PowerWater

DRAFT
NETWORK PRICING PRINCIPLES

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1. INTRODUCTION AND REGULATORY FRAMEWORK

1.1 BACKGROUND

This Pricing Principles paper is presented for the information of current and future users of the network[1] facilities of the Power and Water Corporation (Power and Water Networks). The paper provides a statement of the principles that Power and Water Networks will follow in developing network tariffs in the regulated market for network access and services from 1 July 2006.

Power and Water Networks is a ring-fenced electricity distribution business within the Power and Water Corporation (Power and Water). Power and Water is a vertically integrated utility and is owned by the Northern Territory (NT) Government. Power and Water was established by the *Power and Water Corporation Act 2002* and was formed on 1 July 2002.

Power and Water Networks has a significant investment in the electrical network and assets. The business requires that these assets and other resources be efficiently and effectively managed to maximise value to customers, employees, and shareholders. This involves ensuring that risks are managed and that Power and Water Networks delivers network services to meet customer requirements in a safe, reliable and cost-effective manner.

1.2 PURPOSE

The economic regulatory arrangements in the Northern Territory (NT) governed by the Utilities Commission (UC)[2] require Power and Water Networks to publish a pricing principles and methods statement that discloses pricing information relating to standard network access services.

This Network Pricing Principles document covers:

- information on Power and Water Networks and the environment in which we operate, including regulatory framework;
- network pricing objectives;
- cost drivers;
- cost allocation principles;
- network customer classes;
- network tariff structures;
- pricing approaches for non-standard network access services; and
- medium term pricing strategies.

[1] Electricity networks involve the poles and wires that transport electricity between generators and end-use consumers.

[2] The Utilities Commission, established under the *Utilities Commission Act 2000*.

1.3 NORTHERN TERRITORY ELECTRICITY INDUSTRY

Generation and electricity retailing are open to competition in the contestable electricity sector in the NT. This is supported by the efficient regulation and transparent pricing of monopoly network services.

In April 2000, the NT Government commenced a process of reform of the NT's electricity supply industry, whereby Power and Water's effective monopoly over the supply of electricity to final consumers ceased, and competition among generators and retailers was phased in by:

- allowing certain customers to choose their power supplier;
- licensing new suppliers to enter the market; and
- facilitating third-party access to Power and Water's network infrastructure.

Electricity networks are considered to be 'natural monopolies' in that they involve facilities that cannot be economically duplicated. For this reason, competing generation and retail organisations are able to access Power and Water's networks for the delivery of electricity from generation plants to customers once they enter into an access agreement and pay the regulated network charge.

Power and Water is obligated to use all reasonable endeavours to accommodate the requirements of those seeking access to the electricity network and to provide access to available spare network capacity and new capacity on a non-discriminatory basis.

The NT's *Electricity Networks (Third Party Access) Act 2000* (the Act), which commenced on 1 April 2000, sets up the framework for access by third parties to electricity networks within the NT. The *Electricity Networks (Third Party Access) Code* (the Code) is set out in the Schedule to the Act.

Power and Water Networks provides network access services in both regulated and non-regulated networks, however the Network Pricing Principles only relate to the provision of services in regulated networks.

1.4 OUR BUSINESS

Power and Water Networks' core business is the distribution of electricity to customers in specified geographical areas of the NT. These include Darwin, Katherine, Tennant Creek and Alice Springs.

Power and Water established a Networks business unit to strategically manage the overall commercial and technical performance of the electricity distribution network assets. The Power and Water Networks business unit has a number of key focus areas aligned with best practice in electricity network asset management. These areas are network planning and development, project design and management, risk management, reliability management, engineering standards, environmental, safety, network operations and maintenance management.

Power and Water Networks' distribution network and operating environment is vastly different to most other Australian and international electricity distribution businesses.

Some key statistics relating to the electricity distribution network are summarised below:

- Over 8 000 kilometres of line and in excess of 36 000 poles. Almost 74% of the network is an overhead construction type;
- Our network has a large number of asset types and operates at various voltage levels of 132 kV, 66 kV, 33 kV, 22 kV, 11 kV and 415/240 V. Customers are connected at voltage levels ranging from 66 000 volts down to low voltage. Most customers are primarily supplied at low voltage;
- The majority of our rural distribution network is radial in nature, with most areas only able to be supplied from one source. There is little opportunity for interconnection with other circuits for security and continuation of supply when performing maintenance activities or in the event of unplanned outages. Some customers are located over 200 kilometres by line length from the nearest zone substation.

Some of the distinctive characteristics of Power and Water Networks' operating environment are outlined below:

- We are the only distribution business in the NT with 8 479 network circuit kilometres of line, serving over 68 000 customers;
- The scale of the regional coverage necessitates extra equipment and investment per customer to ensure that all customers receive a reliable supply of electricity;
- We operate in a high cost environment. The distribution business has a low density of customers per asset length (on average 8.1 customers per kilometre of distribution line) and average consumption per customer of 23 MWh;
- Growth in demand varies across the service territory. The northern region is the fastest growing area in the NT. The central and southern regions have moderate to stagnant growth and are exposed to large step load connections and disconnections, which make future network capacity planning difficult;
- Our region is subject to a variety of climatic conditions. For example, Darwin has the highest incidence of lightning in Australia that results in more frequent interruptions and increased wear and tear on equipment;
- We supply into areas with significantly high levels of UV radiation, temperature and humidity. This issue impacts significantly on the life of distribution assets, maintenance and productivity;
- Materials and stores costs are considerably higher for Power and Water

Networks due to higher transport costs associated with its remote location, government purchasing requirements and small order size;

- Compared to other utilities, Power and Water Networks' vegetation trimming operations are more frequent due to high rates of vegetation growth in the Darwin-Katherine areas;
- The Darwin area is home to a particularly voracious genus of termite, *Mastotermies Darwiniensis*. This does not occur in southern states, and adds to operational and maintenance costs due to its rapid destructive effects on materials, especially insulation on underground wiring;
- The northern region is periodically affected by large numbers of bats which cause numerous outages;
- Periodic cyclonic conditions in the NT cause damage to distribution equipment. The incidence of wind damage in the NT is greater because of the frequency of storms. Storms with 100 kilometre per hour winds are a once-a-year event in southern states but occur on an average of 12 times per year in the NT; and
- Many areas of Power Networks' northern region are characterised by soil types containing porcelainite that has very high earth resistivity. This results in requirements for additional expense in substation earthing and earth wire runs for transmission lines and additional operation and maintenance costs.

The very unique and distinctive features of our network and operating environment impact on capital expenditure, operating expenditure and service delivery requirements. These features result in a distribution network with relatively higher capital requirements, higher operating and maintenance costs per customer and per delivered energy, and greater susceptibility to supply interruption and faults. To preserve and improve the performance of the network it is necessary to make significant investments.

Power and Water Networks is committed to continually reviewing the reliability of our network in all parts of our supply area, with a view to utilising available technologies to provide the maximum reliability possible, given these constraints.

1.5 REGULATORY FRAMEWORK

Within the NT, network service providers in declared (regulated) network areas, operate and manage their networks under the *Electricity Reform Act 2001* and *Electricity Networks (Third Party Access) Act 2000* (the Act) and regulations under the Acts, and are subject to the provisions of the Code.

Four separate networks have been prescribed as being subject to regulation under the Act. These are Darwin, Katherine, Alice Springs and Tennant Creek. Darwin and Katherine are combined as this system is interconnected by the Darwin-Katherine Transmission Line (DKTL).

As electricity distribution is a monopoly service, the UC is the jurisdictional regulator for the approval of prices for network service providers in the NT.

Price control in the second regulatory period has changed from the 'Revenue Cap' approach used in the first regulatory period to a 'Price Cap' approach (based on the calculation of each year's weighted average network access tariffs).

The UC, in accordance with the Code requirements, determines the maximum average price (the Price Cap) that Power and Water Networks can charge during a financial year.[3] Power and Water Networks charge the weighted average network access tariffs to networks users for use by their customers (end-users) of Power and Water's networks.

The UC has also introduced an S Factor that sets a constraint on the annual increase in each individual network user's weighted average network tariff. Any changes to Network prices to be implemented by Power and Water Networks must be within the Price Cap and S Factor constraints. As part of the annual price setting process, Power and Water Networks provides the UC with all supporting calculations and information necessary to demonstrate compliance with all of the regulatory requirements.

Clause 75 of the Code notes that *"the network provider is to be responsible for establishing the pricing structure that best gives effect to the [Code's pricing] principles …."* and sets out criteria for establishing price structure and elements.

It is the translation of the determined Price Cap into schedules of tariffs and charges to be paid by each network user that forms the subject of this Pricing Principles paper. The network user can be expected to pass on these charges to its customers. Whether, and how, network users charge their customers for network usage is a matter for the network user, and not Power and Water Networks.

1.6 CHANGES TO PRICING PRINCIPLES

Since the 2000 Networks Pricing Principles in the first regulatory period, Power and Water Networks has incorporated the following changes into these Pricing Principles:

- separating the Demand Charge into Maximum Demand and Capacity components for customers with consumption above 750 MWh per year;
- combining the Northern Grid and DKTL Schedule of Charges for easier administration; and
- the incorporation of the arrangements relating to non-standard network access services in the NT.

There have been no substantial changes to the previous network tariff structure.

[3] The *Electricity Networks (Third Party Access) Code* sets out the principles.

2. DEVELOPING THE STRUCTURE OF NETWORK TARIFFS

2.1 NETWORK PRICING OBJECTIVES

Power and Water Network's intention is to ensure that network users are charged in a manner that is understandable, practical, efficient and equitable, and which reflects their usage and benefit from the network.

To this end, Power and Water Networks is guided by the network pricing objectives laid down in clause 74 of the Code. Power and Water Networks' interpretation of the Code's pricing objectives is as follows:

- Cost reflective signals - there should be appropriate signalling to network users of their impact on existing and future network capacity and costs. Prices should reflect underlying cost drivers and provide appropriate signals for customer load management.

- Revenue recovery - network prices need to provide a commercially sustainable regulated revenue stream to ensure business viability by recovering efficient operating costs and providing an adequate rate of return to encourage ongoing efficient investment in network infrastructure.

- Simplicity - prices should be straightforward in application and readily understood by network users.

- Stability - prices should remain stable over time to permit customers to make informed investment decisions. Customers should not be subject to price shocks that distort consumption of network access services.

- Equity - prices should be equitable for network users. Generally, this means that prices reflect the user's utilisation of the existing network.

- Subsidy free - prices should be subsidy free.

It is recognised that these objectives may conflict with each other to some extent. The overall aim is to produce a tariff schedule that adequately reflects the above objectives while incorporating a reasonable balance between conflicting objectives.

2.2 NETWORK COST DRIVERS

In principle, costs associated with the provision of electricity networks are driven by factors relating to -

- the existence of a customer and connection, largely independent of the capacity required or used, and largely independent of the energy consumed;

- the peak or maximum capacity required, and the maximum capacity used by the customer, largely independent of the duration of the load, and hence largely independent of the energy consumed; and

- the energy consumed.

There can often be a mixture of elements driving the costs of individual assets or services. For example, in the operation of a network, a major zone substation and its connecting higher voltage supply lines become necessary in a location as load or load density increases. Part of this cost will be determined by the magnitude of the load to be serviced, but part of the cost of establishing such a facility is independent of the capacity of the transformers installed, and hence independent of the demand it can service.

Similarly, when high and low voltage mains are built or laid to connect to individual customers, part of the cost (eg for the poles themselves, or for the trench and pillars etc) is largely independent of the size and hence capacity of the wires or cables. Part of the cost varies according to the capacity of the transformers or cables so that it is difficult to identify a single cost driver.

The considerations outlined above lead to the situation where costs are fixed, or depend on capacity required or used and the effective average rate, on a cents per kWh basis, decreases as greater utilisation is made of the installed equipment. The higher the utilisation "load factor", the lower the effective average rate.

The extent of the network depends on the location of associated connections for the generators and consumers, while the capacity of the network is determined by the load that is to be transmitted through the equipment concerned. Although load changes according to cycles with daily, weekly, seasonal and annual variations, it is the maximum or peak capacity required (the Contract Maximum Demand) and the maximum or peak demand taken, which drives much of the cost of overhead and underground mains and cables, together with the size, capacity and cost of substations and associated transformers.

2.3 COST ALLOCATION PRINCIPLES

A separate issue is how to distribute costs among the end-users of a network in the most efficient or least distortionary way.

It is the view of Power and Water Networks that network charges should reflect only the costs of the network upstream of any end-user so that customers supplied at high voltage into their internal local distribution systems[4] should not have to bear costs related to the low-voltage system.

Power and Water Networks' preferred cost allocation principle is to use a Fully Distributed Cost model (FDC). This allocates costs and hence revenue

[4] For example, inside the boundaries of a Defence establishment, dispersed mining operation or Hospital complex.

requirements for different customer classes according to their level of connection in the system, and hence, only reflect their use of the upstream network elements involved in the delivery of electricity to their point of connection.

Network system provision is capital intensive, with much of the cost related to prior investment in system capacity, while the cost directly related to energy throughput is relatively small. Power and Water Networks recognises that, in order to create a fair and equitable tariff, there must be a method of recovering the costs relating to existing assets by taking into account customer demand on these assets, bearing in mind equity considerations for all users, and at the same time, signalling the cost associated with future system augmentation.

Therefore, the results deriving directly from the FDC model will be modified:

- where necessary to prevent price shocks between regulatory and pricing periods;
- to achieve some graduation through and between customer size ranges; and
- to reflect customers' desire for a tariff structure reflecting electricity usage rather than a formulation with large fixed charges.

Power and Water Network's allocation of shared costs prescribed to network access services are based on Power and Water's *Accounting and Cost Allocation Procedures*, as approved by the UC and published on their website.

2.4 NETWORK CUSTOMER CLASSES

Tariffs which reflect the requirements of customers and their characteristic demand behaviour associated with network utilisation will give the appropriate cost of supply signals to users of the network. This assists Power and Water Networks in matching customer requirements and in maximising the use of its infrastructure assets.

Declining scale demand and energy charges will be applied in reflection of the lesser dependence of large users on the low voltage network infrastructure.

It is proposed that the structured network price will be applied to all customers as they progressively become contestable. The contestable customers, who are generally large and sophisticated organisations, represent a significant proportion of the total electricity market, and the demand and consumption characteristics outlined above are observable through sophisticated metering systems. Network tariffs will be applied directly to the customer's selected Retailer and may be re-bundled in the tariff actually negotiated between the organisation and the electricity consumers.

The proposed structured tariffs require measurement of customers' time and demand pattern elements. These elements are not measured or recorded in the vast majority of non-contestable customer installations. As this information is not available for these smaller customers, the network tariffs will reflect the consumption information available, and may require pricing for these customers

to be less directly formulated. The Network tariff for these customers may reflect their demand by use of energy consumption as a surrogate for direct demand measurement.

As **Table 1** below briefly shows, there is a relationship between the characteristics or behaviour of users, which determines the types of service required, the effect it has on infrastructure and cost of supply, and how these are reflected in the pricing components of network tariffs.

Table 1 – Customer impacts on infrastructure requirements and the cost of supply

Customer characteristics/ Behaviour	What this implies for infrastructure and cost of supply	Network Response - price signalling mechanism
Customer connection to system – customers connection to Network	Administrative, metering and connection assets (fuses, switchgear etc)	Daily fixed Charge
Demand – customers require a level of capacity for use.	Leads to increase in Capacity – some impact on O&M costs as more assets added to the network.	Monthly Demand Charge and recovered partly through Daily Fixed Charge
Demand Pattern/Profile – each customer has their own specific profile over periods of time reflecting levels of demand.	Impacts on Capacity: - Maximum rate of usage provided for in facilities - Under-utilisation - Partly utilised	Monthly Demand Charge to recover cost of installing sufficient capacity to meet the peak demand.
Power Factor – each customer imposes power factor requirements on Network Systems	Leads to increase/ decrease in Capacity provided – depending on how 'good' a customers' power factor is.	Demand charge expressed in $/kVA/month rather than $/kW/month
Energy – customers measurable usage	No direct impact on infrastructure cost – energy charge mainly used to 'soften' fixed capacity charges and recovering some O&M	Energy Charge ¢/kWh – delivered through the meter at customers premises.
Small Customers – domestic & commercial	Connection assets, assets to provide capacity, O&M	For smaller customers – Daily Fixed Charge plus Energy Charge – to replace demand charge where demand is unmetered.

2.5 NETWORK TARIFF STRUCTURE

There are two forms of network tariffs and charges, as defined by the Code[5]:

- those applying to **standard** network access services (network access services for which tariffs are published in the schedule of approved tariffs); and
- those that are instead negotiated between the network provider and an access seeker for new or **non-standard** network access services ("negotiated tariffs").

2.5.1 STANDARD NETWORK ACCESS SERVICES

Any pricing regime that aims to be "cost reflective" should contain elements that relate to the capacity required or demand taken. It should also exhibit a declining average cost per unit as both size and utilisation increases.

Power and Water Networks considers that a tariff for network services, should explicitly reflect and signal costs of capacity required for supply, particularly for large and sophisticated customers.

These costs are best reflected into tariffs through:

1. A System Availability Charge (Fixed Charge) per connection point, generally on a cents per day or dollars per month basis;
2. A charge related to capacity required or used, generally based on contracted or measured maximum kilo-Watts (kW) or, more properly kilo-Volt-Amperes (kVA), generally on a monthly or annual basis; and
3. A charge related to energy used, generally based on kilo-Watt-hours, as explained below.

1. SYSTEM AVAILABILITY CHARGE (FIXED CHARGE)

   The System Availability Charge recognises the customer connection and metering requirements provided by a network system, and can reflect the cost of supply through the network. The System Availability Charge signals allocative efficiency to users by providing the means of recognising common benefits to all customers as a result of a network system's existence, and the associated costs of making this supply "available". By providing the investment in supply availability, a network is telling users there is a cost associated with connecting to a power source.

[5] *Electricity Networks (Third Party Access) Code* - clause 73.

2. DEMAND CHARGE

A demand charge signals the cost of supplying a particular level of demand. The demand charge reflects the cost of customer capacity utilisation as well as to distinguish differences in demand for various peak periods. Therefore, the demand charge recovers the cost of installing a certain level of system capacity to meet demand whilst also recovering some operational and maintenance component related to the upkeep of this system. Charging with a 'demand' component recognises that different customers impact differently on the system and therefore, large customers whose supply would be at High Voltage (HV) will not contribute to the cost of providing for Low Voltage (LV) customers.

Power and Water Networks is able to levy two separate charges to recover demand-related costs: a Maximum Demand Charge and a Capacity Charge. The Maximum Demand Charge is the primary method used to recover the system capacity related costs required to meet demand. However, a Capacity Charge may be levied in cases where load factor is insufficient to provide a reasonable return on system assets.

The **Maximum Demand Charge** is calculated using the actual demand that is recorded each month. The charge is levied on the basis that customers who place greater pressure on the system should incur higher charges. Network expansion becomes necessary where there is a likelihood of demand exceeding available capacity.

While this demand fluctuates over time, the critical supply level to be provided is the aggregated network usage during peak times. Co-incident peak demand is therefore the driving factor behind system augmentation. In this context, customers should be charged according to their contribution to this threshold demand level. In a practical sense, while there are limitations associated with determining an individual customer's contribution to co-incident peak demand, the maximum demands of those customers are an appropriate proxy. Accordingly, the demand charge levied is determined by the relevant user's peak demand recorded in any half-hour period during the month.

However, one drawback of the maximum demand charge is that it fails to assign an adequate share of costs associated with system augmentations to customers with low load factors who impose maximum demands on the system at infrequent intervals. The load factor is the ratio of the average consumption to peak demand, and measures the variability of a customer's consumption. A low ratio, for example less than 0.4, suggests a variable consumption pattern while those closer to unity (1.0) identify more constant energy usage.

The **Capacity Charge** is calculated using either the contracted maximum demand, the annual maximum demand in the most recent 12-month period prior to the setting of prices or a demand agreed between Power

and Water Networks and the network user. A Capacity Charge is similar to a Maximum Demand Charge but more effectively takes into account the impact that low load factor customers have on system augmentation. It sends signals to these customers that they can reduce their network charges by reducing the variability of their consumption and also signals that customers should not demand more capacity than required. In this way, a Capacity Charge also recovers costs relating to 'standby' connections. The Capacity Charge, like the Maximum Demand Charge, applies to customers with consumption above 750 000 kWhs per annum only.

Smaller customers do not have either a Capacity Charge or a Maximum Demand Charge applied, as metering for these customers does not provide for the measurement of demand.

3. ENERGY CHARGE

The Energy Charge attempts to reflect system utilisation and usage. To a large extent however, energy does not have a bearing on the infrastructure costs of supplying a particular load, because system infrastructure is largely driven by demand. Energy output is the direct "result" of having a particular demand requirement. Hence, the energy charge attempts to recover a part of the cost of supplying capacity as well as the O&M associated with that. The energy charge is a way of approximating demand for lower-end consumers where sophisticated metering is not installed. This gives customers equitable pricing signals because they respond to the "user pays" concept intrinsic in such a charge.

These charges should distinguish between usage during peak periods, where load requirements are more likely to drive network augmentation, compared with usage during off-peak periods, where network capacity may be less utilised.

Power and Water Networks will exercise its best judgement, based on its own experience and will be guided by what has occurred in other jurisdictions, in determining the balance between amounts recovered from the System Availability Charge, the Maximum Demand Charge, the Capacity Charge and the Energy Charge.

2.5.2 NON-STANDARD NETWORK ACCESS SERVICES

Where services or circumstances differ from the standard network access services, clause 75 of the Code allows for commercial negotiations between the network user and the network provider to occur.

Non-standard network access services offered by Power and Water Networks include:

- **Embedded Generation**

  An Embedded Generator is a generator or co-generator that is connected to the distribution network instead of the transmission network. These connections are site-specific and often require additional embedded generator protection system upgrades. Due to the specific nature of embedded generator connections it is difficult to implement a standard pricing structure for embedded generation. As such, it is Power and Water Network's policy to negotiate embedded generation agreements on a case-by-case basis. Refer to Attachment A for Power and Water Network's Framework for Negotiating Embedded Generation Agreements, as approved by the UC.

- **Discounted Network Tariffs**

  Network tariffs may be negotiated below the approved reference tariffs in the following limited number of situations:

  (a) where below-standard network access services sought by a particular end-use customer may result in cost savings to the network provider; or

  (b) where there is a genuine threat of network "by-pass" by a particular end-use customer – either in whole or in part.

  Refer to Attachment B for the Framework for Negotiating Discounted Network Tariffs.

- **Capital Contributions**

  Where the granting of access to the network requires the provision of connection or system extension, a network access applicant or network user may be required to make a capital contribution in respect of the capital investment associated with the designing, constructing, installing and commissioning of connection or system equipment where the network provider can demonstrate that the extension would not be commercially viable without that contribution. Refer to Attachment C for Power and Water Network's Capital Contributions Policy, as approved by the UC.

3. MEDIUM TERM STRATEGIES FOR NETWORK TARIFFS

The medium term network pricing strategy outlined below sets out in very board terms the direction for network prices for the current regulatory period. The pricing strategy may be subject to change.

For the remainder of the second regulatory control period, the UC has approved the weighted average of network access tariffs (price cap) to be escalated year by year using a CPI-X price path (based on relative efficiency improvements that are reasonably expected to be achieved).

The network price structure will be reviewed from time to time to determine if different price structures are able to promote a more efficient use of the network and to send the appropriate demand signals. This review may include:

- a re-balance of the proportion of charges between the fixed, demand and energy components; and
- a re-balance of the proportion of charges between the capacity and maximum demand components.

Currently retail contestability has been introduced for Tranche 1 to 4 customers (contestable customers with a minimum annual electricity consumption of 750,000 kWh per site). Contestability for Tranche 5 customers (customers with annual electricity consumption of between 750,00 and 160,000 kWh per site) is scheduled to commence from 1 April 2008, with full retail contestability (customers with annual electricity consumption below 160,000 kWh per site) expected by 1 April 2010.

If Tranche 5 contestability is introduced during this regulatory period and metering options are changed to allow for greater detail about customer usage, prices for these currently non-contestable customers will be reviewed. The review will be undertaken to determine if a different price structure is more appropriate to send additional signals to customers of their impact on the costs associated with the provision of network services.

4. GLOSSARY

Access Agreement	A contract or agreement for the provision of network access services entered into between a network provider and a network user under the Code.
Capital Contributions	A non-refundable financial contribution made – or the equivalent in the form of contributed assets – by a Network User to Power and Water (Networks) towards the cost of designing, constructing, installing and commissioning connection equipment or network system assets to provide new or upgraded Network Access Services to a Network User.
Code	The *Electricity Networks (Third Party Access) Code*. The Code regulates third party access to electricity networks.
Co-incident Peak Demand	The demand on an electrical system as a result of the summation of each individual customer's demand, at a specific point in time. This is different from the numerical sum of all customers' maximum demand because of diversity in the times at which each customer reaches their maximum demand.
Contestable Customer	Customers who can choose their electricity retail supplier are called contestable customers. Qualification depends on the annual electricity consumption at a single site during a consecutive 12-month period after July 1998.
Contracted Maximum Demand	In respect of a connection point, the maximum level at which electricity may be transferred from the electricity network at the connection point (expressed in kW or kVA) specified in the access agreement in respect of the connection point (if any).
CPI	Consumer Price Index
Demand	Measurement of customer peak load taken as the average load over a half-hour period measured in kW or kVA.
DKTL	Darwin to Katherine Transmission Line
Electrical Energy	The ability of the electric current to do work. Measured in kilowatt-hours.

Embedded Generation	Generator or co-generator that is connected to the distribution network instead of the transmission network.
Generator User	A person who has been granted access to the electricity network by the network provider and who supplies electricity into the electricity network at an entry point.
kV	kV = 1,000 Volts.
kVA	kVA = 1,000 Volt-Ampere - a measure of the apparent power flow that determines the amount of capacity required to supply a customer's load
kW	kW = 1,000 Watts - a measure of the real power being consumed as opposed to kVA.
Load Factor	Measure of the percentage of time a load is used in any given period. Loads used 24 hours per day, 7 days a week have a load factor of 1 or 100%.
Load User	A person who has been granted access to the electricity network by the network provider and who takes electricity from the electricity network at an exit point.
LRMC	Long Run Marginal Cost
Marginal Cost	The cost of increasing the quantity produced by one unit.
Maximum Demand	The greatest of all demands of the load that has occurred within a specified period of time.
Network Access Services	The services provided to network users by a network provider, whether in the form of connection services or use of network services.
Network Charges	The charges applied by the network business for the use of the distribution and transmission system in the supply of electricity to the customer.
Network Provider	The person who provides or is in a position to provide the network access services in respect of a particular electricity network.
Network User	A person, whether a load user or a generator user, who has been granted access to the electricity network by the network provider in order to transport electrical energy to or from a particular point.

Non Contestable	Any customer other than a contestable customer.
Non Regulated Networks	An area within the Northern Territory that is not Regulated but where the electricity assets are owned and operated by Power and Water.
Power Factor	A measure of the real power in kW divided by the apparent power in kVA. The real power corresponds to the work done or heat generated. Optimum power factor is unity ie 1.0.
Price Cap	The maximum average price determined by the regulator to be charged during a financial year, for all regulated network access services by the network provider.
Regulated Networks	An area within the NT that is subject to regulation under the Code.
Regulatory Control Period	The period between major price reviews during which time the methodology used in setting prices is held constant; the first regulatory control period is the period between commencement of the Code and 30 June 2004 and the second and subsequent regulatory control periods are the five yearly periods commencing 1 July 2004.
Ring-Fenced	The network provider must keep the business of operating the electricity network separate from any other business conducted by the network provider or any associate or related body corporate of the network provider.
SRMC	Short Run Marginal Cost
Standard Network Access Services	The network access services for which network tariffs are published in respect of a financial year.
Standby	Support service that is available, as needed, to supplement a consumer, a utility system, or to another utility if a schedule or an agreement authorises the transaction. The service is not regularly used.
UC	Utilities Commission – the NT's independent industry regulator, established to oversee those industries declared to be regulated industries.