

## **NETWORK PRICING PRINCIPLES**

**A Discussion Paper** 

April 2000

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## Definitions

means the Utilities Commission Act 2000
means <i>Electricity Networks (Third Party Access) Code</i> attached as a schedule to the <i>Electricity Networks</i> <i>(Third Party Access) Act 2000</i>
means the Utilities Commission formed on commencement of the Act on 21 March 2000
means the person appointed by the Treasurer on 20 October 1999 to fulfil the role of regulator under the Code until the appointment of the first Utilities Commissioner under the Act on 1 April 2000
means the business division of the Power and Water Authority (PAWA) of the Northern Territory with operating responsibility for the electricity networks owned by PAWA

# CHAPTER 1

## INTRODUCTION

### **Requirements of the Code**

1.1 Under clauses 75(5) and (6) of the Code, the Commission is required to approve a *Pricing Principles Statement*:

"...setting out details of principles and methods to be used [by PAWA Networks] for defining the individual standard network access services to be supplied by the network provider [PAWA Networks] and for determining the reference tariffs to apply to those services."

#### **Provisional arrangements**

1.2 On 31 March 2000, the Commission issued an interim approval of the principles underlying the transitional network tariffs applying between 1 April and 30 June. The terms of the transitional arrangements were set out by the Interim Commissioner in a letter to the Chief Executive of the Power and Water Authority on 24 February (at Appendix A).

1.3 Among other things, the interim approval of the transitional pricing principles was granted on the basis that wider consideration of a *Pricing Principles Statement* would take place prior to establishing the network tariffs to apply from 1 July 2000.

1.4 On 25 February, the Interim Commissioner advised PAWA Networks of the broad criteria the Commission would be using in approving the *Pricing Principles Statement* to apply from 1 July 2000. These criteria are reproduced at Appendix B.

#### **Draft Pricing Principles Statement**

1.5 PAWA Networks forwarded its Draft *Pricing Principles Statement* (hereafter "Draft Statement") to the Interim Commissioner on 13 March. A copy of the Draft Statement can be seen on the Commission's website (www.utilicom.nt.gov.au).

1.6 The Commission invites interested parties to provide comments on PAWA Networks' Draft Statement, in letter or submission form, by Friday 12 May 2000.

#### **Aim of Discussion Paper**

1.7 This Discussion Paper has been prepared to assist interested parties in developing their comments on the Draft Statement. It identifies the key issues raised by the Draft Statement, from the Commission's perspective.

1.8 Electricity consumers in south-eastern Australia already enjoy the benefits of competition through substantial reductions in electricity prices. From 1 April 2000, competition and choice is being introduced progressively for consumers in the Northern Territory. Access to the network is essential for competition in the supply of energy and effective access requires that prices for access are not only fair and reasonable but also competitively neutral.

1.9 For these reasons, all consumers have a direct interest in access regulation, even if the price for access may not be immediately apparent to the end-user.

1.10 Consumers want competition to be effective and will want the access regulation to support competition. While most of the gains may come from lower generation costs and narrower retail margins under the pressure of competition, network charges account for around 40-50% of the final cost of electricity. Hence, the level and structure of network tariffs can affect energy costs for all customers.

1.11 There are many possible approaches to setting network tariffs and allocating the costs that underpin those tariffs. The choice between these alternatives can significantly affect end-users and their incentives. It will affect: the balance of network costs paid by different consumer groups and different regions; the balance between energy and demand charges; and the balance between charges paid by generators and retailers. However, the latter may be a notional split while the only market participants are combined generators/retailers.

1.12 Choosing between these alternatives requires a careful consideration of the balance between a range of objectives for pricing: economic efficiency, price stability and equity, competitive neutrality, and financial sustainability. These objectives provide some signposts—but not simple rules—for pricing.

1.13 It is important that customers and all potential market participants have the opportunity to contribute to pricing decisions. This Discussion Paper seeks to encourage such contributions.

### CHAPTER

2

## **SUMMARY OF PROPOSED PRICING PRINCIPLES**

2.1 PAWA Networks' Draft Statement outlines its proposed approach to network pricing.

#### Tariff structure

2.2 PAWA Networks proposes a three-part network tariff for contestable customers; ie the tariff would have a fixed standing charge, a component based on maximum demand and a component based on energy. This structure would not apply to non-contestable customers. PAWA Generation/Retail would be billed for network usage for these customers on a residual basis and the customers' bills would not be unbundled.

2.3 Under PAWA Networks' proposals, the network tariffs would mirror the structure of the current standard demand tariffs for bundled supply. The demand and energy charges would vary with time of use (ie off-peak and peak) and level of usage. To reflect the lesser dependence of large users on the low voltage system, customers who consume larger quantities of energy or have higher demand levels would pay a smaller charge for each additional unit of energy or maximum demand.<sup>1</sup>

#### **Regional variations**

2.4 PAWA Networks proposes that, initially, different charges should apply to Darwin, Outer Darwin, Katherine and Outer Katherine. The cost allocation model also provides for separate allocation of costs to Alice Springs (inner and outer) and Tennant Creek (inner and outer).

 $<sup>^{\</sup>rm 1}$  This is a 'declining block tariff' where the per unit tariff declines with each additional block of consumption.

#### **Allocation of costs**

2.5 PAWA Networks proposes to allocate costs between and within regions on a Fully Distributed Cost (FDC) basis. Under this approach, specific allocators are used to distribute the full costs to different regions and tariff categories.

- 2.6 PAWA Networks proposes to separate costs into three categories:
  - *Common service costs.* These are asset and other costs that cannot be directly attributed to individual parts of the system such as network control costs.
  - *Connection assets.* These are assets dedicated to supplying customers, or groups of customers, at a single point in the network. Typically, these would include assets such as meters and service lines and some element of substation and mains costs that are specific to a customer or group of customers.
  - *Distribution use of system or 'network carriage costs'*. These include the bulk of the networks assets including the mains of various voltages and substations (except for those included in connection assets).

2.7 Corporate overhead costs and 'indirect service unit costs' (eg accounting, IT costs) would be allocated to each of these three cost categories. This requires the prior allocation of these costs:

- between the electricity, water and sewerage businesses;
- between the generation, retail and network components of the electricity business; and
- between the regulated and unregulated regions and activities of the network business.

2.8 Connection costs are specific to customers. However, common service costs and network carriage costs would need to be allocated to regions. Network carriage costs would also be allocated between transmission/sub-transmission and distribution functions. Each of these would be further allocated between 'energy take-off' and 'energy pass-through'.

#### **Derivation of charges**

2.9 Finally, PAWA Networks proposes to derive the network charges from the allocated cost pools using the cost drivers set out in Table 1 below.

Cost Element	Cost Driver	Allocation Method
Common services	Energy flow, peak demand	cents/kWh (100%)
Connection	ction Number of customers; size of connection	\$/day (50-70%)
costs		cents/kWh (15-30%)
		\$/kVA (10-30%)
Network	Peak demand	cents/kWh (40-60%)
carriage		\$/kVA (40-60%)

#### TABLE 1: USE OF COST DRIVERS TO DETERMINE CHARGES

### CHAPTER

3

## **OBJECTIVES OF NETWORK TARIFFS**

#### **Range of objectives**

3.1 PAWA Networks suggests the following set of objectives should underlie the setting of network tariffs:

- economic efficiency prices should reflect economic costs;
- revenue recovery prices should provide for the commercial viability of the business;
- simplicity prices should be simple, transparent and readily understood;
- stability prices should be stable and predictable over time; and
- equity prices should be 'fair and reasonable'.

3.2 PAWA Networks also acknowledges that prices should be free of cross-subsidies, consistent with the efficiency and equity objectives.

3.3 The 'art' in pricing is to find the balance between these widely agreed objectives. This is inevitably a subjective assessment, and the views of all stakeholders can assist in striking a reasonable balance.

3.4 PAWA Networks gives considerable weight to the role of fully distributed cost (FDC) allocation in achieving these objectives (see Chapter 4 below). This approach recovers the 'sunk' costs, or accounting costs, of the system and is clearly consistent with the revenue recovery goal.

3.5 However, the economic efficiency goals require that prices reflect current and future costs of meeting additions to current loads, rather than the sunk costs of the system. Given the network economies, such costs are commonly less than the average costs, or required revenue. Hence, there is considerable scope to consider other objectives in setting overall prices.

3.6 PAWA Networks also propose that equity "...means that prices reflect the utilisation of the existing network". While this view of equity is

consistent with the various forms of FDC cost allocation, there are other views of equity. Regional equity and development may suggest regional variations in charges should be minimised. Alternatively, it may be considered equitable if prices have some regard to the 'capacity to pay' of customers, or classes of customers. As customers have made important decisions on location and equipment in good faith based on past prices, sudden changes in prices that adversely affect customers may be inequitable.

3.7 PAWA Networks gives weight to a separate objective of demand management to support the role for demand-based charges (see discussion in Chapter 4).

3.8 Further information on actual prices and costs is required to properly assess the consistency of the proposals with the goals of economic efficiency, price stability, equity and 'cross-subsidy free' prices.

#### **Issues for comment:**

Do PAWA Networks' proposals achieve an appropriate balance between the various objectives for pricing?

#### **Price stability**

3.9 PAWA Networks notes that "...there may be some price fluctuations during the initial regulatory period" but these are still to be quantified. PAWA Networks suggests that such fluctuations are best addressed by the Commission or the Government.

3.10 One option available to the Commission would be to set limits on the initial level and subsequent change in network tariffs (ie 'side-constraints') to reduce such fluctuations.

#### **Issues for comment:**

To what extent are customers concerned about the possible step-change in prices with the introduction of unbundled network tariffs and the possible subsequent changes in prices? If so, are side constraints on the level and rate of change in network tariffs appropriate?

#### **Competitive neutrality**

3.11 A fundamental requirement is that the access arrangements be competitively neutral. The assessment of this is complicated by the numerous aspects to competitive neutrality: equal treatment of generators; equal treatment of retailers; equal treatment of competitors irrespective of their structure<sup>2</sup>; and equal treatment with alternative means of meeting energy needs<sup>3</sup>.

3.12 However, commonly used tests are:

- Do the arrangements treat all generators on a comparable and consistent basis including embedded and remote generators?
- Do all retailers pay the same network charges for supply to an end-user?
- Are the economic costs of the use of the network, including any locational variations in economic costs, properly signalled?

#### **Issues for comment:**

Do the proposed arrangements provide for equal treatment of potential competitors and alternative options to meet users' energy needs?

 $<sup>^{\</sup>rm 2}$  For example, whether they are combined retailer/generators or not.

 $<sup>^{\</sup>rm 3}$  For example embedded generation, stand-alone generation, inset networks and demand management.

### CHAPTER

4

## **STRUCTURE OF NETWORK TARIFFS**

#### Allocation of costs to tariffs

4.1 Fully Distributed Costs is PAWA Networks' preferred method of cost allocation, both between regions and within regions. Under this approach, costs specific allocators are used to distribute the full costs to different regions and tariff categories.

4.2 Depending on the allocators used, the results may often been seen as 'fair and reasonable'. For example, there may be apparent equity in users paying according to the assets required to deliver service to them. However, this may not reflect economic or commercial realities. Nor may it reflect other views of equity, and other objectives (such as simplicity) embodied in previous pricing structures.

4.3 Similar issues arise in allocating the costs of the network business across its regions of operation. Shared costs could be allocated on a fully distributed cost basis or a stand-alone/incremental basis. Within the fully distributed cost approach, costs could be allocated on the basis of assets within each region, staff, customer numbers, current turnover/revenues or a combination of all these.

4.4 Other cost allocation methods or groupings of customers could be considered appropriate. For example, as Darwin or Darwin-Katherine is seen as the 'core' economic operations for the networks, the other regions could be allocated costs on an incremental basis. Alternatively, different regional groupings could be considered. Either approach may meet the economic objectives of pricing and reduce possible tensions between cost recovery criteria and regional equity considerations.

4.5 Given the necessarily subjective nature of cost allocation, it is difficult to consider the appropriateness of a particular preferred approach in the absence of information on the magnitude of the costs and the outcomes under the preferred and alternative approaches.

#### **Issues for comment:**

What is the magnitude of the shared network costs to be allocated between PAWA Networks' regions of operation and customer classes? What is the appropriate basis for the allocations? What is the impact of the use of alternative allocators or grouping of customers?

4.6 The structure of charges can send important signals to customers and changes in the structure of charges will affect customers differently. For example:

- high demand charges encourage customers to reduce the maximum demands they place on the system, perhaps by shifting demand to the off-peak;
- high usage charges encourage customers to reduce energy consumption through energy efficiency;
- greater reliance on fixed charges will adversely affect those with relatively smaller consumption and benefit larger customers; and
- greater reliance on demand charges will benefit those with less variable demand patterns and disadvantage those with more variable demand patterns.

4.7 Economic efficiency principles provide only limited guidance. To the extent that there are identifiable variations in future costs due to higher levels of demand or energy flows, these should be signalled through the demand and energy components of charges, respectively.

4.8 However, charges based on economic costs will recover only a small proportion of the sunk costs of the network. Beyond this, the economic goal is to minimise the impact of charges on behaviour. Hence, other objectives—such as equity and customer impacts—need to be considered in deciding on the structure of network charges.

4.9 PAWA Networks provides guidance on the structure of charges in Table 1 above. The approach seems likely to result in a balanced use of demand and energy charges. But the extent of the balance and the impacts on customers cannot be determined at this stage.

4.10 Clearly, judgment is required in selecting these cost drivers and determining the proportion of charges to be allocated to fixed, demand and energy components of the charges. For example, PAWA Networks considers that connection costs should in theory be recovered through the fixed component, but notes that high standing charges are unacceptable to customers. Similarly, while PAWA Networks considers that peak demand is the cost driver for network carriage charges, these costs are allocated between energy take-off and flow-through using energy as an allocator and the costs are recovered through a mix of energy and demand charges.

#### **Issues for comment:**

What are the concerns and preferences of users in regard to the balance between fixed charges and charges for maximum demand and energy consumption?

If there is a demand charge, how should maximum demand be measured and charged? Should the charge be for maximum demand in peak periods only? Should it be for the maximum demand in the year, or month or some other period?

4.11 PAWA Networks proposes separate charges for maximum demand in peak periods and in the off-peak periods, with a lower charge to apply to the latter.

4.12 This seems inconsistent with the idea that the demand charge should reflect usage of capacity designed to meet needs during peak demand periods. But it is consistent with a desire to mute the possible adverse effects of an excessively high demand charge.

#### **Issues for comment:**

To what extent do costs vary between peak and off-peak periods?

Is the levying of different charges on maximum demand in peak and off-peak periods supported? Should there be a charge for maximum demand in off-peak periods?

4.13 PAWA Networks proposes to adopt a declining block tariff. Under this approach, the charge for each additional unit of energy or demand falls for higher levels of usage of the system. It is argued that this reflects the fact that larger users are less reliant on the low voltage system.

4.14 The merits of this approach rest on the strength of the relationship between the level of a customer's energy consumption or demand and the usage of the low voltage system. Other networks have adopted tariffs that vary by the voltage at which supply is taken to address this more directly.

#### **Issues for comment:**

Is a declining block tariff preferred to a voltage-based tariff? What are the relative merits of these or other approaches?

#### **Regional variation in network tariffs**

4.15 PAWA Networks proposes to set up four regions for pricing: Darwin, Katherine, Alice Springs and Tennant Creek. Within each region 'inner' and 'outer' price zones are proposed. The proposed regions reflect discrete areas of operation, notwithstanding the Darwin-Katherine Transmission Line and there may be apparent sensibility in the separation between inner and outer

zone. However, regional pricing should be driven by variations in economic costs.

4.16 The choice of pricing zones reflects a balance between the benefits of signalling economic costs more accurately and the impacts on equity and administrative of greater regional variations in prices. The relevant economic costs are the forward-looking long-term costs of supplying specific regions. Some averaging is inevitable and the drawing of boundaries inevitably involves a degree of arbitrariness: such as the distinction of inner and outer zones and the allocation of the Pine Creek mines to the Katherine region. Information on the forward-looking costs is necessary to support PAWA Networks' proposals.

#### **Issues for comment:**

Do the forward-looking economic costs of meeting the needs of additional loads vary significantly between the regions or zones?

If economic costs in each zone are not significantly different, should prices be the same in each region/zone? Or should they vary to reflect sunk costs?

What are the impacts on equity and administrative simplicity of the proposed regions/zones? On what basis should the boundaries between the zones be drawn?

#### **Excess network usage charges**

4.17 The Code provides for PAWA Networks to levy excess network usage charges where actual maximum demand or power sent-out exceeds the declared maximum. Such charges can have a significant effect on users. For example, an industrial customer may have an unexpected urgent order to fill which may result in a short-term increase in its maximum demand. It would be undesirable for these charges to unnecessarily add to the costs and risks faced by customers.

4.18 PAWA Networks has indicated that this price signal should signal 'imminent augmentation investment' due to increases in demand. However, it is not clear that PAWA Networks faces network constraints in the near term or that planned augmentation works would be sensitive to short-term variations in loads at individual points. If so, it may be appropriate that this charge be left dormant or set at a low level.

#### **Issues for comment:**

To what extent is there 'imminent augmentation investment' which would support a positive excess network charge? To what extent are these costs not already captured by the proposed demand charge?

To what extent would such a charge impact on costs and risks faced by endusers?

#### **Benefits of demand management**

4.19 The proposed principles highlight the desirability of demand management in advocating the greater use of demand charges.

4.20 Demand management includes:

- efforts to reduce peak demand by shifting demand from peak periods to other periods; and
- efforts to reduce energy usage and peak demand through energy efficiency programs.

4.21 The case for peak-shifting demand management is that it can achieve better utilisation of capacity and defer the need for future investment in generation and network capacity. If prices reflect economic costs—in the sense of the impact of usage on future costs—the prices will incorporate these benefits<sup>4</sup>. Importantly, network tariffs should only reflect network costs. Future generation prices will be set in a competitive market and should reflect the supply/demand balance and investment requirements for generation.

4.22 The case for demand management aimed at energy efficiency is that it can reduce the environmental externalities arising from generation of electricity. The environmental externalities commonly of concern, such as the carbon emissions and local pollutants, largely result from energy use rather than maximum demand. Hence, if demand management is to be encouraged on these grounds, a premium on the energy component of network tariffs may be appropriate.

4.23 'Energy efficiency' demand management can also reduce peak demand and defer capital expenditure. However, peak shifting demand management may increase the total level of energy consumption; eg off-peak hot water heating reduces peak loads but increases total electrical energy consumed.

#### **Issues for comment:**

To what extent should the components of network charges be increased beyond economic costs to encourage demand management?

If so, to what extent should it be done through a premium to demand or energy charges?

<sup>&</sup>lt;sup>4</sup> Except to the extent that there are environmental costs (externalities) from the construction or strengthening of networks not incorporated in the costs.

#### **Relationship of costs to demand**

4.24 Underpinning many of the above comments and questions is the need for a better understanding of the relationship between costs and demand. At issue is not the allocation of sunk costs on the basis of demand but the economic test: to what extent do costs (operating costs and future capital expenditure) vary with changes in the demand. It is these costs that are relevant to real resource flows. This relationship needs to be considered on both a locational and customer class basis.

4.25 It is difficult for the Commission to approve a specific set of pricing principles in the absence of a clear and practical demonstration of the relationship between costs and demand. It is generally accepted that energy flows will have little impact on costs and that the customer-specific costs, such as connection assets, are more easily identifiable.

#### **Issues for comment:**

What is the nature of the relationship between networks costs and demand? What should be the role of this relationship in establishing network tariffs?

### APPENDIX A



Address all correspondence to:	Telephone:
The Interim Utilities Commissioner, GPO Box 915, Darwin N	T 0801 (08) 8999 5480

Location: 3<sup>rd</sup> Floor, 38 Cavenagh Street, Darwin NT *Facsimile:* (08) 8999 6262

Our Ref: Your Ref:

Mr Barry Chambers Chief Executive Officer Power and Water Authority GPO Box 1921 DARWIN NT 0801

Dear Mr Chambers

#### RE: PRICING ISSUES

I understand that PAWA's draft Pricing Principles Statement is close to completion.

Over the last week, I have had the opportunity to consider—with the assistance of the recently appointed pricing advisers to the Commission (a team from IPART)—the strategy I need to adopt to approving the various prices regulated by the Code in advance of the 1 April commencement date. While not wishing to pre-empt either the submission of pricing principles or pricing proposals from PAWA, I thought it may help the process were I to provide an indication of my current thinking on the Utilities Commission's review of these various submissions from PAWA.

However, before I do, I must stress that what follows does not impact in any way on the processes for determining PAWA's network revenue caps. The setting of prices *follows* determination of the revenue caps. Indeed, the revenue caps being established now need to be robust, with the pricing approval strategy set out below enabling our scarce resources to be applied to ensuring the initial revenue caps will be appropriate and enduring.

The Utilities Commission is required to foster the development of a competitive market. Ensuring that competitive conditions are established and maintained during the early phase of market operation will have an important influence on the prospects for development of an active market, the level of confidence that customers and new entrants have in the market's operation and for the credibility of the reforms more generally.

In addition, the Utilities Commission is required to oversee the development and application of network prices, system control charges and prices for out-of-balance energy in a manner that allows the various objectives and requirements of the Code and relevant legislation to be satisfied.

In this regard, the objectives outlined in the Code reflect the goals of economic efficiency, equity, simplicity, consistency and transparency. The balancing of these objectives requires careful consideration. In particular, the Code does not define 'cost reflective'. There are numerous possible approaches which are 'cost reflective' and the cost allocation approach and resulting levels and structures of prices will need careful testing against the requirements of economic efficiency and the other objectives of the Code.

Given these various considerations, there is a risk that the compressed timeframe for the development and assessment of proposed prices in the lead up to 1 April will compromise the effectiveness of the reforms and the delivery of the associated economic benefits. In particular, the requirement for prices to be approved and in place by 1 April does not allow time either for the level and structure of prices to be assessed against the Government's policy objectives or for the approval process to be conducted in a transparent and competitively-neutral manner. This may affect the ability of participants to assess their commercial position in the market and possibly lead to undesirable revisions to prices becoming necessary as part of the 1 July approval process, with associated customer and market development impacts.

I therefore intend to adopt an approval strategy which addresses these various risks in three ways:

- by treating the prices to apply during the 1 April to 30 June period as 'transitional', established on a cautious, 'no regrets' basis that recognises the time constraints;
- by placing the primary emphasis on the pricing principles and associated level and structure of prices that will apply from 1 July; and
- by conducting an open and transparent approval process in the lead-up to 1 July that forms part of a coordinated program of information provision and customer education, directed at ensuring that key information on market development is made available to all parties on a competitively-neutral basis.

•••

Prior to 1 April, this stategy will see the Utilities Commission:

- encouraging PAWA to adopt a simple ¢/kwh approach to network pricing and/or a cautious approach to price adjustment during the transitional three-month period commencing 1 April; and
- issuing only an interim approval of the pricing principles prior to 1 April, to provide an opportunity for further discussion and consultation with stakeholders.

This approach is consistent with the requirement in clause 63 of the Code that price regulation be administered to achieve regulatory accountability and public disclosure of processes, and reasonable certainty and consistency over time of regulatory outcomes.

Consistent with the treatment of regulated prices applying from 1 April as 'transitional', there will be no requirement for consideration of pricing principles to be completed prior to consideration of PAWA's proposed prices to apply from 1 April. Rather, priority will be given to the pricing principles that will apply from 1 July.

To that end, I do not now require PAWA to formally submit its draft Pricing Principles Statement until 10 March. This short delay will not impact on approval of prices to apply from 1 April. It will, however, provide you and your officers with some additional time within which to consider if and how your draft Statement may need to take account of guidance I intend to issue by the end of this week on the criteria (and processes) to be used to approve that Statement.

As always, I am happy to discuss the implications of this approval strategy further with you or your officers, should this be necessary or desirable from your perspective.

Yours sincerely

[Signed]

Alan Tregilgas Interim Utilities Commissioner 24 February 2000

#### **APPENDIX B**

## CRITERIA FOR ASSESSING NETWORK PRICING

#### 1. Introduction

1.1 Under the Code, PAWA must submit a 'Statement of Pricing Principles' to the Utilities Commission for approval prior to submitting pricing proposals. The Code specifies a number of objectives that PAWA must consider in developing pricing principles and pricing proposals. However, the priority or weight to be attached to the various objectives are not indicated by the Code, and there are a number of aspects of the objectives which are open to interpretation.

1.2 This paper is intended to assist PAWA prepare its Statement and subsequent pricing proposals.

#### 2. Role of Commission in network price setting

2.1 As far as possible, a regulated network provider should bear the responsibility for determining the structure of its network prices. The network provider has a greater understanding of:

- (a) their cost structures;
- (b) users' needs as reflected in demand patterns and the sensitivity of those demands to price signals; and
- (c) network utilisation and the likelihood of the emergence of congestion.

2.2 The Code requirements reflect this approach. The onus rests with the network provider to develop pricing proposals and submit these to the Utilities Commission for approval. The Commission is then required to assess whether the proposals are consistent with the objectives stated in the Code.

#### 3. Objectives for network pricing

3.1 Chapter 7 of the Code sets out the objectives for network pricing, requiring prices:

- (a) in principle to be cost reflective, to facilitate contestability in the Territory electricity supply industry, to provide equitable user prices and to ensure that appropriate investment in the network takes place in the longer term;
- (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. (Clause 74)

3.2 In addition to these objectives, Chapter 5 of the Code specifies that network regulation must be administered to achieve the following outcomes:

- (a) an efficient and cost-effective regulatory environment;
- (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;
- (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; and
- (f) an acceptable balancing of the interests of the network provider, network users and the public interest. (Clause 63)

3.3 However, in performing any of its functions, the Commission must consider the following overarching matters specified in the Utilities Commission Bill:

- (a) to promote competitive and fair market conduct;
- (b) to prevent misuse of monopoly or market power;
- (c) to facilitate entry into relevant markets;
- (d) to promote economic efficiency;
- (e) to ensure consumers benefit from competition and efficiency;
- (f) to protect the interests of consumers with respect to reliability and quality of services and supply in regulated industries;
- (g) to facilitate maintenance of the financial viability of regulated industries; and
- (h) to ensure an appropriate rate of return on regulated infrastructure assets. (Clause 7(2))

3.4 To a large degree, there is considerable concurrence between the objectives outlined in the Code and those in the Utilities Commission Bill.<sup>5</sup>

<sup>&</sup>lt;sup>5</sup> The main point of difference is that the Utility Commission Bill includes additional objectives relating to reliability and quality of supply.

#### 4. Consideration of the balance of objectives

4.1 While there is often a degree of consistency between the various pricing objectives set out in the Code and the Utilities Commission Bill, there can also be some tension. Further, some of the objectives may be open to differing interpretations.

4.2 A key question in resolving these tensions is what is meant by 'cost reflective': what costs should be reflected and how should these costs be translated into prices?

4.3 Economic efficiency requires that prices reflect forward-looking marginal costs. Often for networks, such as electricity distribution systems, the marginal costs of adding loads can be quite small due to the economies of scale. Hence, prices that only reflect economic marginal costs may not provide a sustainable basis for pricing. A forwardlooking marginal cost basis also requires that differences in network prices should reflect future investment requirements. Hence, prices should reflect the probability of congestion and future network augmentation requirements.

4.4 Alternatively, prices may be designed to reflect sunk accounting costs. While such approaches may have little merit in terms of economic efficiency, they are consistent with the recovery of the overall network revenue cap. The economic task for pricing is therefore to cover the difference between economic costs and accounting costs in the least distorting manner possible.

4.5 Irrespective of whether an accounting or economic approach is taken to cost reflective pricing, cost allocation requires a considerable degree of judgment.

4.6 There is a clear requirement that prices are cross-subsidy free. This requires that the price for a customer, or group of customers, be no less than the incremental cost of meeting their needs and no more than the stand-alone cost of supply. Prices outside this range are also clearly inefficient. These tests provide appropriate limits to the scope for pricing.

4.7 This does not suggest that the use of stand-alone cost modelling or incremental cost modelling for price setting should be mandated. Nor does it suggest that fully distributed cost modelling should necessarily be rejected. However, the range of possible price outcomes provides the opportunity to consider alternative cost allocation models and transition paths that can also reflect a consideration of the other objectives outlined in the Code.

4.8 Importantly, this approach can allow for a consideration of the objectives of price stability and consistency of outcomes. Both are important and widely accepted objectives. Concerns for price stability relate not just to the period following the establishment of the first set of network tariffs. Possible adverse price effects arising from the movement from existing tariffs are also a matter of concern.

4.9 Under its CSO policy, the Government is effectively a co-purchaser of energy services. Transparency requires that the Government, like other customers, should be well-informed on the consequence of the proposal for their 'purchases'. It is appropriate

that the implications for Government as purchaser be assessed and, like other users, for the Government to have an opportunity to express its views on the outcomes.

4.10 In summary, both good practice and the objectives of the Code and the Utilities Commission Bill suggest that prices should:

(a) reflect economic costs by:

- (i) reflecting the level of available capacity;
- (ii) signalling future investment costs;
- (iii) discouraging uneconomic bypass; and
- (iv) allowing negotiation to better reflect the economic costs of specific services;

(b) provide a commercially sustainable revenue stream while:

- (i) recovering the gap between marginal and average costs in the least distorting manner possible;
- (c) promote price stability and certainty and consistency of regulatory outcomes:
  - (i) by limiting the variation on network charges from year to year;
- (d) promote competition by:
  - (i) being competitively neutral; and
  - (ii) being non-discriminatory; and
- (e) reduce regulatory burdens by being:
  - (i) stable and predictable; and
  - (ii) transparent.

## 5. Tests for assessing network pricing principles and proposals against the objectives

5.1 A number of possible tests that may be used in assessing pricing principles and prices are outlined below. While it provides a guide, it is not a definitive list. The Utilities Commission will undertake further analysis and may add to, delete from, or modify these tests over time.

#### A. Are the prices cross-subsidy free?

5.2 The test for this is whether the prices for individual customers are between the stand-alone and incremental costs of supply. This is consistent with the objectives of both economic efficiency and equity.

## B. Do the proposed prices reflect an acceptable cost of supply model?

5.3 The cost modelling underpinning the proposed network tariffs in the short or long term should be provided.

## C. Do the prices reflect future need for augmentation of the network?

5.4 To provide the correct signals for investment, variations in prices by location should reflect future augmentation needs related to growth in demand. Prices would be expected to be higher in locations where the system is closer to capacity.

#### D. Does the structure of prices reflect marginal economic costs?

5.5 The structure of prices (ie the balance of fixed, demand and energy components) should have regard to the forward-looking cost drivers. To the extent that prices need to exceed these levels to recover the overall revenue cap, regard should be had to the objectives of simplicity, transparency, competitive neutrality and price stability.

#### E. What is the impact on price stability?

5.6 PAWA should calculate the network component in current prices and compare these with projected prices. After further consultation, the Utilities Commission will provide advice on the estimation of current (average) network prices.

## F. What is the impact on the net financial position of the Government, including CSO payments?

5.7 Alternative price structures that are consistent with the range of cost allocations outlined above may have different impacts on the CSO obligations of Government. Under the CSO policy the Government is effectively a co-purchaser of the networks' outputs. To this end, PAWA should provide estimates of future costs of the CSO under their proposed pricing options.

Office of the Interim Utilities Commissioner 25 February 2000