provider, operated the business of the network service provider;

r is the statutory income tax rate; and

γ is the assumed utilisation of imputation credits.

5.17 Consistent with the values set out in clause 6.5.2 and clause 6.5.3 of the transitional chapter 6 of the *National Electricity Rules* as applicable to the upcoming NSW and ACT determinations, or unless capital market developments warrant any departure from these values (or their underlying methods or credit rating levels), the following values are to be used:

- an equity beta (β_e) of 1.0;
- the market risk premium (MRP) of 6.0%;
- the proportion of debt funding (D/V) of 0.6; and
- the assumed utilisation of imputation credits (γ) of 0.5.

Regulated asset value

5.18 The regulatory asset base at the beginning of the final year of the second regulatory period (1 July 2008) is to be calculated in accordance with relevant provisions of clause 6.5.1 and schedule 6.2 of the *National Electricity Rules*. The regulatory asset base for networks owned, controlled or operated by Power and Water is the value of those assets that are used by Power and Water to provide standard control services, but only to the extent that they are used to provide such services.

5.19 The value of the regulatory asset base as at the beginning of the final year of the second regulatory period (1 July 2008) must be determined by rolling forward the regulatory asset base value of $350 million (as at 1 July 2002 in July 2002 dollars) ('the initial regulatory asset base') in accordance with relevant provisions of schedule 6.2 of the *National Electricity Rules.*

5.20 The Commission's asset valuation off-ramp decision subsequent to the 2004 Reset involved adoption of a regulatory asset valuation methodology for Power and Water's electricity network assets that valued assets in place at 1 July 2002 at an amount that at least ensured cashflows sufficient to meet certain debt and equity return benchmarks.

5.21 That decision set the value of Power and Water's regulated network assets as at 1 July 2002 at $350 million (excluding gifted assets).

5.22 The Commission's final off-ramp decision also provided for a roll-forward methodology to be used in future, where the value of the regulatory asset base as at the beginning of the final year of the second regulatory period is the initial regulatory asset base adjusted by:

- adding capital expenditure net of capital contributions;
- deducting asset disposals;
- deducting annual depreciation on the regulatory asset base; and
- adjusting for inflation, to express its value in 2008/09 prices.

5.23 The Commission does not propose to re-open its decision placing the $350 million value (in 1 July 2002 prices) on the initial regulatory asset base. Nevertheless, if Power and Water can demonstrate – independent of any DORC valuation – that the roll forward of this initial regulatory asset base will give rise to financial viability problems for Power and Water during the third regulatory period, the Commission is prepared to consider further the financing options available to Power and Water. Such financing issues might justify raising allowed returns above the cost of capital temporarily to address financing constraints that cannot be addressed through other methods (such as dividend policy). Alternatively, a once-off adjustment to the regulatory asset base might be considered.

5.24 The Commission will assess any financial viability case put forward by Power and Water using the framework which applied to the asset valuation off-ramp decision, updated where applicable by Part C and schedules 6.1 and 6.2 of the *National Electricity Rules*, including in relation to assessing the prudency and efficiency of capital expenditure and the appropriateness of forecasts of that expenditure. The Commission interprets the financial viability of an asset-intensive business like Power and Water's network business (as defined in the Commission's Off-ramp Review and based upon the Commission's consideration of advice submitted by the Allen Consulting Group) as involving:

"a high level of certainty that the business will be able to pay its bills as they fall due, and have sufficiently strong cashflow to raise the finance required to fund its continuing operations (including growth)." [14]

Depreciation

5.25 The depreciation for the final year of the second regulatory period (2008/09) is to be calculated in accordance with clause 6.5.5 of the *National Electricity Rules*.

5.26 This requires that the depreciation schedules proposed by Power and Water must depreciate using a profile that reflects the nature of the assets or category of assets over the economic life of that asset or category of assets and that the sum of real depreciation values over the asset's economic life is equivalent to the value at which that asset was first included in the regulatory asset base.

5.27 The straight-line depreciation method has been assessed by the AER as a rule compliant approach and it has been incorporated into the post-tax revenue model for ACT and NSW network service providers as the default calculation.[15] To the extent that Power and Water proposes a depreciation method other than straight-line, an explanation of how the alternative method satisfies the requirements in clause 6.5.5 must be included.[16]

Operating expenditure

5.28 The Po building block proposal must include the total estimated operating expenditure for 2008/09 which Power and Water considers is required in order to achieve each of the following (termed the operating expenditure objectives under clause 6.5.6 of the *National Electricity Rules*):

- meet or manage the expected demand for standard control services over that period;
- comply with all applicable regulatory obligations or requirements associated with the provision of standard control services;
- maintain the quality, reliability and security of supply of standard control services; and
- maintain the reliability, safety and security of the distribution system through the supply of standard control services.

5.29 The estimate of operating expenditure must:

- comply with the requirements of any relevant regulatory information instrument issued in conjunction with the final Price Control Mechanism Decision (expected to include a requirement for analysis of past trends, Statement of Corporate Intent forecasts and explanation of key drivers for the 2008/09 year); and
- be for expenditure that is properly allocated to standard control services in accordance with the principles and policies set out in Power and Water's approved Cost Allocation Procedures.

---

[14] Utilities Commission, *Networks Pricing: Asset Valuation Off-Ramp Final Decision Statement of Reasons*, April 2005, p.27

[15] The ACT and NSW post-tax revenue model recently developed by the AER is a transitional model for ACT and NSW distributors.

[16] Australian Energy Regulator, *Matters relevant to distribution determinations for ACT and NSW DNSPs for 2009-14, Post-Tax Revenue Model Final Decision*, January 2008, p.5.

5.30 The Commission will accept the estimate of operating expenditure that is included in the Po building block proposal if the Commission is satisfied that the total of the forecast operating expenditure for the regulatory period reasonably reflects the operating expenditure criteria set out in clause 6.5.6(c) of the *National Electricity Rules*, namely:

- the efficient costs of achieving the operating expenditure objectives;
- the costs that a prudent operator in the network service provider's circumstances would require to achieve the operating expenditure objectives; and
- a realistic expectation of the demand forecast and cost inputs required to achieve the operating expenditure objectives.

5.31 In deciding whether or not the Commission is so satisfied, the Commission will have regard to the operating expenditure factors set out in clause 6.5.6(c) of the *National Electricity Rules*.

Annual revenue

5.32 The estimated annual revenue being raised from relevant network tariffs during the final year of the second regulatory period (2008/09) is to be derived from existing tariffs relating to direct control services.

5.33 Estimates of the volumes of direct control services expected to be sold in 2008/09 must be 'realistic expectations' consistent with the meaning given to this term by clause 6.5.6(c)(3) of the *National Electricity Rules*.

5.34 Another issue is what items of non-sales revenue should be included in the estimation of efficient revenue collections.

5.35 Generally, the annual revenue collections from all business activities undertaken by Power and Water employing the capital and operating cost bases used in the building block analysis should be included in assessing the extent to which a regulatory control is being complied with. Where the regulatory control is based on the building block analysis (as is the case in the third regulatory period, albeit only through the Po adjustment), all revenue derived from the costs – both capital and operating – included in that building block analysis should be included in the associated annual revenue collections notwithstanding that the associated charges are unregulated for whatever reason. If this were not the case, any charging for such costs in addition to the regulated tariff would give rise to 'double-dipping' on the part of the network service provider.

5.36 The non-sales revenue network items that should be excluded from measuring the efficient revenue collections are those that recover costs aside from those included in the building block analysis.

5.37 The Po adjustment for the 2004 Reset involved the inclusion of all on-going non-sales revenues which are clearly a substitute for sales revenues, including:

- revenues from recoverable works; and
- revenues from other 'miscellaneous charges'.

5.38 Non-sales revenues excluded from the 2004 Reset's Final Determination were:

- annual capital contributions (with the associated assets not earning a return for Power and Water);
- interest receipts (with the associated financial assets not in the regulated capital base); and
- all other items in the 'non-sales revenue' category of Power and Water's statutory accounts attributable to the networks' line of business that are not on-going (i.e., are once-off) in nature.

Commission's draft decision

5.39 A Po adjustment is to be made to the weighted average of network access tariffs to apply at the commencement of the third regulatory period, to ensure that commencing prices are sufficient to recover only the efficient costs of supply of regulated network access services, by subjecting Power and Water's network costs and revenues at the end of the second regulatory period to a rigorous zero-based assessment.

5.40 The regulatory proposal to be made by Power and Water must include, for direct control services classified under the proposal as standard control services, a Po building block proposal.

5.41 Power and Water's Po building block proposal must include its calculation of the Po adjustment factor to apply to the weighted average of network tariffs in the final year (2008/09) of the second regulatory period, together with:

- the total of the estimated operating expenditure for 2008/09 in accordance with clause 6.5.6(c) of the *National Electricity Rules*;
- the proposed rate of return, including any proposed departure from the values, methods or credit rating levels set out in the transitional chapter 6 of the *National Electricity Rules* as applicable to the upcoming NSW and ACT determinations, including:
  - an equity beta (βe) of 1.0;
  - the market risk premium (MRP) of 6.0%;
  - the proportion of debt funding (D/V) of 0.6; and
  - the assumed utilisation of imputation credits (γ) of 0.5.
- the post-tax revenue model completed to show its application to Power and Water for the final year (2008/09) of the second regulatory period, and the completed roll-forward model;
- the cost of corporate income tax for the final year (2008/09) of the second regulatory period;
- the regulatory asset base for the final year (2008/09) of the second regulatory period based upon the regulatory asset base value of $350 million (as at 1 July 2002 in July 2002 dollars) rolled forward using the roll forward model referred to in clause 6.5.1 of the *National Electricity Rules*;
- the depreciation schedules nominated by Power and Water for the purposes equivalent of clause 6.5.5 of the *National Electricity Rules*, which categorise the relevant assets for these purposes by reference to well accepted categories such as:
  - asset class (e.g., distribution lines and substations); or
  - category driver (e.g., regulatory obligation or requirement, replacement, reliability, net market benefit, and business support), together with:
  - details and an explanation of the calculation of all amounts, values and other inputs used by Power and Water to compile those depreciation schedules, with default use of the straight-line depreciation method; and
  - a demonstration that those depreciation schedules conform with the requirements set out in clause 6.5.5(b) of the *National Electricity Rules*;
- the total annual revenue expected from all related network tariffs during the final year (2008/09) of the second regulatory period;
- all of which must be accompanied by:
  - details of all amounts, values and inputs relevant to the calculation;

- an explanation of the calculation and the amounts, values and inputs involved in the calculation; and
- a demonstration that each calculation, and the resultant amounts, values and inputs on which it is based, comply with relevant requirements of the Commission's final Price Control Mechanism Decision.

5.42 The Commission will approve the estimated annual revenue requirement for the final year of the second regulatory period in relation to standard control services, as set out in Power and Water's current Po building block proposal, if the Commission is satisfied that those amounts have been properly calculated using:

- the post-tax revenue model on the basis of amounts calculated, determined or forecast in accordance with the requirements of the final Price Control Mechanism Decision or (otherwise) Part C of chapter 6 of the *National Electricity Rules*; and
- with respect to the regulatory asset base, the roll forward model on the basis of amounts calculated, determined or forecast in accordance with the requirements of clause 6.5.1 of the *National Electricity Rules* (unless, in accordance with the final Price Control Mechanism Decision and independent of any DORC valuation, Power and Water can demonstrate that a further adjustment is required to ensure Power and Water's ongoing financial viability during the third regulatory period).

5.43 The Commission will approve the estimated revenue being raised during the final year of the second regulatory period from existing network tariffs applying to standard control services, as set out in Power and Water's current Po building block proposal, if the Commission is satisfied that those amounts have been properly calculated, determined or forecast in accordance with the requirements of the final Price Control Mechanism Decision or (otherwise) the NT Code's pricing principles.

5.44 If the Commission refuses to approve an amount or value required as part of the constituent decisions, the substitute amount or value on which the determination is based will be:

- determined on the basis of the current regulatory proposal; and
- amended from that basis only to the extent necessary to enable it to be approved in accordance with the final Price Control Mechanism Decision or (otherwise and as applicable) the relevant provisions of chapter 6 of *National Electricity Rules* or the NT Code's pricing principles.

CHAPTER

6

ANNUAL ESCALATION ARRANGEMENTS FOR STANDARD CONTROL SERVICES

Introduction

6.1 This chapter addresses in detail matters associated with implementing the prospective CPI minus X component of the price control mechanism for standard control services. This includes the additional pass through events that are to apply for the regulatory period, and how any proposed efficiency benefit sharing scheme, service target performance incentive scheme or demand management incentive scheme might apply to Power and Water.

X factor

6.2 For the reasons set out in chapter 3, for the purposes of the third regulatory period, the Commission has proposed that the Price Control Mechanism Decision retains the approach to setting the X factor for use in the CPI-X price control mechanism established by its 2004 Reset Determination, namely basing the X factor on a benchmark estimate of the trend annual rate of productivity (or efficiency) performance for the industry. This then becomes the performance target that Power and Water must equal to maintain the profitability of its networks business. Performance which betters this target increases profit during the regulatory period and provides the key incentive properties of the CPI-X form of price control.

6.3 As a result, the draft Price Control Mechanism Decision departs from the *National Electricity Rules* in two respects:

- rather than being part of Power and Water's regulatory proposal, the Commission will set the values of the X factor in advance of the preparation and submission of the regulatory proposal, and Power and Water is required to apply these X factor values in all calculations for its own proposal; and
- rather than being designed to equalise (in terms of net present value) the revenue to be earned by Power and Water based on a multi-year building block approach, the X factor will be determined using a productivity–based approach.

6.4 The reasons for these departures from the *National Electricity Rules* are dealt with extensively in chapter 3, and not elaborated on further in this chapter 6. Instead, this chapter focuses on the methodology to be used for determining the two efficiency factors (X_1 and X_2) adopted for the 2004 price control mechanism.

6.5 For the 2004 price control mechanism, the X_1 factor was a factor determined by the Commission to reflect the difference between annual movements in consumer prices on average and in electricity network access prices on average in Australia. The X_1 factor involves taking account of the future scope for productivity improvements in the

regulated industry as a whole. The Commission derived the X_1 factor in relation to estimates derived and used by other regulators.

6.6 For the 2004 price control mechanism, the X_2 factor was a factor determined by the Commission to reflect the additional efficiency gains required in the Northern Territory to close the gap relative to the efficiency benchmark provided by the sector in general. The Commission derived the X_2 factor from an independent consultant's report that evaluated the operating performance of Power and Water against other relevant electricity networks businesses in Australia.[17]

6.7 In the Issues Paper, the Commission proposed to continue with the distinction made in the 2004 price control mechanism between the X_1 and X_2 factors and the general method for measuring each of these factors. However, the Commission noted that in practice, consideration of the X_2 factor is dependent on decisions to be made regarding the scope and nature of any cost-based Po factor adjustment and gains sharing approach.

6.8 Power and Water supported the separate consideration of the X_1 and X_2 factors, but noted that:

> *"• while decisions on its own efficiency compared to a benchmark new entrant are best left to the Commission to determine, its own costs are increasing, not decreasing, with others in the industry in the same situation; and*
>
> *• the work underpinning the selection of new X factors should seek to understand the national and Territory wide factors that are causing these increases, and reflect them into X factors as appropriate." (p.6)*

6.9 Power and Water also submitted that:

> *"Since 2004, two trends have been observable in the national utilities market:*
>
> - *it is now far more difficult to attract and retain skilled electricity staff than previously. This has been well documented and it is now an accepted aspect of regulatory decision making that wage costs are rising by more than CPI. The BIS Shrapnel Report submitted by ElectraNet to the AER as Appendix D to its revenue proposal looked at wage costs for the electricity industry to 2017 and forecast wages growth of between 5% and 6% per annum for the industry from 2009 to 2014. This means that both operations and maintenance costs, and capital expenditure delivery costs, are rising; and*
> - *it is more expensive than ever to buy the materials required to deliver capital expenditure programs. For example, the Evans and Peck Report submitted by ElectraNet to the AER as Appendix E to its current revenue proposal forecast cost increases ranging from 3.4% to 7.5% over the period to 2014 based on forward looking prices for steel, copper and other materials." (p.5-6)*

6.10 The NTMEU supported the continuation of the Commission's current annual tariff escalation arrangements.

6.11 The Commission proposes to request its consultants GHD Meyrick, as the Commission's expert adviser on this matter, to make a recommendation to the Commission on the values for the X factors to apply during the third regulatory period.

6.12 Preliminary values of the X factors will be published along with the Commission's final Price Control Mechanism Decision (due 2 May 2008). This will enable Power and Water to take these values fully into account when developing its initial regulatory proposal.

6.13 Final determined values of the X factors will be published along with the Commission's draft determination (due mid-October 2008). This will enable Power and Water to take these values fully into account when developing its revised regulatory proposal.

---

[17] Meyrick and Associates Pty Ltd, *Benchmarking Power and Water Corporation's Power Networks O&M Costs*, January 2003. The Executive Summary of this report can be viewed on the Commission's website.

Defining the productivity–based X factors

6.14 As is demonstrated in Appendix B (equation (10)), the X factor can be decomposed into three components as follows:

$$X \equiv (\Delta TFP_I - \Delta TFP_E) + y.(\Delta TFP_f - \Delta TFP_I) + (\Delta W_E - \Delta W_I)$$

$$X \equiv X_1 + X_2 + X_3 \quad \text{... (1)}$$

where:

Δ represents the proportional change in a variable

TFP = Total Factor Productivity

W = an input price index

y = a factor determined in conjunction with the efficiency assumption used for the Po building blocks exercise ($0<y<1$)

the I subscript denotes the industry's value for a variable

the E subscript denotes the economy as a whole's value for a variable

the f subscript denotes the regulated firm's value for a variable.

6.15 Equation (1) shows that the X factor can effectively be decomposed into three component factors:

- an X_1 factor, being the difference between the industry's TFP growth and that for the economy as a whole;
- an X_2 factor, being the difference between the firm's TFP growth and that for the industry; and
- an X_3 factor, being the difference between the firm's input prices and those for the economy as whole.

6.16 Thus, if the regulated industry has the same TFP growth as the economy as a whole and the same rate of input price increase as the economy as a whole then the X factor (being the sum of the X_1 and X_3 factors) in this case is zero. If the regulated industry has a higher TFP growth than the economy then X is positive, all else equal, and the rate of allowed price increase for the industry will be less than the CPI. Conversely, if the regulated industry has a higher rate of input price increase than the economy as a whole then X will be negative, all else equal, the rate of allowed price increase will be higher than the CPI.

6.17 In the second regulatory period, the Commission adopted a differential X factor approach where the X_1 component was based on an estimate of industry average productivity growth less economy–wide productivity growth, and the X_2 component was based on the results of a benchmarking study comparing Power and Water's network operating expenditure productivity level with Australian best practice after allowing for operating environment differences. In the second regulatory period, no allowance was made for an X_3 component associated with input price differences between the electricity distribution industry and the economy as a whole.

6.18 In principle, the X_1 factor used for the second regulatory period was the sum of the X_1 and X_3 factors now being proposed for the third regulatory period. In practice, as the 2004 Reset implicitly assumed that $X_3=0$, the X_1 factors in the second and third regulatory periods are empirically equivalent and so can be directly compared.

Measuring the X_1 factor

6.19 In determining the value of X_1 for the second regulatory period, the Commission based its decision on a range of evidence available at the time from other jurisdictions. This included the X factors set earlier in Victoria, Queensland, the UK and the Netherlands and Meyrick and Associates ('Meyrick') draft report to the New Zealand

Commerce Commission on electricity distribution productivity performance in New Zealand.

6.20 The Commission intends to adopt a similar process in setting the X_1 factor for the third regulatory period. However, a larger body of information on electricity distribution productivity performance is now available from other jurisdictions. To assist in assessing and distilling this information the Commission has engaged the GHD Meyrick alliance to advise it on recent productivity growth trends. GHD Meyrick has been asked to provide a recommendation on the components that make up the X_1 factor as set out in equation (1), and the reasons for those recommendations.

6.21 In forming its view of an appropriate electricity distribution productivity growth rate, GHD Meyrick has been asked to consider the following sources:

- evidence from recent Australian electricity distribution price and revenue cap decisions;
- research sponsored by the Essential Services Commission of Victoria on electricity distribution TFP and critiques of that research;
- the final Meyrick 2003 report to the Commerce Commission on electricity distribution productivity performance in New Zealand;
- Meyrick's recent update for the Commerce Commission of its New Zealand electricity distribution productivity analysis;
- evidence from recent electricity distribution regulatory decisions and productivity analyses in the UK, Europe and North America; and
- any other sources GHD Meyrick considers relevant to the subject, including information on Power and Water' productivity performance, if available and sufficiently robust.

6.22 In forming its view of an appropriate economy–wide productivity growth rate, GHD Meyrick has been asked to consider the following sources:

- Australian Bureau of Statistics estimates of market sector multifactor productivity growth; and
- other estimates of economy–wide productivity growth including Meyrick's study for the Productivity Commission .

Measuring the X_2 factor

6.23 In determining the value of X_2 for the second regulatory period, the Commission based its decision on information contained in a confidential benchmarking report prepared for Power and Water and the Commission. This report assessed the magnitude of operating environment factors that increased Power and Water's network operating and maintenance (O&M) costs compared to other Australian electricity distribution businesses. It then calculated a gap between Power and Water Networks' O&M costs adjusted for operating environment differences and Australian best practice based on a confidential productivity database covering eleven electricity distribution businesses.

6.24 The adjusted O&M productivity gap was estimated at 20% in 2002. The Commission allocated half this gap to its first year Po factor adjustment and the remaining half to be removed over a 10 year period by the X_2 factor. Taking account of the O&M share of total costs, this produced an X_2 factor of 0.25%.

6.25 The Commission intends to adopt a similar approach in setting the X_2 factor for the third regulatory period and has engaged the GHD Meyrick alliance to advise it on the appropriate magnitude of the X_2 factor to apply.

6.26 The 2003 Meyrick report used data for 2001/02 supplied by Power and Water and data from the Meyrick electricity distribution productivity database for ten other businesses covering earlier years from 1998 through to 2000. Meyrick has since

undertaken another round of electricity distribution benchmarking in 2004 which covered data up to and including 2003 for thirteen of Australia's then sixteen electricity distribution businesses.

6.27 GHD Meyrick has identified the following four options for updating the X_2 factor analysis for the third regulatory period:

- undertake a full update of the Meyrick electricity distribution database covering all Australian electricity distribution businesses;
- update relevant data for Power and Water and compare to the latest available Meyrick data for other businesses, adjusting the latter for price movements only;
- update relevant data for Power and Water and compare to the latest available Meyrick data for other businesses, rolled forward using estimated industry productivity growth and adjusting for price movements; and
- roll forward the existing X_2 factor of 0.25%.

6.28 The first option would involve a disproportionate commitment of resources and be time consuming to complete. The second and third options, on the other hand, could be readily implemented within the timeframe and resources of the current reset process while providing most of the information that could be obtained from the first option. The second and third options may lead to the same outcome as the fourth option but the Commission believes it is worth updating the analysis to confirm this, particularly given improvements in Power and Waters information keeping since the 2003 Meyrick study.

6.29 The Commission will be requesting GHD Meyrick to:

- advise on the advantages and disadvantages of the second option above compared to the third option;
- undertake an update of the 2003 Meyrick analysis for Power and Water Network's O&M productivity gap, taking account of operating environment differences using updated data for Power and Water and data for other businesses rolled forward using the second or third option above; and
- advise on the desirability of retaining the current X_2 factor of 0.25% or changing it to another value based on the updated analysis.

Measuring the X_3 factor

6.30 The Commission will be requesting GHD Meyrick to assess available information on forecast increases in electricity distribution input prices and economy–wide input prices, drawing on:

- consideration of issues arising in recent regulatory reviews bearing upon the measurement of the X_3 factor, including those for electricity transmission prices in Victoria and for the Essential Services Commission of Victoria's Gas Access Arrangement Review for 2008 to 2012;
- forecasts of electricity distribution input price growth and economy–wide input price growth presented in recent regulatory reviews;
- other forecasts of macroeconomic conditions; and
- information supplied by Power and Water.

6.31 Based on its assessment of this information, GHD Meyrick will be asked to provide a recommendation on whether the X_3 factor in equation (1) should take on a non-zero value in the third regulatory period and the reasons for that recommendation.

Cost pass through

6.32 The scope for cost pass through adjustments is the subject of clause 6.6.1 of the *National Electricity Rules*.

6.33 If a positive change event occurs, Power and Water may seek the approval of the Commission to pass through to network users a positive pass through amount. If a negative change event occurs, the Commission may require Power and Water to pass through to network users a negative pass through amount as determined by the Commission.

6.34 To seek the approval of the Commission to pass through a positive pass through amount, Power and Water must submit to the Commission, within 90 business days of the relevant positive change event occurring, a written statement which meets the requirements of clause 6.6.1(c) of the *National Electricity Rules*.

6.35 Power and Water must submit to the Commission, within 90 business days of becoming aware of the occurrence of a negative change event, a written statement which meets the requirements of clause 6.6.1(f) of the *National Electricity Rules*. The Commission may, however, determine that a negative change event has occurred even in the absence of notification by Power and Water.

6.36 If the Commission determines that a pass through change event has occurred (whether that be a positive or a negative one), the Commission will determine:

- the pass through amount; and
- the amount of that pass through amount that should be passed through to network users in each regulatory year during the remainder of the regulatory period.

6.37 In making a determination with respect either to a positive or to a negative pass through, the Commission will undertake a public consultation process in accordance with clause 62(2) of the NT Code and, in making its determination, will take into account the pass through factors specified in clause 6.6.1(j) of the *National Electricity Rules*.

Service target performance incentive scheme

6.38 A 'service target performance incentive scheme' is the subject of clause 6.6.2 of the *National Electricity Rules*.

6.39 A service target performance incentive scheme provides incentives (which may include targets) for the network service provider to maintain and improve service performance.

6.40 During the second regulatory period, the Commission established a standards of service framework that includes the minimum standards to be met by Power and Water.[18] Among other things, this framework aims to discourage deterioration in service standards that can result under price controls whereby the network service provider reduces expenditure (and thus increases profits) at the expense of service quality.

6.41 This framework currently does not include any incentive or penalty mechanisms, such as a price control adjustment in response to service performance or a guaranteed service level (GSL) scheme. When establishing the framework, the Commission considered its first priority was to ensure that Power and Water's reporting mechanisms were effective and the minimum standards used were valid (over the second regulatory period).

[18] The Commission published a *Standards of Service Code* that took effect from 1 January 2006. This Code establishes minimum standards of reliability, quality and customer service with respect to Power and Water's service provision.

6.42 The 2009 Reset provides an opportunity to examine the scope for the introduction of incentive or penalty mechanisms in support of the NT Electricity Standards of Service framework.

6.43 In the Issues Paper, the Commission proposed to put in place an initial performance incentive arrangement as part of the 2009 Reset, on the basis that the intention to introduce an incentive arrangement has been flagged for some time and, until such a scheme is introduced, the incentives for improving the measurement and monitoring of service performance in the Northern Territory will remain weak. The Commission also noted that the initial performance incentive arrangement would need to be tailored to the circumstances in the Northern Territory, including to ensure that it is appropriate to smaller and more dispersed networks, and to recognise the developing standard of measurement of service performance.

6.44 Power and Water supported the introduction of a service standards incentive mechanism into the price regulation methodology, and noted that reliable service performance data was available in order to determine the appropriate parameters for such a scheme.

> *"There is a role for a mechanism that rewards and penalises Power and Water for over or under performance in the network. Performance data is now available which could make it an appropriate and reliable part of the future regulatory regime." (p.6)*

6.45 The NTMEU strongly supported the introduction of a service standards incentive mechanism. The NTMEU considered that the service incentive scheme should:

- be based upon high performance standards to ensure that there is an actual incentive to improve service levels;
- require penalties for poor performance;
- cover a range of services provided by Power and Water (including network performance and performance of the business in interfacing with its customers); and
- include minimum standards applying to the worst performing elements of the network.

6.46 Under a conventional cost of service approach, the usual form of incentive scheme is a price control adjustment in response to service levels. By adding another factor (usually termed an S factor) to the permitted CPI-X price path, the price control adjustment schemes reward (or penalise) the network service provider for improvements (or deteriorations) in average standards of service, with the reward (or penalty) being given effect through average tariff levels. Broadly, the value of the S factor is determined by the difference between a network service provider's target standard of service and its actual performance.

6.47 The Commission is partly influenced by concerns about how such a service incentive scheme needs to differ in the context of use of productivity-based X factors in the control mechanism.

6.48 While it is also possible to add supplementary service related factors where an external benchmarking approach is used, ideally service quality outputs would be included within the productivity framework. Unfortunately, a satisfactory way of converting reliability measures into a format consistent with the productivity framework has yet to be devised.

6.49 For example, if a business improves its system to achieve increased reserve capacity or invests heavily in undergrounding, it will receive no output recognition for this but will instead be 'penalised' on the input side in current productivity specifications. But this higher level of 'insurance' may be valued highly by customers in which case it should ideally be recognised as increased output.

6.50 Therefore, until satisfactory ways of including service quality outputs in the productivity framework are found, supplementing X factors with separate service quality incentives remains the most practical option.

6.51 From the Commission's perspective, the issue is when (whether via jurisdictional consistency or by eventual adoption of national arrangements) rather than if such performance incentive arrangements will be introduced into the Northern Territory's network price regulation methodology.

6.52 However, the Commission has concluded that, at this time, data constraints present too many problems to introduce an S factor involving actual monetary incentives. The issues that concern the Commission include:

- the limited accuracy and availability of data, which might only see use of partial reliability data, which could lead to some perverse incentives with focus on 'easy wins' in relation to measured reliability to the neglect of improvements regarding service performance that is not yet well measured (e.g., the reliability of the worst performing parts of the network);
- the observed variability of service level indicators are a concern, but the short period of data available limit the ability to smooth possible price effects; and
- as the accuracy of the service level data improves, reported reliability levels could worsen unrelated to poor performance.

6.53 The Commission does not propose at this stage to develop and publish a service target performance incentive scheme for the third regulatory period, but will, instead, put in place a 'paper trial' service target performance incentive arrangement to provide the basis for a live scheme in the fourth regulatory period.

6.54 The Commission proposes to follow the 'paper trial' of a service incentive (S factor) scheme instituted for the 2004-09 regulatory period in NSW by the Independent Pricing and Regulatory Tribunal (IPART), instead of providing actual monetary incentives.

6.55 IPART's paper trial involved the collection of annual data on service reliability performance from the distributors. Reliability data (SAIDI, SAIFI, CAIDI, and, for some distributors, MAIFI) is collected for the network as a whole, and by feeder type (CBD, urban or rural). IPART analyses the data collected, comparing it against the levels of performance that the distributors indicated they expected to achieve over the regulatory period.[19]

6.56 The Commission's current view notwithstanding, Power and Water may wish to propose a service target performance incentive scheme. In this case, for the proposal to be approved the Commission would need to be satisfied that the scheme appropriately took into account any such schemes developed and published by the AER and the factors in clause 6.6.2(b) of the *National Electricity Rules*.

Efficiency benefit sharing scheme

6.57 An 'efficiency benefit sharing scheme' is the subject of clause 6.5.8 of the *National Electricity Rules*.

6.58 An efficiency benefit sharing scheme would provide for a fair sharing between the network service provider and network users of:

- the efficiency gains derived from the operating expenditure of network service providers for a regulatory period being less than; and

[19] For more details regarding IPART's paper trial scheme, see IPART's *NSW Electricity Distribution Pricing 2004/05 to 2008/09 Final Report*, June 2004, p.119-123.

- the efficiency losses derived from the operating expenditure of network service providers for a regulatory period being more than,

the forecast operating expenditure accepted or substituted by the AER for that regulatory period.

6.59 An efficiency benefit sharing scheme may also (but is not required to) be developed to cover efficiency gains and losses related to capital expenditure or distribution losses.

6.60 Were Power and Water to propose an efficiency benefit sharing scheme, it would need to take into account any such schemes developed and published by the AER and the factors in clause 6.5.8(c) of the *National Electricity Rules*.

6.61 The efficiency benefits scheme would apply in the next (fourth) regulatory period. The Po adjustment applying at the commencement of the third regulatory period effectively negates the role for an efficiency benefits scheme during the third regulatory period.

Demand management scheme

6.62 A 'demand management scheme' is the subject of clause 6.6.3 of the *National Electricity Rules*.

6.63 A demand management scheme provides incentives for the network service provider to implement efficient non-network alternatives or to manage the expected demand for standard control services in some other way.

6.64 Were Power and Water to propose a demand management scheme, it would need to take into account any such schemes developed and published by the AER and the factors in clause 6.6.3(b) of the *National Electricity Rules*.

Commission's draft decision

6.65 The values of the relevant X factors to apply to the prospective CPI minus X basis of the control mechanism for standard control services will be as determined by the Commission. These X factors will be derived using a productivity-based approach rather than a multi-year building block approach.

6.66 Power and Water's regulatory proposal must be consistent with the values of the CPI and the X factors applying to the control mechanism for standard control services as has been determined at the time by the Commission.

6.67 With regard to year-on-year movements in the weighted average of each year's network access tariffs for standard control services, the Commission will also:

- apply cost pass through arrangements if events occur which, if not passed through, could put at risk the efficiency of Power and Water's decisions and actions; and
- unless Power and Water proposes a service target performance incentive scheme, implement a 'paper trial' for the third regulatory period.

6.68 Power and Water may propose an efficiency benefit sharing scheme to apply to the fourth regulatory period and a demand management scheme in its regulatory proposal if it so wishes. Otherwise, no such schemes will be implemented at this time.

CHAPTER

7

INDIVIDUAL NETWORK ACCESS TARIFFS

Introduction

7.1 This chapter addresses in detail various matters associated with the determination and approval of individual network access tariffs.

Classification of services

7.2 Under the NT Code, network access services which are outside the primary price control mechanism are a matter for the Commission to determine. Clause 72 of the NT Code distinguishes between two types of excluded services:

- those that are subject to effective competition and which, in the assessment of the Commission, can be satisfactorily excluded from the primary price control mechanism (i.e., non regulated services) (subclause (2)); and
- those that are not subject to effective competition, but do not lend themselves to being regulated by the primary price control mechanism (subclause (3)).

7.3 The requirements in the *National Electricity Rules* (Part B, Division 1) regarding the classification of services are consistent with the NT Code.

7.4 For the purposes of clause 72 of the NT Code, the Commission proposes a default classification as outlined at Appendix C. This classification is based upon the Commission's 2004 Excluded Services Determination, but re-expressed in the classification terminology in clause 6.2.1(a) of the *National Electricity Rules*:

- direct control services;
- negotiated network services; and
- unregulated services.[20]

7.5 Clause 6.2.2(a) of the *National Electricity Rules* requires direct control services to be further divided into two categories – standard control services and alternative control services.[21] Standard control services must be regulated using the primary price control mechanism. Alternative control services may, but need not be, regulated using a different price control mechanism.

[20] If the AER decides against classifying a network service, the service is not regulated under the *National Electricity Rules* (clause 6.2.1(a)).

[21] For example, in circumstances where a service is provided to a small number of identifiable customers on a discretionary or infrequent basis, and costs can be directly attributed to those customers, it may be more appropriate to classify the service as an alternative control service than as a standard control service.

7.6 As part of its regulatory proposal, Power and Water is required to submit a classification proposal showing how the network services it provides should, in its opinion, be classified under the classification in Part B, Division 1 of the *National Electricity Rules*.

7.7 The classification of services will be the default classification as set out at Appendix C unless the Commission considers that, in the light of Power and Water's regulatory proposal and the submissions received, there are good reasons for departing from the current classification in order to meet the requirements in the NT Code or (otherwise) clause 6.2.1 of the *National Electricity Rules*.

7.8 The Commission encourages Power and Water to more specifically describe in its classification proposal the network access services that it currently provides.

Alternative control services

7.9 As part of its regulatory proposal, Power and Water must propose a control mechanism for direct control services classified under the classification proposal as alternative control services.

7.10 The Commission will approve the proposed control mechanism if it complies with the requirements of clause 6.2.5 of the *National Electricity Rules*.

Negotiated network services

7.11 Presently, the Commission's Framework for Negotiation of Discounted Network Tariffs along with the NT Code's negotiation requirements provide the negotiation framework for any negotiated network services.

7.12 As part of the 2009 Reset, the Commission proposes to replace the existing discounting framework with a negotiating framework, consistent with the approach to such services under the *National Electricity Rules*.

7.13 As part of its regulatory proposal, Power and Water must prepare a document ('the negotiating framework') setting out the procedures to be followed during negotiations between Power and Water and any person (the applicant) who wishes to receive a negotiated network service from Power and Water as to the terms and conditions of access for the provision of the service.

7.14 The Commission will approve the proposed negotiating framework provided it is consistent with:

- the applicable requirements of the final Price Control Mechanism Decision;
- any applicable requirements of the NT Code, including the requirements in the Code's chapter 2 Negotiation of Access and chapter 3 Access Terms; and
- the minimum requirements for a negotiating framework listed in clause 6.7.5(c) of the *National Electricity Rules*.

Side constraint on annual tariff movements for standard control services

7.15 The 2004 price control mechanism allows Power and Water to readjust individual network tariffs within an overall tariff basket constraint. The Commission has the capacity to not approve proposed individual network tariffs that do not conform with a 'side constraint' that sets a maximum limit on the allowed annual change in each individual network user's weighted average tariff.

7.16 Specifically, for the second regulatory period, the Commission set a side constraint on the annual increase in each individual network user's weighted average network access tariff to protect each individual 'consumer' from large price increases, while providing Power and Water with the flexibility necessary to align its network tariff structures with the structure of its costs (by re-balancing tariffs).

7.17 Power and Water did not undertake any material restructuring of its network tariffs during the second regulatory period. This meant that the side-constraint arrangements did not come into play. However, it does not appear that the side constraint arrangements themselves provided any discouragement to the restructuring of network tariffs or the introduction of new tariffs during the second regulatory period, and would be unlikely to do so during the third regulatory period.

7.18 In the Issues Paper, the Commission proposed continuing with a rebalancing constraint to avoid price volatility and to provide a measure of certainty for end-use customers.

7.19 Power and Water had no objections to leaving the side constraint feature of the 2004 price control mechanism unchanged.

> *"Power and Water… accepts that side constraints are a necessary and robust mechanism for ensuring that impacts on retailers and customers are minimised in an environment of tariff rebalancing under a weighted average price cap…" (p.7)*

7.20 The NTMEU did not agree in principle to a side constraint feature, as it considered that its application in other jurisdictions has typically resulted in the cross subsidisation of larger users by residential customers.

7.21 The NTMEU argued that the application of side constraints would not be necessary if tariffs were cost reflective at the time of the reset. The NTMEU's main concern was that Power and Water could:

> *"…set non-cost reflective [network] tariffs at the start of a period and use the side constraint as an argument to not to provide appropriate adjustments during the period to reflect actual costs. This can be by way of providing cross subsidies.*
>
> *If the tariff is demonstrably cost reflective at the reset, then the application of a side constraint should not be necessary, as the movement of any tariff as a result of network and/or customer changes is unlikely to exceed whatever side constraint might have been applied." (p.28)*

7.22 However, the NTMEU also acknowledged that:

> *"If the UC applies close control on the development of the tariffs as recommended by NTMEU in earlier sections, then the need for a side constraint becomes a non-issue."(p.28)*

7.23 An essential precondition for achieving the benefits of the tariff basket approach is the requirement that Power and Water has the flexibility necessary to align – and keep aligned – its network price structures with the structure of its costs.

7.24 It is possible, however, that absolute price flexibility may see Power and Water take a short-term view of its network tariff structures, in the knowledge that year-on-year adjustments in individual tariffs (within the cap on average prices) may enable it to revenue optimise or otherwise manage volume risk. Hence, some limits on price flexibility – once a cost reflective price structure is initially achieved – may encourage Power and Water to take a longer-term view when setting tariff structures.

7.25 Likewise, as substantial or frequent price changes can impose unreasonable or inequitable adjustment costs on end users (who make decisions on location, production and investment in electricity-consuming equipment that are influenced by existing prices), there is a role to be played by side constraints on the annual movement of individual network access tariffs to prevent (or phase in) 'price shocks'.

7.26 The application of a side constraint mechanism is intended to balance both these requirements. Side constraints are also intended to assign some risk to Power and Water, to increase the incentive to make the network pricing structure as cost reflective

as possible in advance rather than to rely on reactive year-on-year tariff changes as developments unfold.

7.27 Once again, the Commission proposes that the weighted average tariff for each individual end-use customer for a particular year of the regulatory period must not exceed the corresponding weighted average tariff for each individual end-use customer for the preceding regulatory year by more than a permissible percentage (i.e., the side constraint).

7.28 In the interests of regulator consistency (and so following clause 6.18.6(c) of the *National Electricity Rules*), for the third regulatory control period the permissible percentage will be the greater of the following:

- CPI – X + Po plus 2%; and
- CPI plus 2%.

7.29 Under this approach, the real effective rebalancing limit of 2% is maintained regardless of whether the allowed CPI-X price path requires price reduction or price increases.

7.30 In deciding whether the permissible percentage has been exceeded in a particular year, the Commission will disregard those matters nominated in clause 6.18.6(d) of the *National Electricity Rules* (e.g., approved cost pass throughs).

Network pricing principles and methods

7.31 Under the 2004 price control mechanism, the Commission also has the capacity to not approve proposed individual network tariffs that conform with the overall tariff basket constraint and the applicable side constraints if it considers the *structure* of the proposed tariffs to be inconsistent with an approved Network Pricing Principles and Methods Statement.

7.32 In the Issues Paper, the Commission proposed to increase scrutiny of Power and Water's proposed Network Pricing Principles and Methods Statement for the third regulatory period, but to stream-line the approval process for each year's individual network tariffs after the Network Pricing Principles and Methods Statement has been approved.

7.33 Power and Water supported the Commission's proposal to increase the scrutiny of the proposed Network Pricing Principles and Methods Statement prior to the commencement of the third regulatory period and subsequently simplify the basis for approval of the proposed annual tariff schedules.

7.34 The NTMEU supported the Commission's proposal to increase the scrutiny of the Power and Water's proposed Network Pricing Principles and Methods Statement. However, this support was not based upon an interest in subsequently simplifying the basis for approval of annual tariff schedules, but primarily to prevent any tariff manipulation that results in cross subsidisation and discourages demand management options.

7.35 The NTMEU reasoned that the *National Electricity Rules*:

> *"…specifically requires the regulator to assess the outcomes of the pricing approach used by a distribution business. It is now no longer sufficient for the regulator to have a cursory review of tariff outcomes – they are now required to be confident that they are cost reflective as near as is reasonable, and that the basket of tariffs used for managing tariff movements is demonstrably reflective of the costs to provide the various services included, and the weighting allocated to each service is demonstrably developed from actual experience." (p.29)*

7.36 On balance, the Commission agrees with the NTMEU that Power and Water's proposed Network Pricing Principles and Methods Statement and the initial schedule of individual network access tariffs should be closely scrutinised.

7.37 Consequently, as foreshadowed in chapter 3, the Commission has decided to consider Power and Water's Network Pricing Principles and Methods Statement, and resultant prices, as an integral part of the 2009 Reset. Therefore, these aspects will become subject to the same degree of public consultation as the key price control mechanism decisions canvassed in chapter 3.

7.38 Accordingly, as part of its regulatory proposal, Power and Water must submit a draft Network Pricing Principles and Methods Statement to apply to the setting of individual network tariffs. The Network Pricing Principles and Methods Statement must set out the details of principles and methods to be used for establishing the reference tariffs to apply to individual direct control services.[22]

7.39 The Commission will approve the draft Network Pricing Principles and Methods Statement submitted by Power and Water if the Commission is satisfied that this statement is consistent with:

- the applicable requirements of the final Price Control Mechanism Decision;
- any applicable requirements of the NT Code; and
- clause 6.18.3, clause 6.18.4 and clause 6.18.5 of the *National Electricity Rules*.

Pricing proposals

7.40 Under the 2004 price control mechanism, Power and Water is required annually to submit its proposed network tariff schedules to the Commission for approval in accordance with the requirements of the NT Code. The Commission's tariff approval process requires Power and Water to demonstrate how the proposed network tariffs comply with the tariff basket constraint, the side constraint and the approved Network Pricing Principles and Methods Statement.

7.41 For the third regulatory control period, the Commission proposes to align these approval processes, as much as it possibly can, with the equivalent provisions of the *National Electricity Rules*. Accordingly, consistent with clause 6.18.2(a) of the *National Electricity Rules*, for direct control services Power and Water must submit to the Commission:

- as part of its regulatory proposal, a pricing proposal (the 'initial pricing proposal') for the first regulatory year of the regulatory period; and
- at least 2 months before the commencement of the second and each subsequent year of the regulatory period, a further pricing proposal (an 'annual pricing proposal') for the relevant regulatory year.

7.42 Consistent with clause 6.18.2(b) of the *National Electricity Rules*, a pricing proposal must:

- set out Power and Water's proposed Network Tariff Schedules for direct control services, including the tariff classes that are to apply for the relevant year, the proposed tariffs for each tariff class and, for each proposed tariff, the charging parameters (i.e., the constituent elements of a tariff) and the elements of service to which each charging parameter relates;
- describe the nature and extent of change in the proposed Network Tariff Schedules from the tariffs applying in previous regulatory year; and

[22] *Electricity Networks (Third Party Access) Code*, clause 75(5).

- demonstrate compliance with the final Price Control Mechanism Decision and the Network Pricing Principles and Methods Statement.

7.43 The Commission will approve Power and Water's annual pricing proposal for standard control services if the Commission is satisfied that the proposed tariffs in the Network Tariff Schedules:

- comply in full with the final Price Control Mechanism Decision; and
- in all other respects are consistent with the Network Pricing Principles and Methods Statement.

7.44 The Commission's approval of annual network tariffs will be conditional on Power and Water maintaining on its website:

- the approved Network Tariff Schedules for the relevant year; and
- a statement of expected network tariff trends (to be updated for each year) giving an indication of how Power and Water expects network tariffs to change over the regulatory period and the reasons for the expected changes.

This requirement is similar to the publication requirement imposed on network services providers by clause 6.18.9 of the *National Electricity Rules*.

Commission's draft decision

7.45 The weighted average tariff for each individual end-use customer for a particular year of the regulatory period must not exceed the corresponding weighted average tariff for each individual end-use customer for the preceding regulatory year by more than a permissible percentage (i.e., the side constraint). For the third regulatory period the permissible percentage will be the greater of the following:

- CPI – X + Po plus 2%; and
- CPI plus 2%.

7.46 Power and Water's regulatory proposal must include:

- a classification proposal:
  - showing how the network services to be provided by Power and Water should, in Power and Water's opinion, be classified under the classification in Part B, Division 1 of the *National Electricity Rules*; and
  - if the proposed classification differs from the current classification included in this Price Control Mechanism Decision – the reasons for the difference;
- for direct control services classified under the proposal as standard control services, a draft Network Pricing Principles and Methods Statement to apply to the setting of individual network tariffs;
- for direct control services classified under the proposal as alternative control services – the proposed control mechanism;
- for direct control services – for the regulatory year commencing 1 July 2009, the proposed Network Tariff Schedules consistent with all other elements of the regulatory proposal and using the values of the CPI and the X factors applying to the control mechanism for standard control services as determined at the time by the Commission (i.e., the initial pricing proposal); and
- for services classified under the proposal as negotiated network services – the proposed negotiating framework.

7.47 The classification of services will be the current classification as set out at Appendix C unless the Commission considers that, in the light of Power and Water's regulatory proposal and the submissions received, there are good reasons for departing

from the current classification in order to meet the requirements in the NT Code or (otherwise) clause 6.2.1 of the *National Electricity Rules*.:

7.48 The Commission will approve the control mechanism(s) proposed for alternative control services if it complies with the requirements of clause 6.2.5 of the *National Electricity Rules*.

7.49 The Commission will approve the proposed negotiating framework provided it is consistent with:

- the applicable requirements of the final Price Control Mechanism Decision;
- any applicable requirements of the NT Code, including the requirements in the Code's chapter 2 Negotiation of Access and chapter 3 Access Terms; and
- the minimum requirements for a negotiating framework listed in clause 6.7.5(c) of the *National Electricity Rules*.

7.50 The Commission will approve the draft Network Pricing Principles and Methods Statement submitted by Power and Water if the Commission is satisfied that this statement is consistent with:

- the applicable requirements of the final Price Control Mechanism Decision;
- any applicable requirements of the NT Code; and
- clause 6.18.3, clause 6.18.4 and clause 6.18.5 of the *National Electricity Rules*.

7.51 The Commission will approve Power and Water's annual pricing proposal for standard control services if the Commission is satisfied that the proposed tariffs in the Network Tariff Schedules:

- comply in full with the final Price Control Mechanism Decision; and
- in all other respects are consistent with the Network Pricing Principles and Methods Statement.

7.52 The Commission's approval of annual network tariffs will be conditional on Power and Water maintaining on its website:

- the approved Network Tariff Schedules for the relevant year; and
- a statement of expected network tariff trends (to be updated for each year) giving an indication of how Power and Water expects network tariffs to change over the regulatory period and the reasons for the expected changes.

APPENDIX

A

REQUIRED CONSTITUENT DECISIONS

In the same manner as catalogued in the *National Electricity Rules*, the Commission acknowledges that it must make each of the following decisions (**constituent decisions**) when making its Final Determination for the 2009 Reset: [23]

(1) a decision on the classification of the services to be provided by Power and Water during the course of the regulatory period;

(2) a decision on Power and Water's current Po building block proposal in which the Commission either approves or refuses to approve:

  (i) the annual revenue requirement for Power and Water, as set out in the building block proposal, for the final year of the second regulatory period; and

  (ii) the annual revenue being raised from existing network tariffs during that year;

(3) a decision in which the Commission either:

  (i) accepts that the total of the estimated operating expenditure for the final year of the second regulatory period that is included in the current Po building block proposal reasonably reflects the operating expenditure criteria in clause 6.5.6(c) of the *National Electricity Rules*; or

  (ii) does not accept that the total of the estimated operating expenditure for the final year of the second regulatory period that is included in the current Po building block proposal reasonably reflects the operating expenditure criteria in clause 6.5.6(c) of the *National Electricity Rules*, in which case the Commission must set out its reasons for that decision and an estimate of the total of Power and Water's required operating expenditure for the final year of the second regulatory period that is included in the current Po building block proposal that the Commission is satisfied reasonably reflects the operating expenditure criteria, taking into account the operating expenditure factors in clause 6.5.6(e) of the *National Electricity Rules*;

(4) a decision in relation to the rate of return on whether to apply or depart from a value, method or credit rating level set out in clause 6.5.2 and clause 6.5.3 of the transitional chapter 6 of the *National Electricity Rules*;

(5) a decision on the regulatory asset base as at the commencement of the final year of the second regulatory period that is included in the current Po building block proposal in accordance with the Price Control Mechanism Decision and the relevant provisions of clause 6.5.1 and schedule 6.2 of the *National Electricity Rules*.

[23] Based on clause 6.12.1 of the *National Electricity Rules*.

(6) a decision on the estimated cost of corporate income tax to Power and Water for the final year of the second regulatory period that is included in the current Po building block proposal in accordance with clause 6.5.3 of the *National Electricity Rules* and, where relevant, any statement of regulatory intent applying at the time in accordance with clause 6.5.4 of the *National Electricity Rules*;

(7) a decision on whether or not to approve the depreciation schedules submitted by Power and Water and, if the Commission decides against approving them, a decision determining depreciation schedules in accordance with clause 6.5.5(b) of the *National Electricity Rules*;

(8) a decision on whether or not to approve the estimated annual revenue being raised from existing network tariffs during the final year of the second regulatory period that is included in the current Po building block proposal;

(9) a decision on whether or not to approve any proposed efficiency benefit sharing scheme, service target performance incentive scheme or demand management incentive scheme submitted by Power and Water;

(10) a decision in which the Commission decides other appropriate amounts, values or inputs;

(11) a decision on the form of price control involved in the control mechanism for standard control services;

(12) a decision on the relevant X factors to apply to the prospective CPI minus X basis of the control mechanism for standard control services;

(13) a decision on the proposed control mechanism for alternative control services;

(14) a decision on the additional pass through events that are to apply for the regulatory period;

(15) a decision on the negotiating framework that is to apply to Power and Water for the regulatory period (which may be the negotiating framework as proposed by Power and Water, some variant of it, or a framework substituted by the Commission);

(16) a decision on the side constraint limitation to apply on any increase in the weighted average tariff for each individual end-use customer between two regulatory years during the regulatory period;

(17) a decision on whether or not to approve the draft Network Pricing Principles and Methods Statement submitted by Power and Water;

(18) a decision on whether or not to approve the initial pricing proposal submitted by Power and Water as part of the regulatory proposal for the first year of the regulatory period (the year commencing 1 July 2009); and

(19) a decision on the process for approving the annual pricing proposal submitted by Power and Water for the second and each subsequent year of the regulatory period, including how compliance with a relevant control mechanism is to be demonstrated.

APPENDIX

B

PRODUCTIVITY-BASED X FACTORS[24]

The principal objective of CPI–X regulation is to mimic the outcomes that would be achieved in a competitive market. Competitive markets normally have a number of desirable properties. The process of competition leads to industry output prices reflecting industry unit costs, including a normal rate of return on the value of assets after allowing for risk. Because no individual firm can influence industry unit costs, each firm has a strong incentive to maximise its productivity performance to achieve lower unit costs than the rest of the industry. This will allow it to keep the benefit of new, more efficient processes that it may develop until such times as they are generally adopted by the industry. This process leads to the industry operating as efficiently as possible at any point in time and the benefits of productivity improvements being passed on to consumers relatively quickly.

Because infrastructure industries such as the provision of electricity distribution networks are often subject to decreasing costs, competition is normally limited and incentives to minimise costs and provide the cheapest and best possible quality service to users are not strong. The use of CPI–X regulation in such industries attempts to strengthen the incentive to operate efficiently by imposing similar pressures on the network operator to the process of competition. It does this by constraining the operator's output price to track the level of estimated efficient unit costs for that industry. The change in output prices is 'capped' as follows:

$$\Delta P = \Delta W - X \pm Z \quad \text{... (1)}$$

where:

Δ represents the proportional change in a variable;

and:

P = the maximum allowed output price;

W = a price index taken to approximate changes in the industry's input prices;

X = the estimated productivity change for the industry; and

Z = relevant changes in external circumstances beyond managers' control which the regulator may wish to allow for.

There are several alternative ways of choosing the index W to reflect industry input prices. Perhaps the best way of doing this is to use a specially constructed index which weights together the prices of inputs by their shares in industry costs. However, this price information is often not readily or objectively available, particularly in regulatory regimes that have yet to fully mature. A commonly used alternative is to choose a generally available price index such as the CPI.

[24] This Appendix draws on Meyrick and Associates, *Scoping Study into Data Collection Issues for Incentive Regulation* (Report prepared for the Australian Competition and Consumer Commission) November 2003.

In choosing a productivity growth rate to base X on, the productivity growth rate should be external to the individual firm being regulated and instead reflect industry trends at a national or even international level. This way the regulated firm is given an incentive to match (or better) this productivity growth rate while having minimal opportunity to 'game' the regulator by acting strategically.

The framework that underlies the CPI–X approach can be illustrated as follows, starting with the index number definition of Total Factor Productivity (TFP) growth:

$$(1 + \Delta TFP) \equiv ({}^{Y_1}/_{Y_0})/({}^{X_1}/_{X_0})$$

$$= [\,({}^{R_1}/_{R_0})/({}^{P_1}/_{P_0})\,] \,/\, [\,({}^{C_1}/_{C_0})/({}^{W_1}/_{W_0})\,]$$

$$= [\,({}^{M_1}/_{M_0}) * ({}^{W_1}/_{W_0})\,] \,/\, ({}^{P_1}/_{P_0}) \qquad \text{... (2)}$$

where:

the subscripts represent different time periods;

and

TFP = Total Factor Productivity;

Y = total output quantity;

X = total input quantity;

P = the output price index;

W = the input price index;

R = revenue;

C = cost;

M = the mark-up; and

R = MC.

As a normal return on assets (after allowing for risk) is included in the definition of costs, a firm earning normal returns will have a mark-up factor of one while a firm earning excess returns will have a mark-up of greater than one. Rearranging the above equation gives:

$${}^{P_1}/_{P_0} = [\,({}^{M_1}/_{M_0}) * ({}^{W_1}/_{W_0})\,] \,/\, (1 + \Delta TFP) \qquad \text{... (3)}$$

where:

${}^{W_1}/_{W_0}$ = the firm's input price index (which includes intermediate inputs).

Equation (3) is approximately equivalent to:

$$\Delta P = \Delta M + \Delta W - \Delta TFP \qquad \text{... (4)}$$

Thus, the admissible rate of output price increase ΔP is equal to the rate of increase of input prices ΔW less the rate of TFP growth, ΔTFP (provided the regulator wants to keep the monopolistic mark-up constant so that $\Delta M = 0$, e.g., if an initial period P_0 change has been used to remove excess or deficient returns). Equation (3) or its approximation (4) is the key equation for a productivity–based regulation framework: the term (W_1/W_0) would be an input price index of the firm's peers and the term ΔTFP would be the average TFP growth rate for the firm's peers. The mark-up growth term could be set equal to zero under normal circumstances and, since the initial building blocks review is intended to ensure efficient costs are covered, it is excluded from the following presentation.

The next issue to be considered in operationalising (4) is the choice of the price index to reflect changes in the industry's input prices, W. The most common choice for this index is the consumer price index (CPI). But this is actually an index of output prices for the economy rather than input prices. Normally we can expect the economy's input price growth to exceed its output price growth by the extent of economy–wide TFP growth (since labour and capital ultimately get the benefits from productivity growth). Assuming that the mark-up factors for the economy as a whole are one, the counterpart to equation (2) applied to the entire economy becomes:

$$P_{(E)1}/P_{(E)0} = (W_{(E)1}/W_{(E)0}) / \Delta TFP_{(E)} \quad \text{... (5)}$$

where:

$P_{(E)}$ = the output price index for the economy;

$W_{(E)}$ = the input price index for the economy; and

$TFP_{(E)}$ = economy-wide TFP

Substituting the rate of change of the CPI for the economy–wide output price index on the left hand side of (5) and rearranging terms leads to the following identity:

$$1 = (CPI_1/CPI_0) * \Delta TFP_{(E)} / (W_{(E)1}/W_{(E)0}) \quad \text{... (6)}$$

Substituting the right hand side of (6) into (2) produces the following equation:

$$P_1/P_0 = [(CPI_1/CPI_0)* \Delta TFP_{(E)} / (W_{(E)1}/W_{(E)0})] * [W_1/W_0] / \Delta TFP$$

$$= [(CPI_1/CPI_0)* (\Delta TFP_{(E)} / \Delta TFP)] * [(W_1/W_0) / (W_{(E)1}/W_{(E)0})] \quad \text{... (7)}$$

Approximating the terms in (7) by finite percentage changes leads to the following:

$$\Delta P = \Delta CPI + (\Delta W - \Delta W_{(E)}) - (\Delta TFP - \Delta TFP_{(E)}) \quad \text{... (8)}$$

The X factor is therefore defined as:

$$X \equiv (\Delta TFP - \Delta TFP_{(E)}) - (\Delta W - \Delta W_{(E)}) \quad \text{... (9)}$$

This equation is often referred to as the 'differential of a differential' equation. Equation (9) shows that the X factor can effectively be decomposed into two terms. The first differential term takes the difference between the industry's TFP growth and that for the economy as a whole, while the second differential term takes the difference between the firm's input prices and those for the economy as whole. Thus, if the regulated industry has the same TFP growth as the economy as a whole and the same rate of input price increase as the economy as a whole then the X factor in this case is zero. If the regulated industry has a higher TFP growth than the economy then X is positive, all else equal, and the rate of allowed price increase for the industry will be less than the CPI. Conversely, if the regulated industry has a higher rate of input price increase than the economy as a whole then X will be negative, all else equal, and the rate of allowed price increase will be higher than the CPI.

If all firms in the industry are operating at similar levels of efficiency initially then a common X_1 factor can be applied to all firms. However, until incentive regulation has been operating consistently for a prolonged period, there is likely to be a wide spread of productivity levels for individual firms. Differential X factors are often used initially in this circumstance.

The differential X factor approach has usually been adopted where industry wide data are used to determine the productivity growth rate and input price growth rate in determining the X factor for a number of firms in the industry in the early stages of

incentive regulation.[25] The differential X factor (here denoted as the X_2 factor) is then used to tailor the regulatory regime to the circumstances of each particular firm (or a small number of groups of firms) by taking account of productivity levels as well as productivity growth rates. Normally, firms that have low productivity levels are potentially capable of achieving higher productivity growth rates. This is because they can make some easy gains by removing the slack from their operations to mimic the operations of the industry's best performers. Consequently, they can achieve productivity growth in excess of the rate of technological change for the industry for an interim period while they catch up to the productivity levels of the best performing firms.

The X factor can therefore be decomposed into three components as follows:

$$X \equiv (\Delta TFP_I - \Delta TFP_E) + y.(\Delta TFP_f - \Delta TFP_I) + (\Delta W_E - \Delta W_I)$$

$$X \equiv X_1 + X_2 + X_3 \quad \text{... } \mathbf{(10)}$$

where:

Δ represents the proportional change in a variable

TFP = Total Factor Productivity

W = an input price index

y = a factor determined in conjunction with the efficiency assumption used for the Po building blocks exercise ($0<y<1$)

the I subscript denotes the industry's value for a variable

the E subscript denotes the economy as a whole's value for a variable

the f subscript denotes the regulated firm's value for a variable.

Equation (10) shows that the X factor can effectively be decomposed into three component factors:

- an X_1 factor, being the difference between the industry's TFP growth and that for the economy as a whole;
- an X_2 factor, being the difference between the firm's TFP growth and that for industry; and
- an X_3 factor, being the difference between the firm's input prices and those for the economy as whole.

To implement incentive regulation in the form outlined above requires information on the TFP performance and input price changes of the firm, its peers and the economy as a whole. Operating environment differences also play an important role in determining TFP levels and have to be allowed for in the analysis.

[25] This approach has been adopted in New Zealand – see Meyrick and Associates, *Regulation of Electricity Lines Businesses, Analysis of Lines Business Performance – 1996–2003*, Report prepared for the New Zealand Commerce Commission, December 2003.

APPENDIX

C

DEFAULT SERVICES CLASSIFICATION

This classification is based upon the Commission's 2004 Excluded Services Determination, but expressed in the terminology of the services classification used by the *National Electricity Rules*.

(1) **Unregulated services** not subject to any price regulation are the following services:

(a) contestable networks engineering consulting services provided by Power and Water.

(2) **Negotiated network services** which, in the Commission's opinion, do not lend themselves to being regulated by the price cap form of price control applying in the third regulatory control period are the following services:

(a) the provision of connection equipment to a standard in excess of a standard associated with the "least overall cost, technically acceptable" assets.

(3) **Direct control services**, divided into the following subclasses:

(a) **Alternative control services** which, in the Commission's opinion, do not lend themselves to being regulated by the price cap form of price control applying in the third regulatory control period are the following services:

i. services (including metering, electric lines or electric plant) for the specific benefit of any third party (and requested by the third party) and not made available by Power and Water as a normal part of standard network services to all customers including –

- charges for moving mains, services or meters forming part of Power and Water's networks system to accommodate extension, re-design or re-development of any premises;
- the provision of electric plant for the specific purpose of enabling the provision of standby supplies or sales of electricity; and
- provision of metering, or metering data, to a standard in excess of that required for billing purposes; and

(b) **Standard control services** which, by default, are all other network services.