



Issues Paper

Network Pricing Principles

July 2000

SUBMISSIONS

The Queensland Competition Authority (the QCA or the Authority) considers public involvement to be an important element of its decision making processes. It therefore invites submissions from interested parties concerning the need for the Authority to establish distribution pricing principles and the form of such principles.

To facilitate the publication of submissions on the QCA's website, it is preferred if submissions could be made electronically by disk or by email. However, if this is not possible, submissions can be made in writing. **Submissions, comments or inquiries regarding this paper should be directed to:**

Queensland Competition Authority
GPO Box 2257
Brisbane QLD 4001

Attention: Rob Prydon

Telephone: (07) 3222 0555
Fax: (07) 3222 0599
Email: electricity@qca.org.au

The **closing date** for submissions is **Friday 25 August 2000**.

Confidentiality

In the interests of transparency and to promote informed discussion, the Authority would prefer submissions to be made 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. Again, it would be appreciated if each version (ie. the complete version and another excising confidential information) could be provided electronically (whether or not with a printed copy). Where it is unclear why a submission has been marked 'confidential', the status of the submission will be discussed with the person making the submission.

While the Authority will endeavour to identify and protect material claimed as confidential as well as exempt documents (within the meaning of the *Freedom of Information (FOI) Act 1989*), it cannot guarantee that submissions will not become public. As stated in s187 of the *Queensland Competition Authority Act 1997*, the Authority must take all reasonable steps to ensure the information is not disclosed without the person's consent, provided the Authority is satisfied that the person's belief is justified and that the disclosure of the information would not be in the public interest.

Public access to submissions

Subject to the above, submissions will normally be made available for public inspection at the Brisbane office of the Authority, or on its website at www.qca.org.au.

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

*Queensland Competition Authority
Level 19, 12 Creek Street
GPO Box 2257
Brisbane QLD 4001*

*Tel: (07) 3222 0555
Fax: (07) 3222 0599
Internet: www.qca.org.au*

TABLE OF CONTENTS

GLOSSARY	1
1. INTRODUCTION	2
2. THE QUEENSLAND ELECTRICITY INDUSTRY	4
2.1. INDUSTRY STRUCTURE	4
2.2. EXISTING REGULATORY REGIME	5
3. FEATURES OF NETWORK TARIFF DESIGN	7
3.1. TYPES OF TARIFFS	7
3.2. TARIFF DESIGN	7
3.3. NETWORK TARIFFS IN QUEENSLAND	7
3.4. OTHER JURISDICTIONS	8
4. NETWORK TARIFF SETTING UNDER THE CODE	9
4.1. CODE'S USE OF COST REFLECTIVE NETWORK PRICING	9
4.2. CHOICE FACING THE AUTHORITY	11
5. OBJECTIVES OF NETWORK PRICING	12
5.1. REQUIREMENTS OF THE CODE	12
6. CHARACTERISTICS OF 'EFFICIENT' PRICING	15
6.1. ROLE OF JURISDICTIONAL REGULATOR UNDER PART E	15
6.2. MEANING/DIMENSIONS OF EFFICIENCY	15
6.3. ALTERNATIVE PRICING METHODOLOGIES	16
6.4. OTHER JURISDICTIONS	19
7. REGULATORY CONTROL OPTIONS	22
7.1. ROLE FOR SIDE CONSTRAINTS	22
7.2. APPROVAL OF PRICING PRINCIPLES	24
7.3. ANNUAL INFORMATION/DOCUMENTATION REQUIREMENTS	25
ATTACHMENT A	27
ATTACHMENT B	31

GLOSSARY

AARR	Aggregate Annual Revenue Requirement
ACCC	Australian Competition and Consumer Commission
CAPELEC	Capricornia Electricity Corporation Limited
CPI	Consumer Price Index
CSO	Community Service Obligation
DNSPs	Distribution Network Service Providers
FNQEB	Far North Queensland Electricity Corporation Limited
IPART	Independent Pricing and Regulatory Tribunal, NSW
LRMC	Long Run Marginal Cost
MEB	Mackay Electricity Corporation Limited
NCP	National Competition Policy
NEC	National Electricity Code
NORQEB	North Queensland Electricity Corporation Limited
ORG	Office of the Regulator General, Victoria
OTTER	Office of the Tasmanian Electricity Regulator
QCA	Queensland Competition Authority
QETC	Queensland Electricity Transmission corporation
QTSC	Queensland Transmission Supply Corporation
SAIIR	South Australian Independent Industry Regulator
SRMC	Short Run Marginal cost
SWP	South West Power
WACC	Weighted Average Cost of Capital
WBEC	Wide Bay Burnett Electricity Corporation Limited

1. INTRODUCTION

The Queensland Competition Authority (the QCA or the Authority) is a statutory body established under the *Queensland Competition Authority Act 1997* (the Act). The Act gives the Authority certain responsibilities and functions with respect to National Competition Policy (NCP). Broadly, these include:

- subject to reference or declaration by the Ministers (the Premier and the Treasurer), undertaking prices oversight of monopoly or near monopoly Government business activities;
- receiving and investigating competitive neutrality complaints against significant Government and local government business activities;
- overseeing and arbitrating third party access to infrastructure; and
- undertaking such other activities relating to NCP as the Ministers may direct.

The Authority's responsibilities with respect to electricity are set out in:

- the *Electricity Act 1994*, which provides that the Authority may prepare and enforce conduct rules, and requires the Authority to monitor standards of service quality if issued by the Minister for Mines and Energy;
- the *Electricity – National Scheme (Queensland) Act 1997*, which commenced on 22 May 1997 and gives effect to the National Electricity Code (the Code). The Code sets out the objectives for the National Electricity Market and provides for “a regime of light-handed regulation of the market to achieve the market objectives”. The Code provides for the Authority to regulate distribution prices from 19 December 2000, to prepare ring-fencing guidelines and to undertake several other roles eg. with respect to network connection; and
- the *Queensland Competition Authority Act 1997*, which provides that the Authority's functions include regulation of market conduct of electricity entities, development of conduct rules, monitoring of service quality standards and performing functions given to the Authority under another Act.

Chapter 6 Parts D and E of the Code outline the objectives, principles and processes in relation to distribution service pricing.

While it is open to the Authority to establish new prices from the date on which it becomes the jurisdictional regulator (19 December 2000), the Authority is aware that there are benefits in:

- avoiding two price changes in one year (thereby minimising regulatory compliance costs);
- ensuring that it has the best possible information base on which to base its assessments (which must apply for a minimum of three years) – in this regard, the amalgamated Ergon Energy was only established on 1 July 1999; and
- having price reviews which are aligned with standard accounting periods.

Accordingly, the Authority is currently minded to allow the prices established by the Queensland Minister for Mines and Energy as from 1 July 2000 to apply until 30 June 2001.

The Code requires that any jurisdictional regulator, in meeting its distribution pricing requirements, must publish full and reasonable details of the basis and rationale of the decision including:

- reasonable details of qualitative and quantitative methodologies applied including any calculations and formulae; and
- full reasons for all material judgments and qualitative decisions made and options considered, and all discretions exercised which have a material bearing on the outcome of a jurisdictional regulator's decision.

The Code also requires reasonable regulatory accountability through transparency and public disclosure of regulatory processes. The Authority therefore desires to provide an opportunity for distribution entities, their customers and other stakeholders to participate constructively and at an early stage in the development of the regulatory regime for distribution entities.

The aim of this paper is to present a range of issues arising from Part E of Chapter 6 of the National Electricity Code, which contains provisions applicable to, among other things, the setting of individual maximum distribution tariffs, with a view to seeking submissions from interested parties as an input to the preparation of the electricity distribution pricing determination. The issues include:

- the regulation of the *structure* of network tariffs additional to the (primary) control of a DNSP's total revenue or average level of network tariffs;¹
- the respective roles of the DNSPs and the Authority in setting individual network tariffs; and
- the basis on which the Authority will annually evaluate the pricing schedules actually proposed by the DNSPs.

As such, this paper deals with issues separate from the general level of distribution service prices and/or aggregate annual revenue requirements (AARR) for network distribution services which are governed by Part D of Chapter 6 of the Code. These issues have already been canvassed in the Authority's earlier (December 1999) issues papers titled 'Electricity Distribution: Framework for Regulation' and 'Electricity Distribution: Asset Valuation, Depreciation and Rate of Return'.

¹ The NSW regulator (IPART) has canvassed pricing regulation under the title 'secondary price controls'. In particular, IPART has stated that:

"... the decoupling of individual prices from the primary form of control raises questions about the possible need for secondary price controls." *Regulation of Network Service Providers – Price Control Issues and Options*, March 1999, p.12.

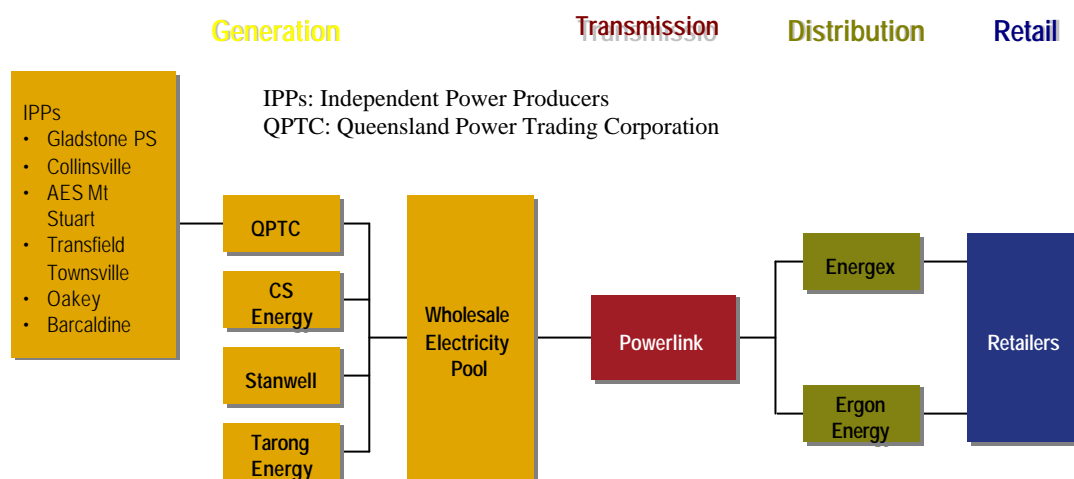
The primary form of control under the Code involves the regulator in setting an allowable maximum (or cap) for a DNSP's revenues or average prices primarily with a view to preventing the DNSP from charging monopoly prices.

2. THE QUEENSLAND ELECTRICITY INDUSTRY

2.1. Industry structure

The following diagram illustrates the current structure of Queensland's electricity industry.

Figure 1: Structure of Queensland's electricity industry



Note: Electricity transmission and distribution are distinguished according to their operating characteristics, with transmission generally defined as those components of the system operating at 220 kV or above.

Following the restructuring of the electricity industry, competition has been progressively introduced into those elements of the industry that were considered to be contestable, ie. generation and retailing, with a view to improving efficiency and lowering prices. However, the network components of the industry retain some elements which may not be contestable. These services are defined by the Code as prescribed services, and are to be subject to economic regulation under the Code.

In generation, licensing arrangements have now been introduced to allow new generating capacity to be privately built while ensuring that basic conditions (eg. safety) are met.

As far as transmission is concerned, Powerlink will be subject to regulation by the ACCC from 1 January 2002, while two distribution entities, Energex and Ergon Energy, will be subject to regulation by the QCA with effect from 19 December 2000.

The distribution entities have considerably different characteristics, with Ergon Energy having a very geographically dispersed network, and Energex having a significantly higher customer density.

Table 1: Key data for Energex and predecessors of Ergon Energy (1997-98)

Performance indicator	Energex	Ergon Energy predecessors
Customer numbers	994,000	533,000
Kilometres of lines	39,000	134,000
Customers per kilometre of line	25.5	4.0
Employee numbers	2,471	2,500

Source: Energex (1998), Ergon Energy website, CAPELEC (1998), FNQEB (1998), MEB (1998), NORQEB (1998), SWP (1998), WBBEC (1998)

Both existing distribution entities are owned by the Queensland Government, and have legally separate but subsidiary retailing operations. The role of retailers in the market is to undertake financial or risk management functions such as trading in the wholesale market and offering different price/service packages to consumers.

The retailing subsidiaries of Energex and Ergon Energy were initially given exclusive franchises to retail in specified geographic areas. However, licences for retailing have now been opened up to allow new retailers into the market, while at the same time franchises granting exclusive retailing rights to incumbent retailers have been progressively phased out through the introduction of customer contestability.

Currently, all customers with an average consumption of more than 0.2 gigawatts (GW) a year, approximately 7000 customers, are eligible to enter the competitive electricity market.

2.2. Existing regulatory regime

Distribution pricing is currently regulated under section 301 of the *Electricity Act 1994*. This section provides that the Minister for Mines and Energy may decide, as the Minister thinks fit, the prices, or a methodology to fix prices, that:

- a distribution entity may charge to provide customer connection services; or
- a transmission or distribution entity may charge to provide other goods and services prescribed by regulation.

The most recent Ministerial determination of distribution prices was published on 25 May 1999. However, the period for which this determination applies is not stated.

This determination sets out prices for contestable customers based on:

- whether that customer is a demand customer (broadly a customer with an annual load factor of less than 15 per cent) or a volume customer (all other customers);
- the network charge category the customer falls into, ie. high voltage metered demand, large medium or small demand, high voltage metered volume, large medium and small volume; and
- the geographic area the customer is located in, based on fourteen zones defined under the determination.

The methodology for distribution and transmission pricing was published by Gazette notice on 19 November 1999. With regard to distribution, the methodology provides for:

- the form of economic regulation to be a revenue cap;
- distribution prices to be determined from an annual revenue cap amount;
- the revenue cap, for the first year of the regulatory period, to be determined by the 'building block' method which sums the return on assets, return of assets (depreciation) and operating expenditure (to cover efficient costs of operating and maintaining networks) with the deduction of an amount equivalent to capital contributions for the period;
- the allocation of the annual revenue amount between network users to be made in accordance with these pricing principles; and
- distribution prices determined under the methodology to be subject to approval by the Minister.

Bundled or final total energy prices charged to non-contestable customers are also regulated by the Ministers'. In part, these prices are subsidised through a Community Service Obligation (CSO) arrangement which ensures that tariffs for non-contestable customers are uniform across the State, regardless of the cost of supply.

3. FEATURES OF NETWORK TARIFF DESIGN

The structure of network tariffs involves the selection of both:

- the types of tariffs; and
- the design of each tariff.

3.1. Types of tariffs

DNSPs provide a transport function by connecting end users of electricity to generators of electricity.

The main network services provided by DNSPs are:

- connection services—either new or ongoing—relating to exit and entry services and facilities at the point of physical interconnection with the networks which are dedicated to a user (where ‘entry assets’ refer to connection assets for generators and ‘exit assets’ are those for end users);
- common services, relating to ancillary services such as control system services (e.g. system control centres, supervisory control and communications facilities) and voltage control services in the networks; and
- use of the distribution system (use of system services).

DNSPs have a choice as to which of these services they charge for individually and the extent to which the charging for various services may be bundled together. In making these choices, a DNSP must also decide the assignment of such tariffs between the different groups of network users, notably generators and end-use consumers (‘end users’).

3.2. Tariff design

With respect to its nominated tariffs, the main tariff design issues facing a DNSP relate to:

- the ‘structure’ of that tariff, involving the relative weights to be given to fixed and variable components and to demand and capacity charges in any variable component;
- the determination of the number and size of steps to include in its tariff structure;
- the extent of any time of use variations; and
- the inclusion or otherwise of locational (or zonal) variations.

3.3. Network tariffs in Queensland

The only network charges applicable to generators are connection charges. Currently, charges for connection to the network are based on ‘shallow’ connection assets, that is, the cost of connecting them to the nearest part of the network and not any consequent charges for augmentation which may be necessary elsewhere in the network.

To date, network tariffs applicable to end users have only been formalised for contestable customers. Network tariffs for franchise customers are bundled up with energy prices and retail margins in a final retail price.

The network tariffs applying to contestable end users bundle together charges for use of system, common and end user connection services.

The structure of these tariffs involves fixed (\$/month), demand (\$/kW) and energy (c/kWh) components. Standard network charges apply to all contestable customers, with prices differing between 'demand charge' category customers (primarily those customers with annual load factors less than 15%) and 'volume charge' category customers (customers other than demand charge category customers), distinguishing between high and low voltage and with declining blocks for small, medium and large demand/volume customers.

Site specific prices apply to customers with load consumption typically greater than 4GWh per annum or with non standard or significant connection arrangements.

The network tariffs vary according to the location of the end user. Currently, there are 13 pricing zones across Queensland. These zones reflect the natural cost of supply differences. The number reflects a compromise to provide reasonable cost reflectivity within practical limits. This results in a number of zones which typically consist of either urban areas (towns) and some surrounding higher density rural areas or more sparsely populated rural and remote areas.

Prices determined are actual prices to be charged and are not maximum (or reference) charges from which discounts can be applied. Any modified prices must be separately agreed by the parties and then submitted to the Minister for approval and fixing under section 301 of the Act.

3.4. Other jurisdictions

In NSW, network charges are calculated individually for large customers. For other customers, the network charge is averaged across each customer class across each distribution area. In some cases, the structure of network charges also varies by customer class. There are fixed (\$pa), demand (\$/kVA) and energy (c/kWh) components; for example, the demand component may be higher for larger customers and those with half hour meters. Customers pay shallow connection costs through capital contributions.

In Victoria, a Tariff Order sets a number of categories of distribution customer, with associated network tariff structures. For low voltage customers, charges comprise a standing charge (in \$pa), plus a usage charge (in c/kWh, in some cases split between peak and off-peak rates). Tariffs for higher voltage users also include a charge based upon maximum demand. With the exception of tariffs to a number of large customer classes, network tariffs have remained invariant to customer location. While largely retaining postage stamp pricing, some DNSPs have increased network tariffs for contestable customers, within the limits of the pricing side-constraints, and offset this by a reduction in the (notional) network tariff element of maximum uniform tariffs.

4. NETWORK TARIFF SETTING UNDER THE CODE

Part E of Chapter 6 of the Code sets out a method for calculating tariffs for prescribed distribution network services (which is generally referred to as the ‘cost reflective network pricing’ (CRNP) method).

However, clause 6.11(e) of the Code provides that:

“The Jurisdictional Regulator may, in consultation with Code Participants, develop alternative pricing methodologies to the approach set out in Part E. Any new pricing method so developed must conform to any jurisdictional rules, principles, or guidelines for the regulation of distribution pricing formulated under clause 6.10.1(f) [which requires that such guidelines be consistent with the objectives for pricing and any national guidelines].”

At issue for the Authority is what form its tariff regulation activities should take as the jurisdictional regulator in Queensland.

The remaining sections in this paper look at the issues which determine whether or not the Authority should follow the pricing method outlined in Part E. As background, the remainder of this section briefly outlines the cost reflective network pricing method developed in the Code.

4.1. Code’s use of cost reflective network pricing

Part E of the Code sets out the cost reflective network pricing method for calculating tariffs for prescribed distribution network services. It details the steps involved and prescribes aspects of the classification of services and allocation of costs to services.

There are four steps in the cost reflective network pricing process as outlined in Part E.

Step 1: allocate AARR among different classes of network service

A DNSP is to classify each element and cost of its network services into one of the following classes of network services (clause 6.13.1):

- entry services, which includes the asset-related costs and services provided to serve a generator at a single network coupling point from that network coupling point to their connection point;
- exit services, which includes the asset-related costs and services provided to serve an end user at a single network coupling point from that network coupling point to their connection point;
- network use of system services, which includes the network shared by generators and end users, but excluding entry service, exit service and common service; and
- common services, which includes the asset-related costs and services that ensure the integrity of the network and benefit all end users and cannot be allocated on the basis of voltage levels or location.

Step 2: allocate the AARR for each class of network service to asset categories

The DNSP is then to calculate the AARR for an asset category in relation to each class of network distribution service by allocating the AARR for that class of network service on a basis that can include (6.13.3(b)):

- the replacement cost of the relevant asset categories for asset-related costs including return on assets and depreciation charges; and
- chart of accounts information for operating and maintenance costs.

Step 3: allocate asset category costs to different cost pools

The DNSP must then establish cost pools to which the AARR for all asset categories are allocated according to the use of the assets by groups of network users having similar load characteristics and voltage levels (6.13.4).

In doing so:

- the methods of allocation may include: anytime demand, period demand (such as peak shoulder and off-peak), coincident demand, period energy (such as peak, shoulder and off-peak), anytime energy and load cycle basis (method of intercepts) (6.13.5);
- prices for the same voltage level and/or load class may differ between pricing zones (6.13.4(b));
- cost pools may include load classes within each voltage level which have similar load and/or metering characteristics as defined by the DNSP (6.13.4(c)); and
- additional cost pools may be included by the DNSP as required by the use of locational and zonal pricing and for any other relevant purpose (6.13.4(d)).

These cost pools are then to be allocated to generators and end users (under 6.13.6) as follows:

- the cost pools for entry services are all to be allocated to generators at the network coupling point;
- the cost pools for exit services are all to be allocated to end users at the network coupling point;
- in respect of the cost pools for network use of system services:
 - the portion of the network use of system costs allocated to generators must not exceed the long run marginal cost of augmenting the network and any other networks necessary to cater for additional generation at the network coupling point; and
 - the portion of the network use of system costs allocated to end users must be done on a cost reflective basis; and
- the cost pools for common services must be allocated to end users on a cost reflective basis.

Step 4: use cost pools to set prices

Finally, the DNSP is expected to convert the resultant cost pools into prices.

Clause 6.14.1 provides that the generator price for prescribed network services may incorporate entry costs, with the price payable by a generator for network use of system services to be determined in accordance with the access arrangements which the generators have with the DNSP.

Clause 6.14.2 states that the end user price structure is to be determined by the DNSP, but that the ‘...pricing outcome will be subject to regulation’. The clause provides that the price payable by an end user for prescribed distribution service may incorporate fixed amounts related to exit costs and variable amounts related to use of system costs and common service costs. Sub-clause (d) provides that such prices:

“...may comprise one or more elements related to:

- (1) demand based charges (\$ per maximum kW per period or \$ per maximum kVA per period, which may include a time of use component);
- (2) energy based charges (¢ per kWh or ¢ per kVAh which may include a time of use component); and
- (3) Network Customer charges (\$ per Network Customer per period).”

Sub-clause (e) states that:

“...Where quantities are used in determining charges, these quantities can be minimum quantities specified in the prices, actual quantities used by the Network Customer and quantities agreed by the Network Customer and Network Service Provider.”

4.2. Choice facing the Authority

This paper explores the various issues which, together, will determine the Authority’s preferred approach to regulating network pricing.

Section 5 explores the objectives of network pricing, with a view to establishing whether specific pricing regulation is necessary in addition to the regulation of total revenue or average prices.

Section 6 examines in detail the characteristics of efficient pricing, and the extent to which alternative pricing methodologies may result in efficient pricing, as a basis for possible network pricing principles to be endorsed by the Authority.

Section 7 looks in detail at the regulatory control options available to the Authority, once it has endorsed any network pricing objectives and principles.

5. OBJECTIVES OF NETWORK PRICING

For the Authority to determine the role it will take in regulating individual network tariffs, and therefore how closely it follows the example provided for jurisdictional regulators under Part E of the Code, depends firstly on the extent to which tariff setting in the absence of any regulation—other than the capping of a DNSP’s total or average revenues—is likely to achieve (or depart from) desired outcomes. Since primary controls in the form of capping a DNSP’s total or average revenues are aimed principally at preventing monopoly rent extraction, whether ‘secondary’ price controls are necessary therefore depends upon the objectives set for network pricing *in addition to* the prevention of monopoly rent extraction.²

5.1. Requirements of the Code

Chapter 6 Part D of the Code sets out the objectives and principles of the distribution pricing regulatory regime to be administered by jurisdictional regulators. These objectives and principles are reproduced at Attachment A. Besides these broad objectives, Schedule 6.7 of the Code (reproduced at Attachment B) lists six key relevant principles for network pricing.

In its recent review of transmission and distribution pricing under the Code, NECA stated that:

“The Code sets out a large and disparate number of overlapping, and sometimes conflicting, objectives and principles for network pricing. Whilst those objectives and principles are obviously important, the extensive way in which they are treated in the Code, and the lack of consistency in that treatment, makes it difficult to adopt them in their entirety.”³

NECA sought to distil all the objectives contained in the Code into seven core objectives. NECA’s core objectives are set out in the Table 2 below. The aim was to develop a concise set of core objectives which, taken together, reflect the overall intention of the Code.

Table 2: Code Objectives

Core objective	Reference in Code
Efficient use of the network	clause 6.10.2(f); clause 6.1.6(d)(1); schedule 6.16.1
Efficient operation and maintenance of network	clause 6.10.2(e); clause 6.1.6(d)(1)
Efficient investment in the network	clause 6.10.2(d); clause 6.1.6(d)(1); schedule 6.16.1
Efficient location of generation and demand	clause 6.1.6(d) (1); schedule 6.16.1
Promotion of upstream and downstream competition	clause 6.10.2(h); clause 1.3(b)(1)
Price stability	clause 6.10.2(i); clause 6.1.6(d)(1); clause 6.1.6(d)(5)
Equity	clause 6.10.2(g); clause 6.1.6(d)(2); schedule 6.16.1

² A focus on monopoly rent extraction is evidenced by an explicit or underlying examination of the relationship between aggregate income and aggregate costs, and a setting of revenue or price levels or paths based upon the targeting of some maximum allowable revenue—either total or average—given a DNSP’s cost of production.

³ NECA, *Transmission and Distribution Pricing Review: Final Report*, Volume 1, p.18

The following elaboration is indicative of the pricing objectives envisaged by NECA:

- Efficient Use of the Existing Infrastructure
 - with prices signaling the true opportunity costs of uses of the network.
- Efficient Operation and Maintenance of the Existing Infrastructure
 - with prices providing incentives to the DNSPs to manage their networks efficiently to minimise the costs of providing the service levels requested by users.
- Efficient Investment in Infrastructure Augmentation
 - with prices ensuring that the network is expanded only when there are net benefits and where these benefits exceed those arising from alternatives such as additional generation or demand side management.
- Efficient Location of Generation and Demand
 - with prices providing clear signals as to efficient location choices.
- Promotion of Competition
 - with prices fostering access for third parties in contestable upstream and downstream markets.
- Price Stability
 - with prices not being excessively volatile; and
 - with limits on ‘price shocks’ for individual end users.
- Equity among Users
 - with prices ensuring non-discriminatory access to the network, with no inherent bias in pricing in favour of: incumbent generation over new entrants, large over smaller scale projects, centrally located over more remote (or embedded) generation or loads, or contestable over franchise customers.

Some of these objectives can be conflicting in certain circumstances, but altogether they are not contentious. Differences arise mainly about the relative weighting to be given to the various objectives, notably those relating to efficiency and equity.

‘Equity’ is a particularly difficult term to define. Indeed, a range of situations may be associated with an equitable outcome including:

- if network users are paying for the assets they use;
- if network users as a whole are meeting the cost of facilities provided for the benefit of the community as a whole; and
- if network users are not penalised for having made locational, production and investment decisions based on previous pricing structures.

The Authority therefore seeks comments on:

- **whether the listed objectives provide a sufficient basis upon which to assess the need for regulatory action regarding the structure of network prices?**
- **what relative weighting should be given to the various objectives, especially:**
 - **what role should equity play relative to economic efficiency?**
 - **what emphasis should be given to the role of locational signals in pricing?**
- **whether the requirement that the pricing regime should not discriminate between users is a sufficient allowance for equity?**
- **what emphasis should be given to the role of incentives in pricing?**

6. CHARACTERISTICS OF ‘EFFICIENT’ PRICING

The role of efficient pricing is clearly important. Unfortunately, notwithstanding the Code’s stress on ‘cost reflective’ network pricing, there is much disagreement about the structure and method of pricing which best promotes economic efficiency.

Part E’s exposition of the cost reflective network pricing method focuses on this issue. At issue for the Authority is whether to follow Part E or to institute some alternative principles as allowed for in Part E (and as generally adopted by other jurisdictional regulators).

6.1. Role of jurisdictional regulator under Part E

Using the cost reflective pricing method outlined in Part E, the Code envisages the jurisdictional regulator’s role will focus on:

- approval of any asset sub-categories used by a DNSP (6.13.2(b));
- if the DNSP elects to use locational prices, approval of the locations and voltage levels for which these locational prices are to apply (6.13.2(c));
- if the DNSP elects to divide its network into geographical areas for one or more voltage levels which will represent different zones for pricing purposes, approval of the geographic boundaries incorporated in the pricing zones and of the voltage levels of network service incorporated within these pricing zones (6.13.2(d));
- approving the asset allocation basis used by the DNSP (6.13.3(a));
- approving the DNSP’s method of allocating the AARR for the asset categories to cost pools (6.13.5(a));
- approving the ‘cost reflective’ basis upon which the network use of system costs are to be allocated to end users by the DNSP (6.13.6(c)(2)); and
- approving the ‘cost reflective’ basis upon which cost pools for common services are to be allocated to end users (6.13.6(d)).

This role would involve the Authority in a good deal of what could be termed ‘micro-regulation’. Whether such detailed regulation is warranted depends upon whether cost reflective network pricing is essential for efficiency purposes.

6.2. Meaning/dimensions of efficiency

Economic efficiency is normally considered under three headings:

- allocative efficiency: the efficiency with which existing resources are allocated between competing uses—which depends largely on whether prices for inputs and outputs reflect their economic costs;
- productive efficiency: the efficiency with which existing services are produced—which depends upon whether the same output could be produced using fewer inputs; and

- dynamic efficiency: the efficiency of decisions by the network to expand or replace network capacity or introduce new technologies and by end users to invest in or introduce new technologies.

The principal influence on productive and dynamic efficiency is the form of regulation together with the treatment of productive efficiency gains at the regulatory reset and the nature of any provisions for rolling forward the asset base and associated treatment of any contribution to dynamic efficiency.

For end users, the incentives to invest in new energy using or saving technology will depend on current and projected energy prices. In this instance, the extent to which prices reflect the allocative efficiency criteria over time will be critical.

For these reasons, the focus on the efficiency consequences of the structure of network prices is usually on the allocative efficiency dimension.

6.3. Alternative pricing methods

A network pricing regime that achieved allocative efficiency is considered to be one that reflects the costs incurred in providing network services. What is contentious is which particular costs comprise the relevant costs of supply.

The main options are for prices to be based on:

- marginal cost;
- incremental cost; and
- fully distributed total cost.

Marginal cost pricing

A dominant view within the economic profession is that ‘efficient’ pricing involves prices that in the *short run* are set equal to marginal cost. The ‘short run’ is where investment in plant and equipment is fixed, with short run costs indicating how costs change when capacity is fixed. Short run marginal cost (SRMC) therefore does not include capital costs and ongoing maintenance costs.

Except where the network is subject to congestion, prices set at SRMC only recover energy losses and other variable costs of production such as labour and materials. Fixed costs are only recovered where capacity constraints are reached.

Shortcomings of marginal cost pricing in highly capital intensive industries, such as electricity transmission and distribution, include the following:

- prices based on SRMC can be erratic, depending on system capacity;
- as marginal cost is typically below average cost when the network is not capacity constrained, SRMC pricing is likely to lead to a shortfall in revenue for network service providers;
- marginal costs do not include joint or common costs incurred to serve customers. Joint and common costs are costs that are incurred to serve a range of customers together, which cannot be attributed to an individual customer. When prices are being established for new customers based upon incremental pricing, existing (or

old) customers bear the cost of such joint and common costs. This gives rise to equity concerns between existing and new customers; and

- when capacity is constrained, SRMC would not reflect the additional capital cost incurred in adjusting capacity to provide an extra unit of access services.

Setting prices equal to *long-run* marginal costs (LRMC) would factor in an allowance for the cost of capacity increments, including the capital cost of augmenting the network and the cost of operating the extended network relative to the cost of operating the facility at existing capacity. Prices based upon LRMC would also be more stable over time, and provide better signals for long term investment decisions than SRMC. However, LRMC pricing would distort prices in the short run when capacity is not constrained and, as with SRMC, total revenues under LRMC pricing are unlikely to provide a sufficient revenue stream for the network, giving network providers little incentive to maintain or invest in the network due to the failure to include consideration of sunk costs.

It is therefore difficult to design a pricing regime on purely marginal cost principles that allocates existing capacity efficiently and *also* provides the correct incentives to expand the network. Generally, LRMC pricing is unlikely to be sufficient in itself, to ensure timely and efficient network expansion. This suggests that some central coordination of network expansion is required. In particular, the oversight may need to ensure that investment decisions provide a cost effective way of meeting additional electricity demand after equal consideration of network augmentation, additional generation and demand side management options.

Incremental cost pricing

Besides the above theoretical difficulties, marginal cost pricing is difficult to apply in practice because ‘marginal’ costs are not easily observable or measured. A practical alternative is based upon the notion of ‘incremental cost’. Incremental cost is the change in total cost per period due to a change in output or capacity over some specified increment in output or capacity.

Unlike marginal cost where the focus is on the change in costs from a *single (small)* additional unit in demand or capacity, incremental cost focuses on the change in costs associated with actual observable and measurable increments in capacity or demand. Incremental costs therefore include any additional operating costs and capital costs incurred, including a return on additional investment.

In common with marginal cost notions, the costs comprising incremental costs are only those which are *variable* with respect to output over the period in question. Existing *fixed* costs are excluded from consideration.

The term ‘avoidable cost’ is often used synonymously, as incremental costs are also equal to the costs that would not be incurred if a group of customers were not supplied.

The attractions of basing network pricing on the recovery of incremental costs is that it would be just sufficient to ensure supply, as a business would not supply for long a customer that could not pay at least the incremental cost of supply, since the business could improve its profitability by not supplying that customer.

A deficiency which incremental cost pricing shares with marginal cost pricing is that incremental costs do not include joint or common costs incurred to serve customers. Joint and common costs are costs that are incurred to serve a range of customers together, which cannot be attributed to an individual customer. When prices are being established

for new customers based upon incremental pricing, existing (or old) customers bear the cost of such joint and common costs. This gives rise to equity concerns between existing and new customers.

Fully distributed cost (or average cost) pricing

Fully distributed cost pricing requires the total costs of the business to be allocated to each customer or group of customers. Total costs include such fixed costs as capital costs and joint and common costs. The cost reflective network pricing method in Part E of the Code is an example of a fully distributed cost approach. Cost reflective network pricing is very similar to long-run *average* cost pricing.

A price based on fully distributed costs would result in a price below stand-alone costs. Stand-alone costs are incurred if a group of customers is supplied in isolation, with prices at or above this level only capable of being sustained in the long run through the existence of entry barriers. Thus prices above stand-alone costs require the exercise of market power.

However, this approach raises a number of significant features which need to be considered, including:

- the allocation of joint costs is subject to judgment, with the choice of allocator for apportioning common costs affecting the magnitude of the individual fully distributed cost figures that emerge from the calculation. Not surprisingly, therefore, the selection made among the alternative allocators can spark protracted disputes between the parties involved;
- it results in prices that involve a return on sunk assets and hence reflect costs incurred in the past. It is generally accepted that the inclusion of a return on sunk costs has no economic basis, and may result in a revenue requirement that is too high, as inducing a desirable level of on-going investment may not require a return on existing sunk costs;
- under the approach outlined in the Code, cost reflective network pricing would take no account of the level of spare capacity on the system in setting prices. Therefore, if the system is at full capacity, cost reflective network pricing will produce a lower unit price compared to a situation where there is spare capacity. Such pricing signals are the opposite of those which one would expect to see in a competitive market;
- the approach outlined in the Code allocates costs on the basis of load flows in an attempt to identify the users of particular assets on the system. However, some of these load flows may be subject to significant changes on a periodic basis. Such changes can create volatile use of system charges as the cost allocation method reallocates charges between customer groups; and
- in order to deliver appropriate pricing signals, there is an implicit assumption in the cost reflective network pricing method outlined in the Code that future network use will follow historical patterns. Since there is no guarantee that this assumption is correct, placing undue reliance on the method is inappropriate.

The Code itself (Schedule 6.4) acknowledges the deficiencies in the existing arrangements:

“...the cost reflective network pricing method ... fully allocates the cost of the existing network to the particular user who is deemed to benefit from the provision of network capacity. This has a tendency to result in over-signalling of the costs on a locational basis as a result of three factors:

- there is no recognition given to spare capacity on the network which, particularly in remote areas with low load growth rates, allows significant additional load to be supported by the network with little or no network development required. While charging the full amount through the cost reflective network pricing cost allocation process is likely to be equitable it will over-signal the network costs associated with additional loading at that point when the best economic solution may be to utilise the existing network capability;
- there is no recognition given to the system nature of the network and the reliability and security that some parts of the network provide to all parties. It may not be appropriate to allocate this common good component of the overall network on a locational basis since all users benefit in a similar manner regardless of their location; and
- in the mature networks of south and eastern Australia the incremental cost is lower than the average cost, so that overall pricing to recover sunk cost on a fully locational basis will over-signal incremental costs.”

6.4. Other jurisdictions

The NSW regulator (IPART) has stated that it:

“...has harboured concerns about the practicality of Part E of the Code for some time...chapter 6 of the Code is poorly drafted, has many ambiguities, and does not provide an ideal regulatory framework.

The Tribunal has exercised its discretion ..., in clause 9.16.3(c) of the Code, not to apply Part E of chapter 6 of the Code”⁴.

Instead, IPART’s intention is to work with the DNSPs and other stakeholders to establish agreed guidelines for pricing which can supplement the provision of chapter 6 of the Code and reduce or streamline the requirements for approval of individual elements in the cost allocation and pricing process.

IPART’s general position is that network prices should reflect incremental changes in future economic costs, since the marginal costs of distribution are likely to be less than average costs.

“The gap between marginal and average costs should be recovered in the least distortionary manner possible. A practical approach to minimising distortions would recover the gap between marginal and average costs in a manner which:

- does not vary between locations;

⁴ IPART, *Regulation of New South Wales Electricity Distribution Networks – Determination and Rules under the National Electricity Code* (hereafter ‘*Determination and Rules*’), December 1999, p.26

- contains a fixed component; and
- to the extent a variable component is necessary, includes both energy and demand components.”⁵

The Victorian regulator (ORG) considers that there will typically be a wide range of tariffs that could be regarded as ‘efficient’, particularly where costs tend to be dominated by the need to recover sunk investments.⁶ In particular:

“The Office has set out criteria that the DNSPs’ distribution prices should satisfy if they are to provide economically efficient market signals. In general, tariffs for distribution services should lie between the following upper and lower bounds:

- tariffs for each customer should be above the avoidable cost of serving that customer; and
- tariffs for each customer should be below the cost of providing the service on a stand-alone basis to that customer.

The first criterion ensures that distributors have an incentive to continue providing the service and that customers receive an appropriate signal as to the value of resources consumed in meeting their current and future demands. The second criterion precludes inefficient bypass of the current distribution networks.”

In 1999, NECA completed an examination of chapter 6 of the Code (NECA Review⁷). While the review in the end specifically addressed the transmission pricing arrangements set out in Part C of the Code, many of the conclusions are also applicable to distribution pricing.⁸

The NECA Review concluded that the existing specific cost reflective network pricing method set out in the Code should be revised and refined to enable it better to ensure that:

- **“prices should reflect the level of spare capacity on the existing system.** Cost reflective network pricing treats all assets as being equally utilised. The resulting prices are likely to under-price those assets which are fully utilised and over-price those assets which are under-utilised. It is therefore appropriate either to adjust the methodology or modify the prices it produces so that full account is taken of the actual level of usage of the network;
- **costs should not be allocated to specific customers or customer groups if the service provided delivers system-wide reliability or security benefits.** It is not appropriate to allocate costs associated with the delivery of system-wide benefits such as reliability and security to particular customers or customer groups. If this approach is not adopted, particular customers may be provided with signals to

⁵ *Determination and Rules*, December 1999, p.27

⁶ *2001 Electricity Distribution Price Review - Draft Decision*, May 2000, pp.223-5

⁷ *Transmission and Distribution Pricing Review: Final Report*, July 1999

⁸ NECA concluded that “The structure of distribution network charges, including whether that structure should be determined in a tariff order (as it is currently in Victoria) or left to the discretion of the DNSPs themselves within broad guidelines determined by the jurisdictional regulator (the NSW model) is properly an issue for State-based decision. We believe that there should, however, be one exception. The need to stimulate proactive demand-side participation is crucial to managing the issues of peak capacity in the national market.”

bypass the system which are uneconomic. It may be appropriate to treat some or all inter-regional assets as providing system-wide (eg ancillary services) benefits;

- **prices should signal anticipated future new investment costs.** The user pays principle should be applied in respect of new investment. This requires that the beneficiaries of the investment meet an appropriate share of the costs. However, customers are generally unable to change their behaviour rapidly to take account of new investment costs. It is therefore appropriate to signal future new investment costs in the charges for using the existing network. This will enable demand to take account of the impact of future new investment in advance of it actually being deployed;
- **prices should be designed to minimise uneconomic bypass.** The risk of uneconomic bypass will increase to the extent that prices are not appropriately cost reflective. Minimising the risk of uneconomic bypass should be a key objective of network pricing and is consistent with the principle that charges be cost reflective; and
- **account should be taken of the merits of price stability.** In the absence of radical changes to the network, stable prices help to deliver more effective price signals. This objective does not require that prices should be kept stable when the cost drivers demand that they should change. It is, however, intended to guard against the rigid application of pricing methodologies whose outputs may be highly sensitive to small changes in inputs.”

The Authority seeks comments on:

- **what role cost reflective network pricing should play in the Authority’s regulatory role? Should the Authority exercise its discretion not to apply Part E?**
- **whether economic efficiency requires that prices reflect forward-looking marginal or incremental costs?**
- **whether it is acceptable to conclude that there is a range of prices that satisfy efficiency considerations?**
- **whether network prices should reflect future investment requirements, and so the probability of congestion and future network augmentation requirements?**
- **whether prices should take account of network congestion?**

7. REGULATORY CONTROL OPTIONS

Once it has determined its preferred pricing objectives and principles, the final issue for the Authority is the choice of regulatory instruments best suited to pursue achievement of these objectives and principles.

Clause 6.14.5(a) of the Code requires that the Authority consider the efficacy of alternative regulatory control options. This clause states that:

“Network Service Providers *in conjunction with* [emphasis added] the Jurisdictional Regulator must publish by 31 May each year:

1. a schedule of prices for all classes of distribution services at each voltage level, load class and pricing zone where the schedule prices are to be the maximum price charged; and
2. a statement providing details of principles and methods for determining connection charges,

to apply to Network Customers and Embedded Generators in the following year, commencing 1 July.”

The Authority must therefore indicate how it intends to assess (and approve) the pricing proposals put forward by the DNSPs.

Essentially, there are three sets of issues facing the Authority, namely whether (and how):

- to use ‘side constraints’ on tariffs;
- to approve the network pricing principles and strategies of DNSPs; and
- to specify the information requirements/documentation to be submitted by DNSPs in support of their annual tariff proposals.

7.1. Role for side constraints

Side constraints involve limitations on the variation of network tariffs from year to year.

Side constraints can promote price stability as well as increase the certainty and consistency of regulatory outcomes. In particular, they have the effect of limiting the amount of re-balancing that can occur in any one year, thereby preventing ‘price shocks’ for end users.

To date in Queensland, the side constraint percentage change is generally limited to 2.5% per annum. However, by agreement between the Minister and the distributor, a different side constraint may be adopted if the 2.5% limit is inappropriate.

In determining distribution prices each year, the Minister will also consider the potential price volatility (based on location) and the smoothness of the overall price path (to minimise sharp ‘steps’ in average prices).

Requirements of the Code

Clause 6.14.4(a) of the Code states that:

“The Jurisdictional Regulator may place limits on the annual variation in published network service prices. Any such limits must be specified by the Jurisdictional Regulator at the commencement of the regulatory control period and are to apply for the duration of the regulatory control period.”

Other jurisdictions

The NSW regulator applies side constraints to network tariffs in order to avoid price shocks to residential customers. In particular, increases in the standard periodic bills of any residential customers for the same pattern and volume of electricity consumption must not exceed the bill for the corresponding period of the preceding year by more than the greater of CPI + two per cent or \$30.

In Victoria, the Tariff Order limits the extent of any re-balancing by limiting the annual rate of change in the average price for each network tariff category to CPI plus two per cent.

Options

Whether to apply some form of side constraint on network tariffs depends largely on whether it is considered that such constraints are more appropriately applied to (bundled) retail prices of franchise customers than to network charges alone. The advantage of applying side constraints at the retail (not network) level is that it best ensures end users are protected from price shocks. The advantage of constraining network tariffs directly is that these tariffs are under the direct control of the Authority and so would be easier to implement.

Among the options facing the Authority were it to apply side constraints to network tariffs are:

- applying any side constraints to all end users, or just residential customers (as the NSW regulator has recently decided to do);
- applying any side constraints at the individual customer level (as in NSW) or just at a customer group level (as in Victoria);
- specifying side constraints either as a maximum real-terms percentage change (that is, relative to CPI movements) or as a maximum nominal percentage change or as a maximum dollar amount change; and
- if a real-terms percentage change specification is used (for example), whether to set the side constraint at a two per cent increase in real terms (as in NSW and Victoria) or at some higher or lower figure.

The Authority seeks comments on whether:

- **side constraints should be adopted at all by the Authority, and with what pricing objective(s) in mind?**
- **any side constraints should only apply to residential customers, or be applied to commercial customers as well?**

- **any side constraints should apply to individual end users or just at the customer group level?**
- **any side constraint should be expressed in terms of a fixed percentage or dollar amount (or both)?**
- **at what level should any side-constraint be set?**

7.2. Approval of pricing principles

To date in Queensland, the DNSPs have been expected to use pricing principles consistent with Part E. The pricing strategy of each DNSP has been largely a matter for the DNSP itself. No approvals have been required of the DNSP's pricing principles or strategies.

Other jurisdictions

While the NSW regulator holds the view that, as far as possible, the network businesses should bear responsibility for determining the structure of their network prices, this freedom to determine its pricing structure is accompanied by a responsibility to disclose medium term pricing strategies and information concerning the basis for determining prices. IPART requires DNSPs to disclose these strategies and information in pricing information booklets, and will restrict a DNSP's freedom to change tariffs if the DNSP has not published the required booklet.

The Victorian regulator does not require DNSPs to disclose their pricing strategies, provided their tariffs meet constraints on the extent of re-balancing of tariffs in any one year and fall within limits set by the overall tariff basket control. Important among the reasons for the Victorian regulator's recent adoption of a tariff basket approach as its primary control is its view that it will serve to encourage DNSPs to pursue efficient pricing, while the building block approach used to establish the tariff basket, and associated focus on efficient costs, will prevent monopoly rent extraction.

Options

Were the Authority to approve each the DNSP's pricing principles or strategies, it would be appropriate to do so prior to the commencement of each regulatory control period. Such an approval would then apply for the duration of that control period.

The main options facing the Authority in this regard are to *either*:

- (i) leave the choice of pricing principles and strategies entirely to DNSPs within the broad parameters set out by the Authority's own position on pricing objectives and principles—and so not require any specific approval; or
- (ii) require each DNSP to submit a 'pricing principles statement' to the Authority at the beginning of each regulatory control period, and for the Authority to only approve annual pricing schedules subsequently submitted if they are based upon a principles statement approved by the Authority.

Under option (ii), each DNSP would be required to submit an outline of its cost allocation model; a description of each cost pool or element in the cost allocation process; and the allocators which it proposed to use for the allocation of costs. The Authority would then be required to assess whether the proposed principles and methodology were consistent with the broad objectives agreed for network pricing.

The Authority seeks comments on whether:

- **DNSPs should be required to submit their pricing principles or strategies to the Authority for approval prior to the commencement of each regulatory control period?**

7.3. Annual information/documentation requirements

In addition to a possible requirement to submit a pricing principles statement of some sort for approval at the commencement of each regulatory control period, also at issue is whether the Authority should specify its information requirement at the time each DNSP submits its annual pricing schedules for approval.

The options facing the Authority are to *either*:

- (i) clearly specify in advance the Authority's information requirements; *or*
- (ii) leave the type and content of documentation in support of annual pricing proposals entirely to DNSPs

Option (i) would require the Authority to set out in advance precisely what supporting information was required from a DNSP when it submits its proposed annual tariff for approval.

Option (ii) recognises that each DNSP has the greatest understanding of:

- its cost structures;
- users' needs as reflected in demand patterns and the sensitivity of those demands to price signals; and
- network utilisation and the likelihood of the emergence of congestion.

Were the Authority to opt for strengthened requirements for public disclosure, the choices of information/documentation include:

- a demonstration that the proposed prices do not involve cross-subsidies, involving:
 - a demonstration that the contributions to fixed and joint costs by each customer class or customers with varying demands at different location are such that it is unlikely that prices are less than incremental costs or more than stand-alone costs; and
 - specific 'check' modelling for those customers or customer groups from whom prices are most likely to be outside the tests of incremental and stand-alone cost costs;
- a demonstration that the structure of prices (ie the balance of fixed, demand and energy components) is consistent with economic pricing principles, with information on the relationship between the components of network tariffs and network costs. That is:
 - for a demand charge: which costs are driven by the level of demand;

- for a fixed charge per customer: which costs are driven by the number of customers; and
- for an energy charge (unless it is used as a proxy for demand): which costs are driven by energy consumption; and
- a ‘high level’ analysis of the relationship between the proposed price structures and future network augmentation requirements, including the capex program for the next five years with projects categorised according to whether the project is primarily required to:
 - cater for growth in the number of customers and/or demand levels;
 - replace existing capacity due to the age and/or maintenance costs of existing assets; or
 - improve the quality and reliability of service.

Other jurisdictions

The NSW regulator has recently decided to require all of the above information to be provided annually by DNSPs.

The Victorian regulator only requires a quantitative analysis of the cross-subsidy issue. Provided tariffs for each customer are *above* the avoidable cost of serving that customer, and *below* the cost of providing the service on a stand-alone basis to that customer, Victoria’s DNSPs have discretion to determine the appropriate tariff structure for their distribution services within these bounds.

The Authority seeks comments on whether:

- **the annual information requirements in support of a DNSP’s proposed network tariffs for the coming year should be a matter for the DNSP to determine, or should the information required be specified by the Authority?**
- **if the Authority specifies its annual information requirements, any supporting quantitative analysis should be restricted to the ‘cross subsidy’ test (as in Victoria) or extended to cover a wider range of matters (such as in NSW)?**

ATTACHMENT A**EXCERPTS FROM THE NATIONAL ELECTRICITY CODE****6.10.2 Objectives of the distribution service pricing regulatory regime to be administered by the Jurisdictional Regulators**

The distribution service pricing regulatory regime to be administered under Part D of the Code must seek to achieve the following outcomes:

- (a) an efficient and cost-effective regulatory environment;
- (b) an incentive-based regulatory regime which:
 - (1) provides an equitable allocation between Distribution Network Users and Distribution Network Owners of efficiency gains reasonably expected by the Jurisdictional Regulators to be achievable by the Distribution Network Owners;
 - (2) provides for, on a prospective basis, a sustainable commercial revenue stream which includes a fair and reasonable rate of return to Distribution Network Owners on efficient investment, given efficient operating and maintenance practices of the Distribution Network Owners;
 - (3) ensures consistency in the application of regulations applicable to:
 - (i) connection to distribution networks; and
 - (ii) distribution service pricing;
- (c) prevention of monopoly rent extraction by Network Owners;
- (d) an environment which fosters an efficient level of investment within the distribution sector, and upstream and downstream of the distribution sector;
- (e) an environment which fosters efficient operating and maintenance practices within the distribution sector;
- (f) an environment which fosters efficient use of existing infrastructure;
- (g) reasonable recognition of pre-existing policies of governments which are Distribution Network Owners regarding distribution asset values, revenue paths and prices;
- (h) promotion of competition in upstream and downstream markets and promotion of competition in the provision of network services where economically feasible;
- (i) reasonable regulatory accountability through transparency and public disclosure of regulatory processes and the basis of regulatory decisions;
- (j) reasonable certainty and consistency over time of the outcomes of regulatory processes, recognising the adaptive capacities of Code Participants in the provision and use of distribution network assets;

- (k) reasonable and well defined regulatory discretion which permits an acceptable balancing of the interests of Distribution Network Owners, Distribution Network Users and the public interest.

6.10.3 Principles for regulation of distribution service pricing

The regime under which the revenues of Distribution Network Owners and Distribution Network Service Providers (as appropriate) are to be regulated is to be administered by the Jurisdictional Regulators in accordance with the following principles:

- (a) Concerns over monopoly pricing in respect of the distribution network will, wherever economically efficient and practicable, be addressed through the introduction of competition in the provision of distribution services.
- (b) Where pro-competitive and structural reforms alone are not a practicable or adequate means of addressing the problems of monopoly pricing in respect of distribution services or protecting the interests of Distribution Network Users, the form of economic regulation to be applied is described in clause 6.10.5.
- (c) The form of economic regulation applied by the Jurisdictional Regulators must not be changed during a regulatory control period.
- (d) Subject to clause 6.10.3(c), if a Jurisdictional Regulator proposes to amend the form of economic regulation specified in clause 6.10.5 applied to a Distribution Network Owner, the Jurisdictional Regulator must:
 - (1) give two years prior notice to the Distribution Network Owner of the new economic regulation arrangements to apply from the commencement of the next regulatory control period; and
 - (2) publish a description of the process and timetable for re-setting the form of economic regulation at a time which provides all affected parties with adequate notice to prepare for, participate in, and respond to that process, prior to the commencement of the regulatory control period to which that form of economic regulation is to apply.
- (e) The regulatory regime to be administered by the Jurisdictional Regulator must be consistent with the objectives outlined in clause 6.10.2 and must also have regard to the need to:
 - (1) provide Distribution Network Owners with incentives and reasonable opportunities to increase efficiency;
 - (2) create an environment in which generation, energy storage, demand side options and network augmentation options are given due and reasonable consideration;
 - (3) take account of and be consistent with the allocation of risk between Network Owners and Network Users;
 - (4) take account of and be consistent with any obligations of Code Participants in relation to distribution networks under Chapter 5;
 - (5) provide a fair and reasonable risk-adjusted cash flow rate of return to Distribution Network Owners on efficient investment given efficient

operating and maintenance practices on the part of the Distribution Network Owners where:

- (i) assets created at any time under a take or pay contract are valued in a manner consistent with the provisions of that contract;
 - (ii) subject to clause 6.10.3(e)(5)(i), assets (also known as 'sunk assets') in existence and generally in service on 1 July 1999 are valued at a value determined by the Jurisdictional Regulator or consistent with the regulatory asset base established in the participating jurisdiction;
 - (iii) subject to clause 6.10.3(e)(5)(i), valuation of assets brought into service after 1 July 1999 ('new assets'), any subsequent revaluation of any new assets and any subsequent revaluation of assets existing and generally in service on 1 July 1999 is to be undertaken on a basis to be determined by the Jurisdictional Regulator. In determining the basis of asset valuation to be used, the Jurisdictional Regulator must have regard to:
 - A the agreement of the Council of Australian Governments of 19 August 1994, that deprival value should be the preferred approach to valuing network assets;
 - B any subsequent relevant decisions of the Council of Australian Governments; and
 - C such other matters reasonably required to ensure consistency with the objectives specified in clause 6.10.2; and
 - (iv) benchmark returns to be established by the Jurisdictional Regulator are to be consistent with the method of valuation of new assets and revaluation, if any, of existing assets and consistent with achievement of a commercial economic return on efficient investment;
- (6) provide reasonable certainty and consistency over time of the outcomes of regulatory processes having regard for:
- (i) the need to balance the interests of Network Users and Network Owners;
 - (ii) the capital intensive nature of the distribution sector, the relatively long lives of distribution assets, and the variable and frequent augmentation of the distribution network;
 - (iii) the need to minimise the economic cost of regulatory actions and uncertainty;
 - (iv) relevant previous regulatory decisions made by authorised persons including:
 - A the initial revenue setting and asset valuation decisions made by a government at a time at which that government was a Distribution Network Owner in the context of industry reform pursuant to the Competition Principles Agreement;

- B decisions made by Jurisdictional Regulators and any regulatory intentions previously expressed; and
- C decisions made by ministers under jurisdictional legislation.

ATTACHMENT B**PRINCIPLES FOR NETWORK PRICING (extracts from Schedule 6.7 of the NEC)****1. Cost reflective network pricing**

Network charges should in principle be cost reflective. This is to facilitate the competitive market, by providing equitable access to the network and ensuring that appropriate investment in the network takes place in the longer term. It is intended that all generators and customers, including franchise customers and non-registered customers be charged on a consistent basis, in accordance with their use of network assets and taking into account the impact of network constraints.

2. Non-discriminatory pricing of network services

Network pricing should provide non-discriminatory access to the network. This implies a common approach for all market participants, no matter where they are located or whether they participate or not in the competitive market trading. Actual prices at different locations will differ, because of the network configuration and patterns of use. In this way, prices will equitably recover the costs of the network. Network pricing should be based on the location in the network and the assets employed in providing transmission or distribution services. The price for each market participant should be influenced by the location in the network and their assets employed in providing transmission or distribution service.

3. Compatibility with market trading arrangements

The network pricing proposals should be compatible with the electricity market design proposals to encourage and facilitate the development of these arrangements. The pricing approach proposed is independent of any contract arrangements that market participants will enter into for energy trading. In return for the payment of a connection and use of system fee to the local network owner, the market participant is entitled to enter into energy trading arrangements with any other market participant.

4. Network prices for economically efficient investment

Network prices should provide signals to optimise the cost of network development in order to minimise the cost of development and operation of the market. It should be recognised that the above objectives of non-discriminatory pricing (leading to the equitable recovery of existing costs) and economically efficient pricing for new investment in the network are to some extent incompatible. The challenge is to devise a method of network pricing which meets both.

5. Network interconnectors managed to reduce the barriers to a national market

Pricing for interconnectors should encourage efficient market operation and provide appropriate signals for the development of new interconnectors. This implies that the pricing for interconnectors should recover all the costs associated with efficient operation of the interconnector.

6. Published and transparent network prices

Prices for transmission networks and distribution networks should be transparent and published in order to provide pricing signals to market participants. This is consistent with the principle adopted by Council of Australian Governments.