

**NETWORK REVENUE  
DETERMINATIONS AND  
TARIFF APPROVALS: 2003-04  
DECISION PAPER  
JULY 2003**



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## Definitions

“Act”	means the <i>Utilities Commission Act 2000</i>
“Code”	means the Electricity Networks (Third Party Access) Code attached as a schedule to the <i>Electricity Networks (Third Party Access) Act</i> , as amended
“Commission”	means the Utilities Commission established on commencement of the <i>Utilities Commission Act 2000</i>
“Darwin-Katherine Transmission Line”	means the 132 kV transmission line that interconnects the Darwin and Katherine networks
“Power and Water”	means the Power and Water Corporation of the Northern Territory
“Power and Water Networks”	means the business division of Power and Water with operating responsibility for the electricity networks owned by Power and Water

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**CHAPTER****1****BACKGROUND****Purpose of this paper**

1.1 Following amendments to the Network Access Code to extend the first regulatory control period to 30 June 2004,<sup>1</sup> network revenue caps have been determined and reference tariffs approved for the 2003-04 financial year in accordance with the requirements of the Code.

1.2 As required under section 22(2) of the Act, a determination made by the Commission is to include a summary of the information on which the determination is based and a statement of the reasons for making the determination. In addition, the Code requires “regulatory accountability through transparency and public disclosure of regulatory processes and the basis of regulatory decisions” (clause 63(d)).

1.3 The purpose of this paper is therefore to provide a summary of the information on which the determination and approval is based and a statement of reasons for making these decisions.

**Revenue cap – Code requirements**

1.4 Clause 66(2) of the Code requires that revenue caps be determined by the Commission for each financial year during the regulatory control period.

1.5 With respect to the revenue caps to apply to Power and Water Networks, and in accordance with chapter 6 of the Code, the Commission made three determinations

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<sup>1</sup> Under the Code as originally drafted, the first ‘regulatory control period’ was due to end on 30 June 2003, and a second five-year period to commence after that.

On 12 December 2002, the Treasurer as Regulatory Minister requested the Commission to undertake an Inquiry into the Code’s effectiveness – under section 31 of the *Utilities Commission Act 2000* – to assist the Minister in his review of the Code, with the Commission providing a final report, including any recommendations for change, to the Minister by 31 March 2003.

It was apparent that the review of the Code would not be completed before the Code required a regulatory reset. That is, as the Code stood at that time, there was a prospect that any changes to the Code as a result of the Ministerial review may either not have had effect until the third regulatory control period or would result in the truncation of the second regulatory control period.

Power and Water proposed, and the Commission supported, the idea of extending the first regulatory control period by 12 months for the following reasons:

- it would permit implementation of any revisions to the Code as a result of the current review of the Code to be settled prior to commencement of the second regulatory control period;
- parties to the Code’s review would be able to focus first on that review; and
- criticism could be avoided that parties were not being given sufficient time to consider issues arising in the context of the regulatory reset.

The Minister agreed to Power and Water’s proposal, supported by the Commission, that the first regulatory control period be extended to 30 June 2004 and amendments to the Code were published in Gazette G12 on 26 March 2003.

prior to the commencement of the first full year of the first regulatory control period, that is for the year commencing on 1 July 2000:

- the fair and reasonable rate of return to apply during the remainder of the regulatory control period, in accordance with schedule 8 to the Code (clause 69(2)(b));
- the revenue caps to apply in 2000-01, in accordance with schedule 6 to the Code (clause 69(1)); and
- the efficiency gains factor (or “X factor”) to apply when calculating the revenue caps for 2001-02 and 2002-03, in accordance with schedule 10 to the Code (clause 70).

1.6 These decisions are set out in the Commission’s report titled *Revenue Determinations 2000-01 to 2002-03*, issued in June 2000 (“June 2000 Report”).

1.7 For the second and subsequent years of a regulatory control period (which now includes the 2003-04 financial year), the Code requires that the methodology to be used by the Commission is to involve increasing each of the previous year’s revenue caps in line with both:

- the factors which the Commission considers to be the main real-terms drivers affecting Power and Water Networks’ costs (such as the growth in the quantity of electricity transported annually over the electricity network); and
- inflation (as measured by the rate of change in the consumer price index, (“CPI”)),

and decreasing them by the respective efficiency gains factor (“X factor”) determined for each regional network at the start of the regulatory control period (clause 70(2)).

1.8 This methodology was used to derive revenue caps for the 2001-02 and 2002-03 financial years, with these decisions being detailed in the Commission’s reports titled *Revenue Determinations 2001-02* (“May 2001 Report”) and *Revenue Determinations and Network Tariffs: 2002-03* (“June 2002 Report”) respectively.

1.9 The June 2002 Report also details the Commission’s formal determination of the increase in the revenue cap on account of the Darwin-Katherine transmission line (“DKTL”) following its prescription as a regulated network.

1.10 The 2002-03 revenue caps form the basis of the Commission’s 2003-04 revenue cap determinations.

1.11 The key components of the revenue caps for 2003-04 were determined in the June 2000 Report and the June 2002 Report. Therefore, in formalising the determinations for the 2003-04 financial year, the Commission has not undertaken any specific consultations.

1.12 The Commission’s calculations were, however, provided to Power and Water Networks to allow it an opportunity to apply to the Commission for any adjustment on account of the contingent factors set out in the June 2000 Report.

1.13 While Power and Water did not apply for any adjustment, it took the opportunity to provide some comment on the Commission’s approach to access price regulation in the extended year of the regulatory control period.

1.14 Against this background, chapter 2 of this Report provides a summary of the information on which the Commission’s revenue cap determination relating to the financial year commencing 1 July 2003 is based and a statement of the reasons for making the determination.

## Network tariffs – Code requirements

1.15 The Commission is required under clause 78(3) of the Code to approve individual 'reference' tariffs and charges. These are the tariffs which a network provider cannot exceed when charging for a standard service (clause 73).

1.16 The Code requires that, prior to approval of any network tariffs, the Commission must have approved a 'pricing principles statement' prepared by the network provider (Power and Water Networks).

1.17 On 25 August 2000, the Commission approved the *Pricing Principles Statement*, submitted by Power and Water Networks on 11 August 2000, to apply in the first regulatory control period.

1.18 As a result, the approved *Pricing Principles Statement* forms a basis upon which the Commission has assessed the network tariffs proposed by Power and Water Networks for the 2003-04 financial year. The Commission is required to approve the network tariff schedules submitted by Power and Water Networks unless the proposed tariffs and charges – either in whole or in part – do not comply with the approved statement of principles, being an elaboration on the principles laid down in chapter 7 of the Code.

1.19 A copy of Power and Water's approved *Pricing Principles Statement* can be found on the Commission's website.

1.20 Against this background, chapter 3 of this Report provides a summary of the information on which the Commission's approval of Power and Water Networks' reference tariffs for 2003-04 is based and a statement of reasons for granting the approval. It deals only with:

- changes due to fine-tuning of the methodology previously approved;
- the tariffs applying during the 2003-04 financial year; and
- the Commission's approval of individual tariffs and charges.

## Final year of regulatory control period

1.21 The revenue caps and network tariffs outlined in this Report are the final set to be determined and approved by the Commission in the first regulatory control period.

1.22 For the record, chapter 4 sets out the Commission's processes and timetable for determining the framework and methodology to be used in regulating network access prices in the second regulatory control period. An issues paper has already been published and is available on the Commission's website.



## CHAPTER

## 2

## NETWORK REVENUE CAPS 2003-04

**Introduction**

2.1 The revenue caps applying to Power and Water's regulated networks with respect to the 2003-04 financial year were determined by the Commission on 1 April 2003 (gazetted 9 April 2003).

**Methodology**

2.2 In determining the revenue caps to apply to Power and Water's networks in 2003-04, the Commission has applied factors previously determined and which are set out in the Commission's June 2000 Report and June 2002 Report.

2.3 In line with its determination of the 2001-02 and 2002-03 revenue caps, the Commission has used a single cost driver (namely the quantity of energy transported over the network and revenues per additional unit equal to average per kWh revenues) to escalate allowable revenue for 2003-04.

The following formula has been applied:

$$\text{CAP} = [\text{MAR}_0 + b_0 * B_1] * [1 + (\text{CPI}_1 - X)] \quad \dots(1)$$

where:

$\text{MAR}_0$  is the maximum allowable revenue ("revenue cap") (in \$) established by the Commission for the preceding financial year (i.e., 2002-03);

$b_0$  is the average price of transporting electricity (in cents per kWh) in the 2002-03 year, calculated by dividing  $\text{MAR}_0$  by the total amount of electricity forecast to be transported in that year;

$B_1$  is the total amount of *additional* electricity (in kWh) which it is forecast (on a trend basis) will be transported by the network provider over the network during the 2003-04 financial year compared with the amount transported in the previous year;

$\text{CPI}_1$  is the forecast annual percentage change in the consumer price index in 2003-04; and

X is the adjustment factor (as a percentage) determined by the Commission at the beginning of the first regulatory control period in accordance with schedule 10 to the Code.

2.4 For the purpose of establishing tariffs and charges for the use of the Northern Grid (that is, the inter-connected Darwin and Katherine distribution networks, including the DKTL), the Commission has treated the Darwin and Katherine networks on a combined basis.

## Base Revenue Cap

2.5 The revenue caps for the 2002-03 financial year were determined in April 2002 as follows:

<b>Network</b>	<b>Cap 2002-03 (\$M)</b>
Darwin	\$47.387
Katherine	\$7.792
DKTL	\$5.619
Northern Grid	\$60.798
Alice Springs	\$10.550
Tennant Creek	\$3.101

## Quantity of energy transported

2.6 As detailed in the June 2000 Report, estimates of the amount of electricity expected to be transported (being the equivalent of energy sales) are only adjusted for the purpose of calculating  $b_0$  and  $B_1$  in equation (1) on account of underlying and on-going trend variations. Cyclical variations are not taken into consideration.

2.7 In advising the Commission of the actual recovery of regulated network revenue for the 2000-01 financial year (in accordance with clause 26 of its network licence), Power and Water reported that there had been an over-recovery compared to the revenue caps determined by the Commission across all regulated networks.

2.8 Power and Water advised that the higher than predicted energy growth experienced in the combined regulated networks was the major contributor to the revenue over-recovery and, in submitting its network tariff proposal for 2003-04, made some adjustment to account for this.

2.9 Power and Water choose, however, not to make representations to the Commission for any adjustment to previously estimated energy growth rates used for the revenue cap calculation on the basis that:

*"It is not clear that these increases will be permanent, thus forming an underlying and continuing trend which otherwise might allow reconsideration of the X factor as indicated in the original Determination."*

2.10 On this basis, expected energy sales have been taken from the June 2000 Report and extended to 2003-04 by applying the same trend growth rate (i.e., 2.5% for Darwin and Katherine, 0.5% for Alice Springs and 0% for Tennant Creek).

<b>Estimated energy sales (GWh)</b>	<b>Estimated energy sales (GWh)</b>			
	<b>Darwin</b>	<b>Katherine</b>	<b>Alice Springs</b>	<b>Tennant Creek</b>
1999-00	897.275	172.313	185.573	39.883
2000-01	919.707	176.621	186.501	39.883
2001-02	942.700	181.036	187.433	39.883
2002-03	966.267	185.562	188.371	39.883
2003-04	990.423	190.201	189.314	39.883

## Expected inflation

2.11 The Commission has used a projected CPI increase of 2.4% for the 2003-04 financial year, being the published forecast of the 'headline' CPI for 2003-04 from the December 2002 publication of Access Economics' Five Year Business Outlook.

## X factors

2.12 The X factors to be applied in the second and subsequent years of the first regulatory control period were determined in June 2000 as follows:

Network	X
Darwin	4.30%
Katherine	3.50%
Alice Springs	-0.70%
Tennant Creek	1.80%

2.13 Power and Water proposed that for the one year extension to the first regulatory control period, an X factor of zero should be adopted for each of the regulated networks on the following basis:

- “ • *The draft determination indicates that real per unit revenue to Power Networks would continue to be discounted by application of ‘X-factors’ over the extended period. The ‘X-factors’ were calculated to anticipate and encourage improvements in operations productivity, and to smooth the variability of capital expenditure over the 2000 to 2003 period. Hence, it is reasonable to assume that the benefits to electricity customers anticipated by the application of these ‘X-factors’ will have been fully exhausted by the end of 30 June 2003. Power Networks may be unduly penalised in terms of claiming a higher MAR if these ‘efficiencies’ are applied in this extension period.*
- *A rollover of the ‘efficiency incentives’ embodied in these ‘X-factors’ will arbitrarily restrict the ability to address network maintenance and performance issues. In addition, the continued restriction of revenue will prevent focussing on a number of asset issues that have become high risk and that would require additional consideration over the coming year.*
- *Accordingly, a ‘CPI minus zero’ extension to the 2003-04 MAR is requested. Such an approach will avoid the possibility of unnecessarily discouraging Power Networks’ risk reduction program, and thereby its customers, by maintaining the ‘status quo’ over this extension period.*
- *Uncertainty associated with the energy and capital expenditure projections assumed at the beginning of the regulatory period increases as time elapses, which mitigates against their use outside their intended time-frame.”*

2.14 The Commission did not accept Power and Water’s suggestion that the X factor should be set at zero for the extended year of the first regulatory control period for a number of reasons.

2.15 First, the Commission does not accept that “the benefits to electricity customers anticipated by these X factors will have been fully exhausted by the end of June 2003.”

2.16 As foreshadowed in the June 2002 Report, a benchmarking study of Power and Water Networks’ operating and maintenance costs was undertaken by Merrick & Associates in January 2003. This study concluded that there was still some way to go before an efficient level was reached, even allowing for factors reasonably considered outside the control of management.

2.17 Secondly, the Commission was also influenced by the fact that the X factors reflected considerations in addition to the scope for efficiency. In fact, the X factors determined for the first regulatory control period also reflect the role played by network costs not growing in line with energy transported to the extent implied by the  $b_0 \cdot B_1$  or “sales growth adjustment” term in equation (1). Accordingly, the X factor also is intended to bring growth in the revenue cap back into line with the year-on-year growth in the underlying costs.

2.18 Finally, when the CPI-X adjustment is combined with the sales growth adjustment, the revenue caps increase in 2003-04 by 1.3% (or \$0.9 million) in total. This funds a larger percentage growth in operations and maintenance costs, the main component of costs that may be changing from year to year.

2.19 Accordingly, the X factors to be applied in determining the revenue caps for the 2003-04 financial year remain those factors set out in the June 2000 Report.

### **Darwin to Katherine Transmission Line**

2.20 The Commission's May 2001 Report included a provisional calculation of the increased revenue attributable to the DKTL for the 2001-02 and 2002-03 financial years.

2.21 The calculations were based on a building blocks methodology, with Power and Water providing data on depreciated asset value, depreciation, capital expenditure and operations and maintenance expenditure for the two years in question.

2.22 As the DKTL was not declared as a regulated network until after the commencement of the 2001-02 financial year, the Commission did not formally determine a revenue cap (or reset the existing revenue cap) applying to that year to incorporate recovery of DKTL-related costs. Instead, the Commission approved the continued use of the existing postage stamp charge until 30 June 2002.

2.23 The DKTL was included in Power and Water's revenue caps from 1 July 2002. The amount included was that amount provisionally calculated in the May 2001 Report for the DKTL for 2002-03.

2.24 As the additional revenue for the DKTL was calculated using a building blocks methodology, the Commission could not simply apply an X factor-style calculation in the same manner as for the revenue caps for the Darwin, Katherine, Alice Springs and Tennant Creek networks.

2.25 The Commission considered two possible options for determining the increased revenue attributable to the DKTL for 2003-04:

- using a weighted average of the X factors and trend energy sales figure for the Darwin and Katherine networks as a proxy for escalating the DKTL revenue; or
- seeking sufficient information from Power and Water to enable an updated building block calculation.

2.26 Initially the Commission chose to adopt the first option as it had the advantage of simplicity and used data already held by the Commission.

2.27 However, Power and Water argued against such an approach, advising the Commission that:

*"...the adoption of an 'X-factor' for the DKTL over this extension period is of concern as it is difficult to rationalise under the circumstances. Firstly, the factor adopted is the weighted average of 'X-factors' for the Darwin and Katherine networks, which does not relate to any operations/maintenance or productivity quotient associated with the transmission line itself. Secondly, as you are aware, there are currently unresolved maintenance issues associated with this facility, which predate Power and Water's ownership of the line. Application of 'CPI-X' would potentially restrict Power and Water's ability to deal with these issues."*

2.28 Power and Water argued that, in line with its proposal for the rest of the regulated networks, an X factor of zero should be adopted for the DKTL.

2.29 The Commission accepted Power and Water's argument that the adoption of a weighted average of the X factors for the Darwin and Katherine networks – as per the

provisional determination – did not relate to any operations and maintenance or productivity quotient associated with the DKTL.

2.30 Accordingly, the Commission has escalated the revenue cap component relating to the DKTL by the CPI only, dropping both the X factor and sales growth adjustments.

## Determination

2.31 The revenue caps to apply to Power and Water's regulated networks with respect to the 2003-04 financial year are determined by applying the above data to equation (1) as follows:

<b>REVENUE CAP DETERMINATION<sup>1</sup></b>				
<i>\$million</i>	<b>Darwin</b>	<b>Katherine</b>	<b>Alice Springs</b>	<b>Tennant Creek</b>
<b>Revenue Cap 2002-03</b>	<b>43.387</b>	<b>7.792</b>	<b>10.550</b>	<b>3.101</b>
Projected energy sales 2003-04 (GWh)	990.423	190.201	189.314	39.883
<i>Price per unit<sup>2</sup> (c/kWh) (b<sub>0</sub>)</i>	4.97	4.22	5.40	7.68
<i>Forecast additional energy sales 2003-04<sup>3</sup> (GWh) (B<sub>1</sub>)</i>	24.157	4.629	0.943	0.000
Projected impact of additional energy sales (b <sub>0</sub> * B <sub>1</sub> )	1.185	0.195	0.053	0.000
New base Revenue Cap	48.572	7.987	10.603	3.101
CPI	2.40%	2.40%	2.40%	2.40%
X	4.30%	3.50%	-0.70%	1.80%
1 + (CPI – X)	98.10%	98.90%	103.10%	100.60%
<b>Revenue Cap 2003-04 (exclusive of DKTL)</b>	<b>47.649</b>	<b>7.899</b>	<b>10.931</b>	<b>3.120</b>
	<b>Northern Grid</b>			
	55.548			
Darwin-Katherine Transmission Line <sup>4</sup>	5.754			
<b>Revenue Cap 2003-04 (inclusive of DKTL)</b>	<b>61.302</b>		<b>10.931</b>	<b>3.120</b>

<sup>1</sup> Exclusions are the items shown in the Excluded Services Determination for 1 April to 30 June 2000.

<sup>2</sup> Calculated by dividing the previous year's (2002-03) revenue cap by the previous year's total energy sales.

<sup>3</sup> Based on energy sales growth rates of 2.5% for Darwin and Katherine, 2.0% for Alice Springs, and 0.0% for Tennent Creek.

<sup>4</sup> Allowable revenue for the Darwin-Katherine Transmission Line has been calculated by escalating the previous year's revenue component attributable to the DKTL by CPI as set out below.

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<b>Darwin-Katherine Transmission Line</b>	
<i>\$million</i>	<b>2003-04</b>
<b>MAR 2002-03 (=<math>\Delta</math>CAP<sub>DKTL</sub>)</b>	<b>5.619</b>
CPI	2.40%
<b>Maximum Allowable Revenue 2003-04</b>	<b>5.754</b>

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**CHAPTER****3****NETWORK REFERENCE TARIFFS 2003-04****Introduction**

3.1 On 27 May 2003, the Commission approved network tariff schedules for use by Power and Water from 1 July 2003, the final year of the (extended) first regulatory control period. The approved reference tariff schedules are shown at Appendix A.

3.2 The approved tariffs and charges are the maximum that Power and Water can charge for standard network access services provided with respect to each electricity network. In the Commission's opinion, these tariffs and charges comply with the relevant principles laid down in the Code.

**Derivation of tariffs****2000-01**

3.3 For 2000-01, the first full year of the first regulatory control period, Power and Water derived network access tariffs for each regulated network from the respective determined revenue caps consistent with the pricing principles approved by the Commission. The result was:

- a structured tariff for customers with consumption greater than 750MWh per annum (contestable customers) made up of a system availability component (in dollars per month), an energy component (in cents per kilowatt hour of energy used) and a demand component (in dollars per kVA based on the maximum demand for the month). Both the energy and demand components were further divided between peak and off-peak requirements; and
- a simple tariff for customers with consumption less than 750MWh per annum (non-contestable customers) consisting of a system availability component (in cents per day with the charge differentiated for commercial and domestic) and an energy component (in cents per kilowatt hour of energy used). The tariffs for non-contestable customers do not have peak and off-peak components.

3.4 The Commission accepted Power and Water's proposal that initial year reference tariffs should be targeted a little above the actually set revenue cap to allow for revenue reductions possible elsewhere as a result of:

- occasions where network tariffs might be negotiated below the reference tariffs; and
- the effect of inclusion of kVA demand charges providing incentive to customers or retailers to improve installations where the power factor is low which would improve network utilisation and performance, but reduce the income from the tariffs.

**2001-02**

3.5 In the absence at the time of final information regarding actual revenue collected in 2000-01, Power and Water chose to derive tariffs for 2001-02 ( $P_1$ ) by escalating each of the tariff components for 2000-01 by CPI-X in line with the revenue cap equation in chapter 2:

$$P_1 = P_0 * [1 + (CPI_1 - X)] \quad \dots(2)$$

where:

$P_0$  is the tariff component for the preceding financial year;

$CPI_1$  is the forecast annual percentage change in the consumer price index for the year in question; and

X is the adjustment factor (as a percentage) determined by the Commission at the beginning of the regulatory control period in accordance with schedule 10 to the Code.

**2002-03**

3.6 In February 2002, Power and Water reported to the Commission on its actual revenue recovery for the 2000-01 financial year, which had resulted in an over-recovery of 2.96% above the combined regulated networks' revenue cap (being +3.44% for Darwin/Katherine, -1.17% for Alice Springs and +7.03% for Tennant Creek).

3.7 This comparison of actual revenue recoveries with the revenue caps for 2000-01 provided additional information to allow Power and Water to fine-tune its tariff proposal for the 2002-03 financial year.

3.8 Power and Water identified that the original weighting of targeted revenue recovery between the contestable and non-contestable customer groups erred marginally, with customers on the structured tariff in effect cross-subsidising those on the simple tariff. Power and Water proposed, and the Commission approved, an adjustment of the original apportionment of targeted revenue recovery between the customers on the simple tariff and customers on the structured tariff, so as to remove, as far as possible, the identified cross-subsidy. This adjustment was designed to be revenue neutral.

3.9 Following this adjustment, network tariffs for 2002-03 were then derived by escalating each of the adjusted tariff components by CPI-X and making an additional adjustment to account for the over-recovery experienced in 2000-01. However, in making this additional adjustment, Power and Water chose to retain:

*"...a very small margin for possible shortfall in load growth and energy delivery."*

	<b>CPI - X factor</b>	<b>Over-recovery in 2000-01</b>	<b>Adjustment for previous recovery result ("SA")</b>
Northern Grid (excl. DKTL charges)	98.81%	+3.70%	-2.20%
Alice Springs	103.70%	-1.17%	+2.17%
Tennant Creek	101.20%	+7.03%	-6.03%

3.10 Thus equation (2) above was adjusted as follows:

$$P_1 = P_0 * [1 + (CPI_1 - X)] * [1 + SA] \quad \dots(3)$$

## Power and Water's proposed tariff schedules for 2003-04

3.11 On 30 April 2003, Power and Water submitted its proposed tariff schedules for the financial year commencing 1 July 2003 to the Commission for approval

### ***Adjustment for previous experience***

3.12 In March 2003, analysis of actual revenue recovery against the revenue caps for the 2001-02 financial year showed that Power and Water had made an even higher over-recovery than in the previous year. Total over-recovery for the combined regulated networks was 4.97% (being +4.45% for Darwin/Katherine, +3.43% for Alice Springs and +20.24% for Tennant Creek).

3.13 Power and Water's commentary accompanying its 2003-04 Tariff Submission also noted that:

*"Consideration of energy transport data to the end of March 2003 has allowed an informed estimate of the likely 2002-03 energy transport, and the associated revenue recovery.*

*This suggests that energy transport and hence revenue will again exceed the previous underlying projections on which the tariffs were based."*

3.14 Given the pattern of over-recoveries experienced, and the likelihood of a further over-recovery in 2002-03, Power and Water undertook some additional analysis of the causes of the over-recovery with a view to framing tariffs for the 2003-04 year to more closely target its revenue caps.

3.15 Power and Water noted that:

*"If energy growth exceeds projection, then over-recovery will occur. Failure of forecast energy growth will conversely result in under-recovery.*

*...energy in each of the last few years has exceeded the overall projections, though not uniformly across the separate networks."*

3.16 Power and Water's latest estimates of the amount of energy to be transported over the network in the 2003-04 year indicate it could again exceed the projections used for the revenue cap calculation. Based on these estimates, Power and Water applied the following energy adjustment factor:

<b>Projected results for 2003-04 as at March 2003</b>	<b>Energy Adjustment factor ("EF")</b>
Northern Grid (excl. DKTL charges)	1.609%
Alice Springs	10.565%
Tennant Creek	14.944%

3.17 However, Power and Water also noted that:

*"It is not clear that these increases will be permanent, thus forming an underlying and continuing trend which otherwise might allow reconsideration of the X factor as indicated in the original Determination."*

and:

*"There has been no Power and Water representation for change due to energy projection changes, at least partly because of uncertainty that they represent "underlying and on-going" differences."*

3.18 While Power and Water advised that, in the main, over-recovery could be attributed to higher than anticipated energy transport, it was also recognised that a portion of the over-recovery was attributable to other non-volume effects.

3.19 Power and Water attempted to quantify this general ‘tariff effect’ by looking at the estimated results for 2002-03 set out below:

<b>Projected results for 2002-03 as at March 2003</b>			
	<b>“Energy” transport above projection</b>	<b>“Revenue” recovery above projection</b>	<b>Tariff Adjustment factor (“TF”)</b>
Northern Grid (excl. DKTL charges)	+1.41%	+2.63%	+1.21%
Alice Springs	+14.44%	+11.86%	-2.26%
Tennant Creek	+19.33%	+19.10%	-0.19%

3.20 Power and Water calculated the tariff element (“TF”) of the over-recovery using the following equation:

$$TF = (1 + \text{Energy}) / (1 + \text{Revenue}) - 1 \quad \dots(4)$$

Thus, for its 2003-04 tariff proposal, Power and Water adjusted each tariff component using the following equation:

$$P_1 = P_0 * [ [1 + (\text{CPI}_1 - X)] ] / [ [1 + \text{TF}] * (1 + \text{EF}) ] \quad \dots(5)$$

3.21 The table below shows the ‘1 + (CPI – X)’ factor for 2003-04, and the final overall adjustment factor that Power and Water applied to derive its proposed tariffs:

	<b>CPI – X factor</b>	<b>Final overall adjustment factor</b>
Northern Grid (excl. DKTL charges)	98.212%	95.502%
Alice Springs	103.100%	95.402%
Tennant Creek	101.600%	87.685%

## **Analysis of Power and Water’s methodology**

### **General methodology**

3.22 Given the pattern of over-recovery against the determined revenue caps in the first two years of the regulatory control period, and the likelihood that a further over-recovery occurred in 2002-03, the Commission undertook a detailed scrutiny of Power and Water’s tariff proposal and underlying methodology for the 2003-04 financial year.

3.23 The basis of Power and Water’s tariff methodology has been to simply escalate the tariff components each year by the same CPI-X as the revenue cap, with a flat further reduction across each tariff component to compensate for previous over-recoveries.

3.24 As revenue received each year can effectively be expressed as the product of total expected energy sales (Q) and the expected average price per unit (P) that is:

$$\text{Revenue} = P * Q \quad \dots(6)$$

Power and Water’s tariff escalation methodology seems valid.

3.25 However, this perspective assumes that revenue moves directly in line with the quantity of electricity transported over the network. That is, for every additional

unit of energy transported, the average estimated price for the previous year will be received.

3.26 For non-contestable customers, who are charged based on a simple tariff with no demand component, this is a valid assumption since the system availability component of the charge is negligible, generally counting for less than 1% of an average domestic electricity bill.

3.27 However, for contestable customers, where the tariff includes a demand component, the assumption that revenue moved directly in line with the quantity of electricity transported over the network may not be appropriate. This can be shown as follows:

While the revenue cap is worked out via equation (1), that is:

$$MAR_1 = [MAR_0 + b_0 * B_1] * [1 + (CPI_1 - X)]$$

where:

$$MAR_0 = \Sigma [(P_{0-SysAv} * Q_{0-SysAv}) + (P_{0-Energy} * Q_{0-Energy}) + (P_{0-Demand} * Q_{0-Demand})]$$

$$b_0 = \frac{\Sigma [(P_{0-SysAv} * Q_{0-SysAv}) + (P_{0-Energy} * Q_{0-Energy}) + (P_{0-Demand} * Q_{0-Demand})]}{\Sigma Q_{0-Energy}}$$

$$B_1 = \Sigma Q_{1-Energy} - \Sigma Q_{0-Energy}$$

the actual revenue earned in a year can be more properly expressed as:

$$MAR_{actual} = \Sigma [ (P_{SysAv} * Q_{SysAv}) + (P_{Energy} * Q_{Energy}) + (P_{Demand} * Q_{Demand}) ]$$

3.28 Thus the first question the Commission considered was whether disproportionate movements in the monthly peak demand compared to energy usage for Power and Water's large contestable customers might be sufficient to account for the revenue over-recoveries experienced to date.

3.29 While Power and Water's tariff submission for 2002-03 included a re-weighting of the structured versus the simple tariffs (approved by the Commission) and a re-weighting of the energy versus the demand component of the structured tariff (denied by the Commission), in both instances Power and Water aimed for revenue neutrality.

3.30 That said, however, in denying Power and Water's proposal to adjust the demand and energy weightings of the structured tariff, the Commission expressed the view that:

*"...discussion of an appropriate demand/energy mix in the structured tariff should take place in a wider forum, and thus would be best addressed in assessing Power and Water's Pricing Principles for the commencement of the next regulatory control period. This would also allow consideration in a broader context, including whether an alternative basis for revenue make-up might be more equitable and acceptable and how network tariffs might be applied in non-standard circumstances such as embedded generation. It would also allow all stakeholders to make their views known."*

3.31 The Commission accepted, as a rule of thumb, that of the components that make up Power and Water's regulated network revenue:

- contestable customers provide about 45% of revenue; and
- of that 45% of revenue, approximately 30% is related to demand charges.

3.32 Thus, less than 15% of Power and Water's total regulated network revenue relates to demand-related charges, while the remaining 85% relates to energy-related charges (charges relating to system availability can be considered to be negligible).

3.33 The Commission therefore concluded that Power and Water's tariff escalation methodology is reasonable in the circumstances.

### **Energy effect**

3.34 Also at issue is the appropriateness of Power and water's application of its escalation methodology.

3.35 If, at the commencement of the regulatory control period, there was perfect foresight of energy sales for each year of the regulatory control period, the average unit price could move from one year to the next in line with the '1+(CPI-X)' adjustment.

3.36 Such perfect foresight is not available. However, since tariff schedules for each year of a regulatory control period are approved prior to the commencement of that year, an opportunity exists for the network provider to fine tune its tariffs to take account of updated estimates of trend energy sales as well as cyclical, year-on-year variations. For example, if the network provider expects that actual energy sales in the coming year will be 1% higher than the forecast used in the revenue cap calculation, then prices must be decreased by 1% to ensure that actual revenue remains within the revenue cap.

3.37 The 'energy effect' is thus the amount by which the actual amount of energy transported for a year differs from the forecast amount of energy transported underlying escalation of the revenue cap, expressed as a percentage change from the forecast (i.e., 1% in the example above).

3.38 For the Northern Grid, Power and Water has calculated the energy effect as follows:

<b>Northern Grid</b>				
	<b>MAR Energy (GWh)</b>	<b>Actual Energy (GWh)</b>	<b>Difference (GWh)</b>	<b>Energy Effect (Difference as a percentage of MAR energy)</b>
2000-01	1,096.328	1,118.185	21.857	1.99%
2001-02	1,123.736	1,160.000	36.543	3.25%
2002-03 (est)	1,151.829	1,168.049	16.220	1.41%
2003-04 (est)	1,180.625	1,199.625	19.000	1.61%

### **Tariff effect**

3.39 In addition to the 'energy effect' discussed above, Power and Water has identified an additional 'tariff effect', that is the amount by which tariffs may be expected to vary due to all other miscellaneous (and unquantified) effects.

3.40 This tariff effect is the amount by which forecast 'P', the average price per unit in equation (6), varies each year from actual 'P'. This variation may be due to, among other things, changes in demand management by customers in response to pricing signals from structured tariffs and negotiation of discounted tariffs.

3.41 Power and Water has calculated the tariff effect as being the residual of revenue over-recovery after allowance had been made for above-forecast energy sales, in line with equation (4).

3.42 For the Northern Grid, Power and Water calculated the tariff effect as follows:

<b>Northern Grid</b>			
<b>Amount above base projection</b>			
	<b>Energy transported</b>	<b>Revenue recovery</b>	<b>Tariff effect</b>
2000-01	1.99%	3.70%	1.68%
2001-02	3.25%	4.45%	1.16%
2002-03 (est)	1.41%	2.63%	1.20%

3.43 As discussed above, tariffs submitted by Power and Water, and approved by the Commission, in the regulatory control period to date were targeted a little above the revenue caps to allow for revenue reductions such as lower negotiated network tariffs and improvements in customers' load profiles in reaction to the price signals contained within the structured tariffs.

3.44 These buffer amounts appear to roughly equate to the non-volume related component of the over-recovery experienced for the Northern Grid for the two years for which actual data is available, with the estimated over-recovery for the 2002-03 year also being similar to the buffer amount.

3.45 For the Alice Springs and Tennant Creek networks, reference tariffs were also targeted above the actually set revenue caps. However, unlike the Northern Grid, there does not appear to be a direct correlation between the size of this buffer and the non-volume related component of revenue recovery.

#### **Overall adjustments**

3.46 Power and Water's tariff proposal for 2003-04 attempted to completely remove the buffer previously included in their proposed tariffs by adjusting tariffs by the non-volume related component of the estimated over-recovery for 2003-04. The tariff effect adjustments used by Power and Water in its initial tariff submission for 2003-04 were the estimated tariff effect expected from revised forecasts of revenue and energy sales for the 2002-03 financial year, being 1.21% for the Northern Grid, -2.26% for Alice Springs and -0.19% for Tennant Creek. By comparison, the average tariff effect over the three years of actual and re-estimated data was 1.35%, -3.24% and 7.94% for the three networks respectively.

3.47 Power and Water has also adjusted for higher-than-projected energy transport, estimating energy transport in the 2003-04 year to exceed the projected amount used to calculate the revenue caps by a further 1.609% for the Northern Grid, 10.565% for Alice Springs and 14.494% for Tennant Creek.

3.48 The table below summarises the factors applied by Power and Water to derive the 2003-04 tariff schedule rates:

	<b>CPI-X factor</b>	<b>Energy Projection &amp; previous result factor</b>	<b>Overall factor</b>
Darwin	98.100%		
Katherine	98.900%		
Northern Grid	98.212%	97.240%	95.502%
Alice Springs	103.100%	92.534%	95.402%
Tennant Creek	100.600%	87.162%	87.685%

3.49 The overall factors were then rounded to 95.5%, 95.4% and 88.0% respectively.

## Commission's conclusions and decision

3.50 Based on the data available, the Commission is of the view that the tariff escalation methodology adopted by Power and Water is reasonable in the circumstances.

3.51 The major issue is whether Power and Water has correctly quantified the non-volume related adjustment component for each network, and has correctly forecast the increase in energy transported across each network that can be expected in 2003-04.

3.52 The Commission notes that, in each year to date and across all regulated networks, there has been a record of over-recovery of the determined revenue caps (the sole exception being the Alice Springs network in 2000-01). In addition, Power and Water has advised the Commission that an over-recovery is again anticipated across all networks for the 2002-03 year.

3.53 While an over-recovery in a single year is acceptable (and indeed is allowed for via the under's and over's account mechanism), the Commission is far from comfortable with the prospect of continuation of the pattern of over-recovery. Were this pattern to continue, understandable concerns arise on two grounds:

- whether network users are being systematically over charged, in contravention of Part 3 of the Code; and
- the degree – and competence – of the Commission's scrutiny of Power and Water's proposals.

3.54 Based on previous experience, and given that it is highly likely that revenue for the 2002-03 year will result in further over-recovery, the Commission considered it prudent to adopt more conservative estimates in developing an overall adjustment factor.

3.55 On these grounds, the Commission considered it essential that tariffs for the 2003-04 year should break the pattern of over-recoveries (i.e., should err on the side of an under-recovery being more likely than another over-recovery). The Commission was of the view that such an outcome would not materially affect the financial viability of Power and Water's network business in the short term, as any under-recovery in 2003-04 would acquit the expected over-recovery for 2002-03. In the longer term, arrangements will remain in place to ensure that any under-recoveries are compensated for over time.

3.56 Accordingly, the Commission was not prepared to approve the tariff schedules submitted by Power and Water on 30 April 2003, on the basis that they were as likely as not to once again result in an over-recovery of revenue.

3.57 Given that the tariff effect attempts to adjust for a variety of miscellaneous and unquantified non-volume related effects, the Commission was prepared to accept Power and Water's estimated quantum of this effect. However, with respect to the energy effect for each network, the Commission preferred that a slightly more optimistic allowance be made for the amount of energy to be transported in the 2003-04 year.

The Commission suggested the following:

<b>Northern</b>	<b>MAR Energy (GWh)</b>	<b>PWC Energy (GWh)</b>	<b>PWC Energy Growth (%)</b>	<b>UC Energy Growth (%)</b>	<b>PWC Energy (GWh)</b>	<b>UC Revised Energy Effect</b>
2001-02	1,123.736	1,160.000			1,160.000	
2002-03	1,151.829	1,168.049	0.67%	1.00%	1,171.882	
2003-04	1,180.625	1,199.625	2.70%	3.00%	1,207.038	2.24%

<b>Alice Springs</b>	<b>MAR Energy (GWh)</b>	<b>PWC Energy (GWh)</b>	<b>PWC Energy Growth (%)</b>	<b>UC Energy Growth (%)</b>	<b>PWC Energy (GWh)</b>	<b>UC Revised Energy Effect</b>
2001-02	187.433	202.586			202.586	
2002-03	188.371	215.576	6.41%	6.50%	215.754	
2003-04	189.313	209.313	-2.91%	-2.00%	211.439	11.69%

<b>Tennant Creek</b>	<b>MAR Energy (GWh)</b>	<b>PWC Energy (GWh)</b>	<b>PWC Energy Growth (%)</b>	<b>UC Energy Growth (%)</b>	<b>PWC Energy (GWh)</b>	<b>UC Revised Energy Effect</b>
2001-02	26.766	28.336			28.336	
2002-03	26.766	31.940	12.72%	13.00%	32.020	
2003-04	26.766	30.766	-3.68%	-3.00%	31.059	16.04%

3.58 The tables below set out the Commission's revised recommendation for an amended overall adjustment factor for Power and Water's proposed tariffs for 2003-04, based on the Commission's (rounded) estimate of energy growth set out above:

	<b>Power and Water's proposal</b>		<b>UC Alternative suggestion</b>	
	<b>Energy Transport</b>	<b>Revenue Recovery</b>	<b>Energy Transport</b>	<b>Revenue Recovery</b>
Darwin / Katherine incl DCTL	1.609%	1.21%	2.250%	1.21%
Alice Springs	10.565%	-2.26%	11.700%	-2.26%
Tennant Creek	14.944%	-0.19%	16.000%	-0.19%

3.59 This results in the following:

	<b>CPI - X factor</b>	<b>Power and Water proposal Final overall adjustment factor</b>	<b>Alternative Proposal Final overall adjustment factor</b>
Northern Grid (excl. DCTL charges)	98.212%	95.500%	94.900%
Alice Springs	103.100%	95.500%	94.400%
Tennant Creek	101.600%	88.000%	87.000%

3.60 Based on the above calculations, the Commission advised Power and Water that it would be prepared to approve amended tariff schedules based on overall adjustment factors of 94.9%, 94.4% and 87.0% applied for the Northern, Alice Springs and Tennant Creek networks respectively.

3.61 Power and Water re-submitted tariff schedules incorporating the Commission's suggestions on 22 May 2003, and these were subsequently approved by the Commission on 27 May 2003.

### **Tariff schedules published by Power and Water**

3.62 In approving Power and Water's network tariffs, the Code requires the Commission to approve "proposed reference tariffs and charges", not the pricing schedule to be published by Power and Water. This gives Power and Water the

discretion to present the approved tariffs and charges in the way that it thinks most appropriate.

3.63 Consistent with its decision in previous years, the tariffs approved by the Commission for the financial year commencing 1 July 2003 are exclusive of GST, and the charge for use of the DKTL has been approved separately (unbundled) from the Northern Grid's distribution tariffs.

3.64 The pricing schedules published by Power and Water may differ from the network tariffs approved by the Commission under clause 78(3) of the Code, in that schedules may be expressed, among other things, in GST-inclusive terms and, as appropriate, also incorporate any unregulated tariffs and charges.

3.65 The Commission sees the form and content of the pricing schedules to be published to be Power and Water's responsibility. However, while the Commission does not explicitly approve the "pricing schedules" to be published by Power and Water, the network provider must, under clause 78(7) of the Code, incorporate any modifications that the Commission directs before the schedule is published.

**CHAPTER****4****SECOND REGULATORY CONTROL PERIOD****Introduction**

4.1 The first regulatory control period is now due to finish on 30 June 2004. [A regulatory control period is the period between major price reviews (or “resets”) during which time the price regulation methodology used in setting prices is held constant.]

4.2 Accordingly, in the lead-up to the commencement of the second regulatory control period (the five-year period commencing 1 July 2004), the Code requires the Commission as regulator – in consultation with interested parties – to review the price regulation methodology used in the first regulatory control period with a view to modifying the methodology as appropriate. The Commission is referring to this review and consideration of the price regulation methodology to apply from 1 July 2004 as the “2004 Regulatory Reset”.

4.3 For the record, this chapter sets out the Commission’s perspective on the intended nature, scope and timetable to apply to the 2004 Regulatory Reset.

**Consultation process**

4.4 When reviewing the price regulation methodology, clause 62(2) of the Code requires the Commission:

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

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

4.6 Only in making their views known, and by articulating arguments in support of these views, can interested parties assist the Commission to come to decisions which achieve an acceptable balancing of the interests of the network provider, network users and the public interest.

4.7 The timetable that is guiding the Commission’s consultation process is set out below.

Target	Event
10 July 2003	Publication of Issues Paper <i>Network Pricing: 2004 Regulatory Reset</i>
22 August 2003	Submissions on the Issues Paper due
mid September 2003	Publication of the Commission's Draft Methodology Report on the price regulation methodology to apply in the second regulatory control period
mid October 2003	Submissions on the Draft Methodology Report due
mid November 2003	Publication of the Commission's Final Methodology Report on the price regulation methodology to apply in the second regulatory control period, including the data requirements for applying the revised methodology
early December 2003	Publication of the Commission's Draft Determination of the numerical value of the parameters required by the price regulation methodology applying in the second regulatory control period
end December 2003	Submissions on the Draft Determination due
end January 2004	Publication of the Commission's Final Determination of the numerical value of the parameters required by the price regulation methodology applying in the second regulatory control period
end March 2004	Publication of the Commission's approval of the tariff schedules for 2004-05

## Scope of reset

4.8 Most obviously, deficiencies in either the design or the implementation of the price regulation methodology, as revealed by experience in the first regulatory control period, are to be identified and addressed. In addition, the Code also makes reference to possibly updating the methodology for measurement and definitional conventions as now generally accepted.

4.9 To kick-off the 2004 Regulatory Reset, the Commission has published an issues paper which lists the main questions to be dealt with, and which invites interested parties to add to or modify that list as well as to put forward possible answers.

4.10 Important issues to be dealt with include:

- the form of regulation; and
- the appropriate structure of network tariffs and charges.

4.11 On the form of regulation, the main question is whether the methodology should continue to focus on the so-called building blocks approach, where the revenue that a firm may earn is directly related to the costs it can be expected to incur in providing its services in an efficient manner. Alternatively, incentive regulation may be better served by moving to an alternative approach allowing prices to rise by CPI less an efficiency gains (or productivity) factor determined by reference to the industry or economy as a whole, rather than the individual firm. Even if the building blocks approach is retained, also at issue is whether it should be applied in the form of a cap on total or average revenue.

4.12 Whichever approach is taken, there are also important issues surrounding how to handle 'efficiency' and 'revenue under/over recovery' carryovers and the form of regulation for network services outside any revenue cap.

4.13 On the structure of network tariffs, at issue is whether the pricing principles need to be more detailed, and whether the tariff structure adopted needs to change (for example, by re-weighting the demand and energy components, by distinguishing connection and standing charges from usage charges and transmission from distribution charges, and whether (and how) the tariff structure should differentiate between contestable and non-contestable customers).

### **Commission's objectives for the reset**

4.14 The Commission will be guided by the objectives and principles laid out in clauses 63, 68 and 74 of the Code, and in section 6(2) of the *Utilities Commission Act*.

4.15 In essence, these require the Commission to balance often conflicting objectives, namely:

- the interests of network users for tariffs that reflect efficient costs;
- the interests of the network provider for incentive to maintain and invest in the network and continue to improve operational efficiency; and
- the interests of all stakeholders to ensure that regulatory costs are minimised and regulatory benefits are maximised.

4.16 The Commission has given notice that it will be particularly mindful of the changing character of the Territory electricity market, following the withdrawal of NT Power from the generation and retail markets. In these circumstances, the reset will give particular focus to:

- the implications of the possible absence of third-party access for the foreseeable future, in the context of the 'vertical' integration between Power and Water's networks, retail and generation operations;
- when compared with larger markets with third-party access, the opportunities available in the NT context for making regulatory oversight 'simple' and low-cost; and
- the scope for reducing regulatory uncertainty (and giving increased emphasis to regulatory stability and predictability).



**APPENDIX****A****APPROVED NETWORK TARIFFS**

On 27 May 2003, the Commission approved Power and Water's network reference tariffs and charges for 2003-04 - the final year of the (extended) first regulatory control period. In the Commission's opinion, these tariffs and charges comply with the relevant principles laid down in the Code.

The approved tariffs and charges are the maximum that Power and Water can charge for standard network access services provided with respect to each electricity network.

## “Standard” Reference Network Service

The scheduled rates are “reference rates” which represent a strategy to recover the determined Maximum Allowable Revenue (MAR) through the delivery of “standard” network services. The MAR itself is based, inter alia, on an anticipated standard of capital investment and an associated investment risk in addition to a standard of operation and maintenance such as might be expected by a prudent operator in the industry.

While “standard” network services may not be defined more specifically, in principle this implies at least the following characteristics of a customer’s energy delivery requirements and the associated networks to deliver them:

- The network will be designed, constructed, maintained and operated in accordance with good and appropriate industry practice, with suitable capacity, reliability and redundancy, and in accordance with relevant Codes for network design and performance.
- The customer will draw all its normal energy requirements through the network and will thus be an importer of energy under normal circumstances.

Hence it is apparent that different circumstances may require individual consideration and negotiation for tariffs and/or capital contributions. Such circumstances could include:

- A customer requiring greater than normal reliability or back-up to the site so that network assets are under-utilised under normal circumstances.
- A customer acknowledging that supply will only be required at the site for a limited duration (eg till the mine runs out or the sleepers are all manufactured) so that revenue recovery ought be accelerated because of the shorter expected useful lifetime of the assets.
- A customer with exceptionally low load factor power factor product characteristics resulting in low utilisation of the assets (eg a site with energy needs which show seasonal or cyclic variation, possibly with comparatively low energy delivery over the whole period).
- A customer proposing to arrange local generation of all or part of its normal energy requirements so that use of the network would only be under abnormal circumstances, and hence would be regarded as providing “back-up” or “standby” connection without the energy delivery expected from the capacity of the assets employed by the Network Service Provider.
- A site where local generation may seek to export power to the general network and possibly thence to customers of that generation at other locations.

The Utilities Commission has approved a framework for certain of these negotiations. - “Framework for Negotiating Agreements for Network Services for Embedded Generation and Similar Situations” – March 2002

Part of the MAR is normally recovered through energy related charges as the “least distorting” recovery mechanism for the funds deficiency above the System Availability Charge and demand elements even though practically none of the real network costs are related to energy per se. Consequently, the charges associated with non standard services may not directly relate to demand or energy actually required, but rather more directly towards recovery of a portion of the MAR which would be expected from the network assets under normal use.

Peak and off-peak periods for demand and energy related charging rates will be as determined from time to time. The peak period rates currently apply to usage between 6.00 am and 6.00 pm on any day. Off-peak period rates apply at other times.

Note: If a customer requiring less than 750 MWh per year is supplied at high voltage, a discount of 5% applies to Energy rate charges only.

**Schedule 1 - Northern Grid****EXCLUDING GST****A - For Customers with consumption above 750 MWh per year**

Reference Service provided: Normal Transmission and Distribution of Electricity consumed through customer's metering for customers supplied and metered at any voltage in the Darwin and Katherine network areas, but excluding common service charges associated with the Darwin Katherine Transmission Line.

	<b>System Availability Charge</b>	<b>\$/kVA peak</b>	<b>\$/kVA off peak</b>	<b>¢/kWh peak*</b>	<b>¢/kWh off-peak*</b>
<b>System Availability Charge</b>					
Dollars per month	\$362.466				
<b>Plus charges related to monthly demand</b>					
First 50 kVA per month		\$5.437	\$1.269		
Next 100 kVA per month		\$4.713	\$1.124		
Next 300 kVA per month		\$3.915	\$0.978		
Next 500 kVA per month		\$2.972	\$0.833		
Next 1,000 kVA per month		\$2.247	\$0.689		
Next 1,000 kVA per month		\$2.030	\$0.616		
Any further kVA per month		\$2.030	\$0.616		
<b>Plus charges related to energy metered</b>					
First 10,000 kWh per month				2.792	2.521
Next 20,000 kWh per month				2.429	2.158
Next 50,000 kWh per month				1.977	1.705
Next 100,000 kWh per month				1.614	1.342
Next 200,000 kWh per month				1.252	0.888
Next 200,000 kWh per month				1.070	0.799
Any further energy per month				0.979	0.708

**B - For Customers with consumption below 750 MWh per year**

Reference Service provided: Normal Transmission and Distribution of Electricity for customers supplied at low voltage in the Darwin and Katherine network areas, but excluding charges associated with the Darwin Katherine Transmission Line.

	<b>System Availability Charge</b>	<b>¢/kWh anytime*</b>
<b>System Availability Charge</b>		
Commercial: cents per day	28.997	
Domestic: cents per day	18.123	
<b>Plus charges related to energy metered</b>		
First 1,000 kWh per month (pro-rated per billing period)		5.685
Energy used above 1,000 kWh per month (pro-rated per billing period)		4.778
Street lighting and other unmetered supplies		3.192

\* These rates do not include the common service charge for the Darwin Katherine transmission Line.

## Schedule 2 - Alice Springs

EXCLUDING GST

### A - For Customers with consumption above 750 MWh per year

Reference Service provided: Normal Transmission and Distribution of Electricity consumed through customer's metering for customers supplied and metered at any voltage in the Alice Springs network area.

	System Availability Charge	\$/kVA peak	\$/kVA off peak	¢/kWh peak	¢/kWh off-peak
<b>System Availability Charge</b> Dollars per month	\$414.871				
<b>Plus charges related to monthly demand</b>					
First 50 kVA per month		\$6.347	\$1.354		
Next 100 kVA per month		\$5.507	\$1.167		
Next 300 kVA per month		\$4.481	\$1.027		
Next 500 kVA per month		\$3.548	\$0.934		
Next 1,000 kVA per month		\$2.614	\$0.747		
Next 1,000 kVA per month		\$2.427	\$0.700		
Any further kVA per month		\$2.427	\$0.700		
<b>Plus charges related to energy metered</b>					
First 10,000 kWh per month				2.941	2.630
Next 20,000 kWh per month				2.527	2.216
Next 50,000 kWh per month				2.008	1.696
Next 100,000 kWh per month				1.593	1.282
Next 200,000 kWh per month				1.386	0.970
Next 200,000 kWh per month				1.179	0.867
Any further energy per month				1.179	0.867

### B - For Customers with consumption below 750 MWh per year

Reference Service provided: Normal Transmission and Distribution of Electricity for customers supplied at low voltage in the Alice Springs network area.

	System Availability Charge	¢/kWh anytime
<b>System Availability Charge</b>		
Commercial: cents per day	33.190	
Domestic: cents per day	20.743	
<b>Plus charges related to energy metered</b>		
First 1,000 kWh per month (pro-rated per billing period)		5.681
Energy used above 1,000 kWh per month (pro-rated per billing period)		4.644
Street lighting and other unmetered supplies		3.554

# Schedule 3 - Tennant Creek

**EXCLUDING GST**

## A - For Customers with consumption above 750 MWh per year

Reference Service provided: Normal Transmission and Distribution of Electricity consumed through customer's metering for customers supplied and metered at any voltage in the Tennant Creek network area.

	System Availability Charge	\$/kVA peak	\$/kVA off peak	¢/kWh peak	¢/kWh off-peak
<b>System Availability Charge</b>					
Dollars per month	\$334.911				
<b>Plus charges related to monthly demand</b>					
First 50 kVA per month		\$7.033	\$1.473		
Next 100 kVA per month		\$6.028	\$1.306		
Next 300 kVA per month		\$4.890	\$1.139		
Next 500 kVA per month		\$3.952	\$0.971		
Next 1,000 kVA per month		\$3.283	\$0.837		
Next 1,000 kVA per month		\$3.015	\$0.704		
Any further kVA per month		\$3.015	\$0.704		
<b>Plus charges related to energy metered</b>					
First 10,000 kWh per month				3.922	3.671
Next 20,000 kWh per month				3.587	3.336
Next 50,000 kWh per month				3.002	2.749
Next 100,000 kWh per month				2.499	2.247
Next 200,000 kWh per month				1.912	1.578
Next 200,000 kWh per month				1.662	1.410
Any further energy per month				1.578	1.327

## B - For Customers with consumption below 750 MWh per year

Reference Service provided: Normal Transmission and Distribution of Electricity for customers supplied at low voltage in the Tennant Creek network area.

	System Availability Charge	¢/kWh anytime
<b>System Availability Charge</b>		
Commercial: cents per day	26.793	
Domestic: cents per day	16.746	
<b>Plus charges related to energy metered</b>		
First 1,000 kWh per month (pro-rated per billing period)		11.521
Energy used above 1,000 kWh per month (pro-rated per billing period)		10.684
Street lighting and other unmetered supplies		8.590

## Schedule 4 - Northern Grid - DKTL EXCLUDING GST

### A - For Customers with consumption above 750 MWh per year

Reference Service provided: Common Service amount to be added to other charge rates for Transmission and Distribution of Electricity consumed through customer's metering for customers supplied and metered at any voltage in the Darwin and Katherine network areas to account for the common service charges associated with the Darwin Katherine Transmission Line.

	System Availability Charge	\$/kVA peak	\$/kVA off peak	¢/kWh peak*	¢/kWh off-peak*
<b>Additional System Availability Charge</b> Dollars per month	Nil				
<b>Plus additional charges related to monthly demand</b> For any kVA per month		Nil	Nil		
<b>Plus additional charges related to energy metered</b> For any kWh per month				0.477	0.477

### B - For Customers with consumption below 750 MWh per year

Reference Service provided: Common Service amount to be added to other charges for Transmission and Distribution of Electricity for Customers supplied at low voltage in the Darwin and Katherine network areas to account for the Darwin Katherine Transmission Line.

	System Availability Charge	¢/kWh anytime*
<b>Additional System Availability Charge</b> Commercial: cents per day Domestic: cents per day	Nil Nil	
<b>Plus additional charges related to energy metered</b> For any kWh per month Street lighting and other unmetered supplies		0.477 0.477

\* These energy rates relate to common service charges associated with the Darwin-Katherine transmission line. These rates are additional to the rates in Schedule 1 for the Northern Grid.