UTILITIES COMMISSION

REVENUE DETERMINATIONS
April to June 2000

March 2000

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Definitions

"Act"	means the *Utilities Commission Act 2000*
"Code"	means *Electricity Networks (Third Party Access) Code* attached as a schedule to the *Electricity Networks (Third Party Access) Act 2000*
"Commission"	means the Utilities Commission formed on commencement of the Act
"first regulatory control period"	means the period between commencement of the Code (on 1 April 2000) and 30 June 2003
"Interim Commissioner"	means the person appointed by the Treasurer to fulfil the role of regulator under the Code until the first Utilities Commissioner was appointed under the Act
"PAWA Networks"	means the business division of the Power and Water Authority (PAWA) of the Northern Territory with operating responsibility for the electricity networks owned by PAWA

CHAPTER
1

ROLE OF THE COMMISSION

Requirements of the Code

1.1   For the purpose of Part 3 of the Code, the regulator is required to make three (related) determinations with respect to regulated networks:

(1)   the revenue cap to apply to a regulated network provider, in accordance with Schedule 6 to the Code (clause 66 (and 69(1));

(2)   the fair and reasonable rate of return, in accordance with Schedule 8 to the Code (clause 69(2)(b)); and

(3)   the network access services and charges to be excluded when determining the revenue cap (clause 72).

1.2   Part 3 of the Code is to be administered by the regulator to achieve the following outcomes:

> *"(a)   an efficient and cost-effective regulatory environment;*
>
> *(b)   prevention of monopoly rent extraction by the network provider;*
>
> *(c)   promotion of competition in upstream and downstream markets and promotion of competition in the provision of network services where economically feasible;*
>
> *(d)   regulatory accountability through transparency and public disclosure of regulatory processes and the basis of regulatory decisions;*
>
> *(e)   reasonable certainty and consistency over time of the outcomes of regulatory processes; and*
>
> *(f)   an acceptable balancing of the interests of the network provider, network users and the public interest."* (clause 63)

Requirements of the Act

1.3   Under the regulatory arrangements put in place by the Northern Territory Government in the Territory's electricity supply industry, the Commission[1] has been assigned the role of regulator under the Code.

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[1] The Commission was established on the commencement of the *Utilities Commission Act* on 21 March 2000. From that date, the functions and powers of the Commission (except the power to delegate) have been delegated to the Interim Commissioner until appointment of the first Commissioner under the Act. Prior to that date, the role of independent industry regulator had been undertaken by the Interim Commissioner. Under section 45(2) of the Act, any action taken by the Interim

1.4   The Commission's activities as regulator in any designated regulated industry are in turn governed by the Act.

1.5   In undertaking its role in any regulated industry, the Commission is required to have regard to the need:

"(a)   *to promote competitive and fair market conduct;*

(b)   *to prevent misuse of monopoly or market power;*

(c)   *to facilitate entry into relevant markets;*

(d)   *to promote economic efficiency;*

(e)   *to ensure consumers benefit from competition and efficiency;*

(f)   *to protect the interests of consumers with respect to reliability and quality of services and supply in regulated industries;*

(g)   *to facilitate maintenance of the financial viability of regulated industries; and*

(h)   *to ensure an appropriate rate of return on regulated infrastructure assets.*"
section 6(2)

Review processes and public consultation

1.6   Section 22(1) of the Act requires that, before making a determination, the Commission may give a draft determination to the parties affected and may take into account representations that any of them make on the proposed determination.

1.7   The requirement for consultation prior to any final determination has been addressed in the main by the *Calculating PAWA's Initial Network Revenue Caps* Discussion Paper (hereafter "the Discussion Paper") issued by the Interim Commissioner in January 2000.

1.8   Interested parties were invited to respond to the issues raised in the Discussion Paper. Submissions were received from:

- AGL Ltd (hereafter "AGL");
- NT Power Group Pty Ltd (hereafter "NTP"); and
- the Power and Water Authority (hereafter "PAWA").

All matters raised have been considered by the Commission, resulting in some modifications to the position put forward in the Discussion Paper.

Final determinations

1.9   Section 22(2) of the Act requires that a final determination is to include a summary of the information on which the determination is based and a statement of the reasons for making the determination.

1.10   This report sets out the reasoning underlying the Commission's final determinations as they apply to the period 1 April to 30 June 2000. The final determinations themselves are set out in the following Chapters of this report:

Commissioner that is subsequently ratified by the Commission is to be taken to have been taken by the Commission.

- Chapter 4: the determination of a "fair and reasonable rate of return", as required by clause 69(2)(b) of the Code;

- Chapter 6: the determination of "excluded network access services and charges", as required by clause 72 of the Code; and

- Chapter 12: the determination of "network revenue caps", as required by clause 66 of the Code.

Part I

WACC
DETERMINATION

CHAPTER
2

MEASURING THE WACC

Framework

2.1   As provided for by paragraph 11(1) of Schedule 8 to the Code, the weighted-average cost of capital (hereafter "WACC") is required as a basis for measuring the allowed ('fair and reasonable') rate of return.

2.2   If the WACC is too low, a regulated network provider will be unable to recover the efficient (and fair) costs of service provision and perhaps, more importantly, may not have adequate incentive to augment facilities when appropriate. Conversely, if the WACC is too high, the network provider will have a strong incentive to over-capitalise ('gold plate') thus affording it the opportunity to derive monopoly rents.

2.3   Schedule 8 of the Code requires the real-terms pre-tax WACC ($WACC_r$) is to be calculated using the following formula:

$$WACC_r = \{(1 + WACC_n)/(1 + \Delta PI)\} - 1 \qquad \qquad \ldots(1)$$

where:

$WACC_n$ = nominal pre-tax weighted-average cost of capital (%); and

ΔPI = expected annual inflation rate (%).

2.4   Schedule 8 also specifies the nominal pre-tax WACC ($WACC_n$) to be calculated using the following formula:[2]

$$WACC_n = [R_e / (1 - T*(1-G))] * (1 - D/C) + (R_d * D/C) \qquad \ldots(2)$$

where:

R_e = the required post-tax rate of return on equity;

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[2]   The use of equation (2) is also in general use among interstate regulators. For further background on the conceptual and measurement issues associated with this equation, interested parties are referred to the following:

- Independent Pricing and Regulatory Tribunal of New South Wales (IPART), *Pricing for Electricity Networks and Retail Supply*, June 1999, Attachment 3, pp. 201-219
- Australian Competition and Consumer Commission (ACCC), *Draft Decision: NSW and ACT Transmission Network Revenue Caps 1999/00 – 2003/04*, May 1999, pp. 10-25

T = the effective tax rate;

G = the imputation factor (measuring the value of franking credits);

D/C = the ratio of debt to capital employed; and

R_d = the pre-tax cost of debt.

2.5 R_e is defined as follows:

$$R_e = R_f + (\beta_e * ERP) \qquad \qquad \ldots(3)$$

 where:

R_f = risk-free rate of return on capital;
β_e = equity beta; and
ERP = equity risk premium.

2.6 R_d is defined as follows:

$$R_d = R_f + DRP \qquad \qquad \ldots(4)$$

 where:

R_f = risk-free rate of return on capital; and
DRP   = debt risk premium.

2.7   Based upon parameter values proposed in the Discussion Paper, the draft determination made by the Interim Commissioner was of a real-terms pre-tax WACC for PAWA Networks of 7.4%.

Submissions by interested parties

2.8   All submissions received generally accepted the Code's approach to the calculation of the WACC outlined above.

Commission's decision

2.9   The Code requires the Commission to use equations (1) through (4) above during the first regulatory control period. Notwithstanding this requirement, the Commission sees no reason at this time why it should contemplate a departure from the formulation of these equations even were it so empowered. This first determination has therefore been based upon strict application of these formulae.

2.10   It is the parameter values to be incorporated into these formulae which are contentious at this stage and a matter for the Commission's judgment. These values are considered in the next Chapter.

2.11   In order to allow PAWA Networks time to apply the determined WACC, the Interim Commissioner determined the real-terms pre-tax WACC on 22 February 2000. The Commission has subsequently ratified this determination. The final decisions taken regarding the WACC are therefore referred to throughout this document as being the Commission's decisions.

CHAPTER

3

PARAMETER VALUES

Utility-specific or industry-wide parameters

Discussion paper proposal

3.1   The Interim Commissioner first considered whether the values used for the 'specific' parameters (β_a, D/C, T, G and DRP) should be PAWA-specific or as generally observed among network providers in Australia.

3.2   In line with the practice adopted generally by regulators elsewhere in Australia, the Interim Commissioner proposed use of industry-wide (not PAWA-specific) parameter values—and to apply this approach consistently for all relevant parameters.

3.3   For the same reasoning, the Interim Commissioner proposed to use uniform values for all geographical networks.

Submissions by interested parties

3.4   NTP expressed support for the use of industry-wide, rather than utility-specific, values for each of the specific parameters (Submission, p.4). AGL did likewise (Submission, p.2).

3.5   By contrast, PAWA put the view that adoption of a utility-specific perspective in the determination of the specific parameters would be more appropriate. PAWA's reasoning was twofold.

- *"…competitive neutrality objectives cannot reasonably be achieved in a short time frame and therefore it is not reasonable to immediately apply industry-wide parameters in respect of the debt to equity ratio and the debt risk premium… [If] the WACC is calculated assuming that PAWA is already at best practice in terms of its debt to capital ratio then PAWA will essentially be penalised for factors that are outside its control."* (p.16)

- *"….investors typically apply both an industry-wide evaluation and "case-specific" evaluation when evaluating potential investments… If the WACC is estimated without considering PAWA specific factors (such as its cost drivers*

and the variance in its revenue base), then there is some question as to whether future investment will take place." (p.16)

Commission's decision

3.6   The Commission has chosen to use mainly industry-wide, rather than utility-specific, values for the 'specific' parameters, while taking into account the regional differences of the Northern Territory.

3.7   Such an approach is used to ensure that:

- regulated returns available to government-owned businesses are no more or no less than typically available to private operators[3]; and

- inefficient funding or operating choices are not rewarded or efficient ones penalised.

3.8   This approach does not, however, rule out taking into account Territory-specific risks, provided such risks apply to investment in the industry irrespective of whether the utility is government or privately owned.

Risk-free rate of return on capital

Discussion paper proposal

3.9   The Interim Commissioner proposed use of the rate on a 10 year Commonwealth Government bond, including because most estimates of the equity risk premium (see below) are based on use of bonds of this maturity and there is little difference between real-term yields on 5 and 10 year bonds.

3.10   To deal with possible short-term volatility in the long bond rate, the Interim Commissioner also proposed an averaging period of 30 trading days period prior to the date of the determination, broadly in line with the approach generally followed by regulators elsewhere in Australia.

Submissions by interested parties

3.11   All submissions supported use of the 10 year Commonwealth bond rate as a proxy for the risk-free rate of return, and use of averaging to remove any short-term volatility.

3.12   A 30 trading day period as a basis for the averaging process was also generally considered reasonable. PAWA did however express some reservations about use of a straight average in those instances when the Reserve Bank of Australia (RBA) has announced a change in official interest rates within the averaging period, submitting:

"…In this case, either: 1) the period within the 30 day trading period before the RBA announcement should be disregarded, or 2) rates for the period before the announcement should be adjusted by the size of the change in official rates before the average is taken. PAWA prefers the latter option as it incorporates

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[3] This approach is also consistent with the advocacy of the WACC approach in the Code (para. 5(2) of Schedule 6) on the grounds that it will ensure: *"…government-owned network providers operate under the same financial conditions as network providers in the private sector and will ensure returns in the public sector are equal to the opportunity cost of capital in the private sector."*

the rate change, but has a more significant smoothing effect than the first option." (p. 14)

Commission's decision

3.13   The Commission endorses use of the 10 year bond rate to measure the risk-free rate of return. The yield to maturity on long-term Commonwealth bonds has generally be used as the proxy for the risk free rate of return on capital by regulators in Australia, as Commonwealth bonds are viewed as the least risky debt instrument traded in the market. The ten year bond yield gives a better picture of the true market rate than the less liquid, five year bonds.

3.14   However, the closest long bond rate with a 10 year maturity was a September 2009 bond. The rate of return on this bond was used, without any attempt to allow for the slight shortfall in maturity.

3.15   An RBA announcement of an increase in official interest rates on 2 February 2000 took place during the 30 day period prior to the determination. However, as inspection of Table 1 below reveals, the announcement had little perceptible effect on the long bond rate. For this reason, the Commission has chosen to use the full 30 trading days in averaging the rate.

Table 1: Commonwealth Government Bond, 15/09/2009

date	yield (%)
11 January	7.10
12 January	7.16
13 January	7.21
14 January	7.20
17 January	7.23
18 January	7.18
19 January	7.18
20 January	7.26
21 January	7.26
24 January	7.28
25 January	7.21
26 January	7.21
27 January	7.16
28 January	7.16
31 January	7.17
1 February	7.16
2 February	7.20[a]
3 February	7.11
6 February	7.00
7 February	7.00
8 February	7.10
9 February	7.08
10 February	7.08
13 February	7.04
14 February	7.13
15 February	7.04
16 February	7.04
17 February	7.07
18 February	7.05
21 February	7.05
Average over 30 Trading Days	**7.137**

(a)   Date of RBA 50 basis point official rate increase.

3.16 Nevertheless, the Commission recognises that in other instances this may not be the case. Accordingly, similar announcements in future periods will be evaluated on an individual basis and the Commission may adjust the averaging period in future determinations if it is believed to be warranted.

3.17 Based on yield data provided by Northern Territory Treasury Corporation as at 21 February 2000 for the 15 September 2009 Commonwealth Government Bond, a figure of 7.137% has been derived from yields between 11 January 2000 to 21 February 2000 inclusive.

Equity risk premium

Discussion paper proposal

3.18 The equity risk premium (ERP), often referred to as the 'market risk premium', is the difference between the expected return on a market portfolio and the return on a risk-free asset.

3.19 The Interim Commissioner proposed the use a figure of 5.5%, on the basis that this is the median figure typically applied recently by interstate regulators.

Submissions by interested parties

3.20 Both AGL and PAWA submitted that the equity risk premium should be higher than the figure proposed by the Interim Commissioner. AGL argued that:

> *"A useful proxy for the expected long-term equity risk premium can be found in estimates of the long-term arithmetic mean of the historically observed equity risk premium."* (p.2)

Based on several studies, summarised and reviewed by ABN AMRO[4], AGL concluded that:

> *"The long-term equity risk premium appears to be above 6%. An equity risk premium of 6.5 % is reasonable."* (p.3)

3.21 PAWA proposed use of an equity risk premium of 6.6%, contending that:

> *"…this compares with 6.6 per cent as recommended by the National Electricity Code and 6.5 per cent as used in the ACCC/ORG gas transmission decision. It is also consistent with the premium adopted by Merrill Lynch and Fay Richwhite in a recent financial modelling study of PAWA undertaken for the NT Government."* (p.14)

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[4] ABN AMRO (1999), *Submission to the Office of the Regulator General Victoria Regarding 2001 Electricity Distribution Price Review: the Cost of Capital Financing,* (Consultation Paper No. 4), p12.

Commission's decision

3.22 The Commission has chosen to use an equity risk premium of 6.0%, consistent with the ACCC's recent determinations. While the more stable inflationary environment that has prevailed in recent times may suggest the premium is now less than has been observed in earlier years, the Commission prefers not to place as great a weight on this tendency as IPART.

3.23 Moreover, the decision of the Commission to use an ACCC (rather than IPART) parameter reflects its acknowledgement of the greater relevance to the Territory of the ACCC's views. The ACCC regulates access to gas infrastructure in the Territory and would be the default regulator were network access achieved by declaration.

Expected inflation

Discussion paper proposal

3.24 The Interim Commissioner identified two different approaches when it comes to measuring expected inflation. These are:

(a) the difference in yields on nominal and indexed 10 year Commonwealth bonds, being an indicator of the market's assessment of inflation expected over the relevant period.[5] IPART and ACCC derive inflation expectations on this basis; and

(b) the use of an average of key private and public forecasts.

3.25 The Interim Commissioner's preference was to follow the approach taken by IPART and the ACCC, including because it would yield an estimate more directly consistent with methods used to estimate the risk-free rate and the equity risk premium.

Submissions by interested parties

3.26 All submissions supported the proposed use of the difference in yields on nominal and indexed 10 year Commonwealth bonds as an indicator of the market's assessment of inflation expected over the relevant period.

Commission's decision

3.27 The Commission averaged the difference between the Commonwealth 2009 bond yield and the 2008 Capital Indexed Bond yield from 11 January 2000 to 21 February 2000.

3.28 This results in an implicit expected inflation rate of 3.606% over ten years.

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5 Inflation expectations are not the exact difference in yields, but are estimated using the so-called 'Fisher Equation': (1 + nominal return) = (1 + real return) * (1 + inflation rate).

3.29   This rate compares with current market expectations of (CPI) inflation over the next 12 months of around 2-2 ½%. The higher rate used reflects the capital market's average annual expectations of inflation over the longer-term (10 years), and so is relevant in converting long-term return expectations from nominal to real terms. It should be noted, however, that where the requirement elsewhere is specifically for a short-term (12 months) inflation rate, the relevant (lower) rate is used by the Commission.

Asset beta

Discussion paper proposal

3.30   The beta term is a measure of expected volatility of the return on an investment in a particular firm relative to the market as a whole. Beta measures the risk that is particular to that firm and that cannot be eliminated through diversification.

3.31   Based upon recent decisions by IPART, the Interim Commissioner proposed the use of an asset beta of 0.43. This compared with the 0.45 value used most recently by the ACCC. Beta values at this level reflect the relatively low business risk of the activity involved in electricity network operation.

Submissions by interested parties

3.32   AGL proposed use of an asset beta of 0.5 on the basis that:

> "...IPART considered a range of asset betas – with the top end of the range being 0.5. IPART considered that two rural electricity distributors faced greater risks than city based electricity distributors and consequently these distributors received a higher WACC" (p.3); and

> "...as PAWA may be seen as operating in a relatively isolated region with a relatively concentrated customer base an asset beta similar to the asset beta used for rural distributors in NSW may be appropriate." (p.3)

3.33   PAWA submitted that an asset beta of at least 0.7 should be considered. PAWA argued that since a significant proportion of its revenue is sourced from the mining and tourism sectors, and that its customer base is more concentrated in that it has a few large customers on which it is very dependent, the non-diversifiable risk facing PAWA was higher than that of "typical" networks.

3.34   PAWA also identified a specific risk in its dependence on revenue from the Australian Defence Force, which could potentially be lost due to changes in Commonwealth Government policy causing future relocation of defence bases.

Commission's decision

3.35   The Commission recognises that some allowances need to be made for the slightly greater business risk profile of investment in electricity networks in the Territory—whether by government or privately-owned networks—compared with investments in larger, metropolitan networks in eastern and southern States. The relatively concentrated customer base on accounts of the system's smaller size and the exposure to the mining sector are important in this regard.

3.36   On this basis, an asset beta of 0.50 has been applied, slightly higher than originally mooted by the Interim Commissioner.

Gearing

Discussion paper proposal

3.37   Based upon use of an industry-wide figure, the Interim Commissioner proposed a gearing ratio of 60%, in line with recent decisions by both IPART and the ACCC.

Submissions by interested parties

3.38   While recognising that the proposed figure of 60% was in line with other recent regulatory decisions, PAWA argued that it faced certain restrictions on changing its capital structure and renegotiating the mix and term of debt, due to government ownership and it being bound to use the Government's central borrowing authority (Northern Territory Treasury Corporation).

3.39   In these circumstances, PAWA proposed the targeting of a 40% ratio, to be phased in over three years, using ratios of 30%, 35% and 40% in the first three years respectively.

Commission's decision

3.40   Consistent with its decision to recognise the slightly greater business risk profile of investment in electricity networks in the Territory compared with investments in larger, metropolitan networks in eastern and southern States, the Commission has chosen to use a gearing ratio of 50%. This is slightly lower than typical for transmission and distribution businesses elsewhere in Australia.

3.41   The slightly lower financial risks derived from this level of gearing would offset its slightly higher business risks, resulting in a stand-alone credit rating similar to that applying to network businesses elsewhere in Australia.

Debt risk premium

Discussion paper proposal

3.42   The Interim Commissioner proposed use of a debt risk premium of 1.0%, the value used in recent decisions by both the ACCC and IPART.

Submissions by interested parties

3.43   AGL proposed a debt risk premium of 1.3%. AGL submitted that:

> *"In calculating the debt risk premium the following should be considered:*
>
> - *ten year bond swap spread—typically 40-60 basis points;*
> - *the credit margin on debt funding—recent press articles indicate that this margin could be expected to be at least 60-80 basis points; and*

- *borrowing costs (such as the fees required to raise fixed rate finance or the cost of hedging floating rate finance)—these could be expected to be 10-20 basis points."* (p.4)

3.44   PAWA submitted that the Commission should have regard to PAWA's current position, in particular its restricted ability to restructure existing fixed-interest, fixed-term borrowings. PAWA contended that:

> *"By establishing a WACC based on a cost of debt which is substantially lower than PAWA's cost of debt the regulator would effectively be jeopardising PAWA's financial viability and sustainability."* (p.26)

3.45   PAWA did not, however, nominate a specific figure which it considered appropriate as the debt risk premium. The Interim Commissioner however assessed PAWA's position to involve a debt risk premium of at least 1.5%.

Commission's decision

3.46   The Commission endorsed the Interim Commissioner's proposal of 1.0% for the debt risk premium, in line with recent decisions by other regulators.

3.47   In the Commission's view, efficient borrowing practices (even through a central borrowing authority) should see a utility like PAWA borrowing at no more than 1.0% above the risk-free rate. A 'single-A' stand-alone credit rating would underpin such a borrowing margin.

Allowing for effect of gearing upon the beta term

Discussion paper proposal

3.48   Schedule 8 of the Code does not propose a specific formulation for β_e, the equity beta term. Of the choices available, the Interim Commissioner proposed that the National Performance Monitoring Steering Committee's formulation[6] be used:

$$\beta_e = \beta_a * [1 + (1 - T*(1-G)) * {}^D\!/_E] \qquad \qquad \dots(5)$$

where:

β_a = asset beta;

T   = the effective tax rate;

G   = the imputation factor; and

${}^D\!/_E$ = the debt-to-equity ratio, which is equal to the debt-to-capital ratio (${}^D\!/_C$) expressed as a ratio of the equity-to-capital ratio (= $1 - {}^D\!/_C$).

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[6]   Based on the Steering Committee on National Performance Monitoring of Government Trading Enterprises, *An Economic Framework for Assessing the Financial Performance of Government Trading Enterprises*, July 1996, p.105.

Submissions by interested parties

3.49   Both PAWA (p.11) and AGL (p.3) queried the use of the National Performance Monitoring Steering Committee's formulation to calculate βe, contrasting this with recent decisions by other regulators which used the Monkhouse formulation.

3.50   The Monkhouse formula is as follows:

$$\beta_e = \beta_a + (\beta_a - \beta_d) * [(1 - R_d/(1+R_d)*T*(1-G)) * D/E \qquad \ldots(6)$$

Commission's decision

3.51   Notwithstanding poor documentation of the rationale of other regulators' move towards the use of the Monkhouse formula, the Commission has decided to adopt this approach in view of the submissions received, and the general acceptance of the Monkhouse formula among regulators for calculating the equity beta.

3.52   Application of the Monkhouse formula requires use of a 'debt beta'. In line with recent decisions by the ACCC and IPART in this area, the Commission has used a value of 0.06 for the debt beta. The Commission does, however, acknowledge that measurement of the debt beta component of the Monkhouse formula is not well documented in the regulatory literature. It will therefore monitor evolution of practice in this area.

Effective tax rate

Discussion paper proposal

3.53   The Interim Commissioner proposed use of the statutory rate of 36%, in line with recent decisions by IPART and the ACCC.

3.54   While the statutory rate is due to move to 34% from 1 July 2000 and to 30% from 1 July 2001, since the purpose of the initial use of the WACC is to derive a revenue cap applicable to the final quarter of the 1999-00 financial year, the Interim Commissioner proposed use of the 36% statutory rate applying during that period. The lower rates will be used when determining the WACC to apply directly in 2000-01.

Submissions by interested parties

3.55   PAWA was the only party to comment on this issue. PAWA's submission supported the proposed use of the 36% statutory rate.

Commission's decision

3.56   The Commission has used an effective tax rate of 36% as proposed by the Interim Commissioner.

Imputation factor

Discussion paper proposal

3.57   Based upon recent decisions by IPART, the Interim Commissioner proposed use of an imputation factor of 40%. This compared with the 50% value used most recently by the ACCC.

Submissions by interested parties

3.58   With respect to the imputation factor, PAWA advocated the use of the ACCC figure of 50%.

Commission's decision

3.59   While PAWA is fully owned by the Territory Government, which pays no income tax, the trend among regulators has been to adopt imputation factors based on average values for typical commercial enterprises. The Commission also acknowledges the greater relevance to the Territory of the ACCC's views.

3.60   On this basis, the Commission has opted to use the ACCC (rather than IPART) parameter value of 50%.

Impact of Commission's modifications

3.61   The impact of the various revisions from the parameters proposed by the Interim Commissioner are summarised below:

Parameter	Discussion Paper proposal	Final determination	Effect on WACC
Equity risk premium	5.50%	6.00%	+0.23%
Asset beta	0.43	0.5	+0.41%
Beta (levered)*	0.936	0.976	+0.11%
Debt-to-capital ratio	60%	50%	+0.16%
Imputation factor	0.40	0.50	-0.21%

* The Interim Commissioner proposed an equity beta calculated using the National Performance Monitoring Steering Committee's formulation, while the Commission has used the Monkhouse formula in the final determination.

CHAPTER
4

WACC DETERMINATION

4.1   Based upon the parameters settled upon in Chapter 3, the Commission's determination of the required WACC to apply to PAWA Networks during the period 1 April to 30 June 2000 is as follows:

WACC DETERMINATION	
Risk-free rate	7.14%
Equity risk premium	6.00%
Asset beta	0.50
Debt beta	0.06
Beta (levered)	0.934
Cost of equity before dividend imputation	12.74%
Imputation factor	0.50
Cost of equity (post-tax)	9.94%
Tax rate	36%
Cost of equity (pre-tax)	**15.54%**
Risk-free rate	7.14%
Debt risk premium	1.00%
Cost of debt (pre-tax)	**8.14%**
Equity-to-capital ratio	50%
Debt-to-capital ratio	50%
Nominal pre-tax WACC	**11.84%**
forecast CPI	3.61%
Real-terms pre-tax WACC	**7.95%**

Part II

EXCLUDED SERVICES DETERMINATION

CHAPTER
5

NATURE AND SCOPE OF EXCLUDED SERVICES

Framework

5.1   Clause 72(1) of the Code recognises that certain costs and services may be excluded from the revenue cap arrangements (to be recovered separately by unregulated prices or charges).

5.2   Excluding specified services from the revenue cap requires consequential adjustments to the data used to estimate the revenue cap, specifically with regard to:

(a) capital expenditure; and

(b) operating costs.

Discussion paper proposal

5.3   In order to minimise adjustments necessary to the data, the Interim Commissioner proposed exclusion of the following network services from the Cap:

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

– charges for moving mains, services or meters forming part of PAWA's network system to accommodate extension, re-design or re-development of any premises; and

– the provision of electric plant for the specific purpose of enabling the provision of standby supplies or sales of electricity;

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

(c) power system (but not network system) control costs directly associated with the activities of a system controller licensed under the Electricity Reform Bill 1999.

Submissions by interested parties

5.4   NTP expressed concern that:

> *"…any of PAWA's electricity supply services that are excluded from the revenue cap would effectively become unregulated activities."* (p.3)

NTP submitted that, wherever possible, such services should be made contestable or, if they are not opened to competition, should also be regulated by the Commission.

5.5   PAWA agreed with exclusion of the services nominated by the Interim Commissioner, but submitted that some other services, which were not part of the core 'network services' should also be excluded (p.9). The additional services nominated by PAWA for exclusion were:

(a) the provision of metering, or metering data, to a standard in excess of that required for the billing of network tariffs;

(b) the provision of streetlighting; and

(c) contestable consulting services provided by PAWA's Network Engineering Division.

Commission's decision

5.6   The Commission accepts the arguments put by PAWA to expand the list of excluded services to include those additional services of the type nominated by PAWA.

5.7   The exclusions accepted by the Commission had the effect of eliminating the following amounts from the capital expenditure and operating cost data used for determining the PAWA Network's revenue cap in 1999-00:

	Darwin	**Katherine**
Assets ($M)	0.776	0.497
OMA ($M)	2.027	Nil

5.8   The Commission will monitor the pricing of excluded services to ensure that these prices are at 'fair and reasonable' levels as required by clause 72(3) of the Code.

CHAPTER

6

EXCLUDED SERVICES DETERMINATION

6.1   Based upon the reasoning canvassed in Chapter 5, the Commission's determination of the services to be excluded from the revenue cap calculation for the period 1 April to 30 June 2000 is as follows:

EXCLUDED SERVICES DETERMINATION

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

  – charges for moving mains, services or meters forming part of PAWA's network system to accommodate extension, re-design or re-development of any premises;

  – the provision of electric plant for the specific purpose of enabling the provision of standby supplies or sales of electricity; and

  – provision of metering, or metering data, to a standard in excess of that required for billing purposes;

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

(c) power system (but not network system) control costs directly associated with the activities of a system controller licenced under the *Electricity Reform Act 2000*;

(d) the provision of streetlighting; and

(e) contestable engineering consulting services provided by PAWA Networks.

Part III

REVENUE CAP DETERMINATION

CHAPTER
7

CALCULATING A REVENUE CAP

7.1   Under the Code, a revenue cap is required for each geographically distinct network operated by network providers covered by the Code. Initially, the Code only applies to networks operated by PAWA Networks.

7.2   A revenue cap is required for the 'initial year', that is the period from 1 April to 30 June 2000. The revenue cap to apply to the first full year (that is, the year beginning 1 July 2000) is to be determined by the Commission later at least 90 days before commencement of the year in question.

7.3   In accordance with Schedule 6 to the Code, the Commission is required to determine the revenue cap (CAP) for the relevant period as follows:

$$CAP = (CAPITAL*WACC) + DEP + OMA \qquad \ldots(7)$$

where:

CAPITAL = the network's capital base ($M);

WACC = the real-terms pre-tax weighted-average cost of capital (%);

DEP = the expected depreciation charge for the period on the network's assets ($M); and

OMA = the expected operations, maintenance and administration expenditure for the period by the network business ($M).

7.4   It should be noted that:

- the CAPITAL*WACC term represents the allowed return **on** capital;

- the depreciation (DEP) term represents the allowed return **of** capital; and

- the OMA term represents the allowed return of operating costs.

CHAPTER

8

INITIAL YEAR ISSUES

Framework

8.1   The initial network revenue cap required relates to the period 1 April to 30 June 2000. This three month period gives rise to a number of issues.

Annual basis for the 'initial period' cap

Discussion paper proposal

8.2   The Interim Commissioner recognised two options for deriving the annual cap upon which the part-year cap would be based:

(a) by directly deriving an annual revenue cap using 1999-00 financial year data; or

(b) by deriving the annual cap to apply in 2000-01 (the first full financial year), and then adjusting ('backcasting') that annual cap onto an appropriate 1999-00 basis.

8.3   To apply (b) would require application of the following formula:

$$CAP_{99\text{-}00} = CAP_{00\text{-}01} * (1 - \Delta PI - \Delta GST) \qquad\qquad ...(8)$$

where:

$CAP_{00\text{-}01}$ = annual revenue cap applying to the 2000-01 financial year, derived by applying information directly relevant to that year to equations (1) and (2) in Chapter 2;

ΔPI = the percentage[7] increase in an appropriate price index (PI) expected between 1999-00 and 2000-01; and

ΔGST = the percentage net increase in PAWA's average network tariffs expected between 1999-00 and 2000-01 purely on account of introduction of the GST from 1 July 2000.

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[7] In applying equation (8), and in all following equations, the values of all variables specified as percentages are substituted into the equation in the form of a fraction (base of 1) rather than a true percentage (base of 100).

8.4   The Interim Commissioner's preferred option was to derive the annual cap to apply in 2000-01 (the first full financial year), and then adjust ('backcast') that annual cap onto an appropriate 1999-00 basis.

Submissions by interested parties

8.5   PAWA supported the proposal to derive the cap for the 2000-01 financial year and backcast to an appropriate 1999-00 basis. However, PAWA experienced some difficulties subsequently in defining and evaluating an appropriate methodology for forecasting some components of the cap for the 2000-01 financial year in the short time frame available.

8.6   Consequently, PAWA provided information in relation to the 1999-00 financial year only.

Commission's decision

8.7   Due to the difficulties experienced by PAWA in defining and evaluating an appropriate methodology for forecasting some components of the cap for the 2000-01 financial year, the Commission has decided to base determination of the three month revenue cap directly on the 1999-00 data.

Apportioning an annual cap to the 'initial period'

Discussion paper proposal

8.8   The Interim Commissioner proposed that the revenue cap for the period 1 April to 30 June 2000 ($CAP_{APR-JUNE}$) be calculated using an appropriate proportion of an annual revenue cap. The following general formulation was proposed:

$$CAP_{APR-JUNE} = CAP_{FULL\ YR} * Q * P \qquad \qquad ...(9)$$

where:

$CAP_{FULL\ YR}$ = revenue cap for a full financial year;

Q = apportionment factor; and

P = price adjustment factor.

Submissions by interested parties

8.9   With regard to an appropriate apportionment factor (Q), PAWA submitted that:

".....the fairest apportionment factor ... is the number of days during the quarter. This allocation will provide a reasonable apportionment and is known in advance ¾ use of energy fractions would involve further use of projected data." (p.6)

Commission's decision

8.10   For simplicity sake, the Commission has decided to:

- use the number of days as a basis for apportionment; and

- not to apply a price adjustment factor, on the basis that PAWA's estimates do not appear to take full account of the pattern of within-year price movements.

Geographically-distinct networks

Discussion paper proposal

8.11   Revenue caps are only required for geographically-distinct networks. Such a network can be defined as a directly inter-connected system of network and connection assets under single ownership and operation.

8.12   The Interim Commissioner proposed to treat Darwin and Katherine as separate networks for the revenue cap exercise, rather that treat Darwin-Katherine in effect as an integrated network. Treating Darwin and Katherine as separate networks would result in relevant costs being allocated either to the Darwin network or to the Katherine network.

Submissions by interested parties

8.13   NTP chose to reserve comment on this issue, stating that:

"…cost allocation is largely a subjective process, [and] we reserve our comments on the merits of treating the networks separately until we fully understand the nature of the cost allocation process." (p.3)

8.14   PAWA agreed with the proposed treatment of Darwin and Katherine as distinct networks, stating that:

"While it is true that the Darwin to Katherine lines are inter-connected, mostly these networks utilise separate assets and service geographically distinct customer groups and therefore should be considered as "distinct" networks." (p.8)

Commission's decision

8.15   Given no arguments were presented to treat the Darwin and Katherine networks as integrated, the Commission has made a determination for each of the Darwin and Katherine networks individually.

Coverage of networks

Discussion paper proposal

8.16   With regard to the smaller networks, the Interim Commissioner proposed to only determine a revenue cap for a network where both:

    (a) there are identifiable customers connected to the network who are reasonably expected to become contestable during the year in question; and

    (b) licensed third-party generators and/or retailers foreshadow to the Commission their intention to enter into negotiations with those contestable customers.

8.17   On this basis, unless requested otherwise by licensed third-party generators and/or retailers, or those intending to become licensed, the Interim Commissioner proposed that revenue caps for April to June 2000 only be determined for PAWA's Darwin and Katherine networks.

Submissions by interested parties

8.18   PAWA agreed with the Interim Commissioner's proposal to determine revenue caps applying to the April-June 2000 period only for the Darwin and Katherine networks. PAWA further submitted that:

"…even after tranches 3 and 4 become contestable there is doubt as to whether the emergence of competing generators will be imminent. PAWA therefore considers that while the framework should accommodate the establishment of revenue caps for Alice Springs and Tennant Creek, quantification is not necessary at this stage, and may not be necessary during the first regulatory control period." (p.8)

Commission's decision

8.19   The Commission decided to determine revenue caps for the 1 April to 30 June 2000 period for the Darwin and Katherine networks only.

8.20   In the absence of determined revenue caps for both the Tennant Creek and Alice Springs networks, the Commission will impose the requirement that network tariffs in these other networks not exceed the tariffs in Darwin.

CHAPTER

9

REGULATED CAPITAL BASE

Framework

9.1   Over 70% of costs borne by network providers in Australia are said to involve returns *on* and returns *of* capital. Appropriate measurement of the capital base is therefore a crucial issue.

9.2   Schedule 7 of the Code outlines the broad methodology to be used in identifying and measuring the network asset base. While the Commission is directly responsible for determining the weighted-average cost of capital (WACC), the other values used in quantifying the $ value of the cap are supplied to the Commission by PAWA Networks, based upon methodology determined by the Commission.

9.3   The Interim Commissioner proposed the following formula to measure the regulated capital base (CAPITAL) for a particular network:

$$\text{CAPITAL} = [\text{WC} + (\text{ODV} + 0.5*(\text{CAPEX} - \text{DECOM})*(1 + \Delta\text{PI})^{-\frac{1}{2}}) - \text{CAPCON}] \quad \dots(10)$$

where:

WC = the funds ('working capital') required to finance the network's operations ($M);

ODV = the depreciated optimised deprival value of the network's fixed assets at the beginning of the financial year ($M);

CAPEX = the capital funds that are expected to be expended in the financial year in connection with the creation or upgrade of network fixed assets ($M);

DECOM = the ODV of those network assets expected to be decommissioned in the financial year before the end of their economic life ($M);

ΔPI = the forecast change in an appropriate price index for the financial year (%); and

CAPCON = the capital contributions received net of any amount amortised, to the extent that the resultant assets constructed have increased the gross ODV ($M).

9.4   In effect:

- the "WC" term is simply the working capital component of capital employed in the business;

- the "ODV + 0.5*(CAPEX – DECOM)*(1 + ΔPI)$^{-\frac{1}{2}}$" term is the fixed asset component of capital employed, being the beginning of the year value ("ODV") adjusted for the additional capital employed during the year expressed in 1 July dollars ("0.5*(CAPEX – DECOM)*(1 + ΔPI)$^{-\frac{1}{2}}$"); and

- the "CAPCON" term is the amount of fixed assets funded by capital contributed by customers in the form of gifted assets or capital contributions, with a return on capital only appropriate on the amount actually invested by providers of equity and debt capital (shareholders and creditors).

Working capital (WC)

Discussion paper proposal

9.5   While most capital is tied up in a network's fixed assets, funds are needed to finance the day-to-day operations of the network business.

9.6   The Interim Commissioner proposed to measure the working capital employed in a particular network by estimating the average monthly difference between current liabilities and current assets in the previous financial year for PAWA as a whole and then allocating that amount in proportion to the network's relative share of PAWA's total operating costs.

Submissions by interested parties

9.7   PAWA supported the proposed approach for calculating working capital.

9.8   In contrast, NTP submitted that a stricter definition, as identified by IPART[8], should be used. This definition excludes a number of items that would normally be included in the accounting definition of working capital, and limits regulatory working capital to the sum of:

- trade debtors and accrued income;
- inventories;
- prepayments; and
- trade creditors and accruals.

Besides excluding some subjective amounts such as goodwill, the main exclusion under this alternative definition is the holdings of cash balances.

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[8] IPART, "The treatment of net working capital in establishing the regulatory asset base for AGL Gas Networks Limited", October 1999

Financial data provided by PAWA

9.9   Based on the definition of working capital provided in the Discussion Paper, PAWA commissioned KPMG to prepare estimates of working capital for PAWA Networks as at 30 June 1999.

9.10   Average end-of-month figures for PAWA as a whole for 1998-99 are shown in Table 2.

Table 2. Current assets and liabilities 1998-99

	Monthly Average ($M)
Current Assets	
Cash	50.770
Service Debtors	22.430
Provision for doubtful debts – service debtors	(1.218)
Unbilled consumption	22.500
Other debtors	3.324
Provision for doubtful debts – other debtors	(0.148)
Developments loans	0.159
Loans to controlled entities	1.300
Stores and materials	18.216
Provision for diminution in value	(0.300)
Distillate	2.724
Gas	0.038
Prepayments	27.536
Other (unidentified) items	(21.604)
Total current assets	**125.727**
Current Liabilities	
Accounts payable	33.713
Government loans	19.266
Lease liabilities	1.462
Employee entitlements	16.416
Fringe benefit tax	0.070
Sales and payroll tax	1.477
Dividend	6.859
Deferred gain on sale and leaseback	0.789
Total current liabilities	**80.052**
Net current assets	**45.675**

9.11   KPMG also estimated that PAWA Networks accounted for 17.65% of PAWA's total operating costs. On this basis, using the methodology suggested by the Interim Commissioner, the working capital allocated to PAWA Networks amounted to $8.061M at 1 July 1999.

9.12   Finally, PAWA allocated this amount between the regions in proportion to energy sales.

Location	Energy sales (%)	Working capital ($M)
Darwin	63.76	5.140
Katherine	8.11	0.654
Overall		8.061

Commission's decision

9.13   The Commission prefers to use the traditional measure of working capital, including cash balances. Cash balances are an essential precautionary and transactional part of working capital, and are not netted off by creditors from the amount of debt capital supplied (as implied in the IPART formulation).

9.14   This is not to suggest that working capital cannot be in excess of minimum efficient levels. The Commission will use the next round to benchmark PAWA's working capital balances against amounts held by its interstate peers.

9.15   In this instance, the Commission has therefore accepted the figures provided by PAWA for working capital component of the regulated capital base. However, in applying the WACC to determine the rate of return on the regulated capital base, the Commission:

- first calculated the potential (not actual) interest income on cash balances, using the income based upon Northern Territory Treasury Corporation's average cash rate over 1998-99; and

- to allow explicitly for these earnings so as to not double count income, then subtracted the potential annual interest income on the cash balances involved from the return on capital based upon full allowance for working capital.

9.16   Shortly, the Commission expects PAWA to have in place a balance sheet applying directly to PAWA Networks, rather than continue to rely on indirect measures of working capital.

Depreciated optimised deprival value (ODV)

Discussion paper proposal

9.17   Schedule 7 of the Code requires use of 'optimised deprival values' [9] of a network's fixed assets to measure the value of capital tied up in those assets.

9.18   The Interim Commissioner also requested PAWA, in providing the necessary data for appropriate classes of assets, to:

(a) outline the methodology and assumptions used to project ODV values forward to 1 July 1999 from the date of the last revaluation;

(b) identify any asset or group of assets where the economic replacement value of assets is judged to be less than the optimised replacement cost, and an explanation for why this might be the case; and

(c) identify any asset or group of assets where the optimised value is judged to be less that the book value, and an explanation for why this might be the case.

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[9] The deprival value is the minimum loss that would result if the business were deprived of the asset. For example, where the asset can and should be replaced, the deprival value is the replacement cost. If the asset would not be replaced, then the deprival value is the greater of the net present value of expected cash flows from continued use of the asset or the net realisable value of disposing the asset. In other words, it is the minimum of an asset's replacement cost or its economic value. Optimised deprival value takes into account the most efficient method of providing the asset's services if the asset is to be replaced.

Submissions by interested parties

9.19   With regard to the use of optimised deprival value, PAWA submitted that depreciated optimised replacement cost (DORC) should be used instead of relying upon valuations based on the net present value (NPV) of the cash flows earned by the assets, because of circularity problems associated with deriving NPV values.

Financial data provided by PAWA

9.20   In 1999, a revaluation of PAWA's assets was carried out by a consortium of Sinclair Knight Merz and Deloitte Touche Tohmatsu (hereafter "SKM-D"). The previous revaluation was undertaken in 1993.

9.21   The valuation covered the whole of PAWA operations, including the water, sewerage, generation, network and Aboriginal Essential Services areas. The data provided to the Commission by PAWA is limited to the network assets for commercial operations.

9.22   The SKM-D valuation was undertaken as at 31 January 1999, and has been adjusted by PAWA on account of both:

- adjustments necessary to ensure an appropriate line-of-business allocation of assets; and

- extending the valuation to 30 June 1999.

9.23   The resultant depreciated replacement costs (DRC) valuations of PAWA Network's assets as at 30 June 1999 provided to the Commission were as follows:

	Darwin $M	Katherine $M
TOTAL NETWORK ASSETS, 1 July 1999	220.700	38.885

9.24   Commencing with these asset values, PAWA undertook two types of exclusion and optimisation. The first adjusted for some specifically identified assets which were excess to requirements:

- 66 kV line from Casuarina to "Point Z" - removed from service;

- 66 kV line from "Point Z" to McMinns - removed and replaced by a shorter section of line;

- 66 kV line segment near Bayview Haven – relocated, at the expense of the developer, to remain clear of the proposed development;

- 66 kV line from Cox Peninsula to Radio Australia - optimised to an 11 kV construction which would be appropriate for the existing small load at that location; and

- the exclusion of Timber Creek, Daly Water and Borroloola assets which were included by SKM-D as part of the Katherine network, but are not part of the regulated network.

9.25   The second optimisation was an overall optimisation of total network assets. This was achieved by using an optimisation factor based on adjustments

typical in other networks (see table below) rather than apply individual factors to each asset group. A weighted average of such factors was used.

Asset class	Optimisation factor
Transmission Lines	98%
Major and Zone Substations	95%
Transmission	
Switching Stations – Distribution	95%
HV Mains	98%
Distribution Substations – Inner	97%
Distribution Substations – Outer	90%
Low Voltage Mains	100%
Common Service Assets	100%
Spares	100%
Distribution	
Land	100%
Metering	100%
Service Connections	100%
Weighted average	**97.76%**

9.26   These optimisations resulted in:

	Darwin $M	Katherine $M
TOTAL NETWORK ASSETS, 1 July 1999	220.700	38.885
less optimisation and exclusion adjustment for some specifically identified assets	1.708	2.559
less overall optimisation using a weighted average by asset class (97.76%)	4.944	0.871
DORC, total network assets, 1 July 1999 (=ODV)	**214.048**	**35.455**

Commission's decision

9.27   The Commission accepted the data provided by PAWA as a basis for the ODV of the opening network asset base:

Location	ODV ($M)
Darwin	$ 214.048
Katherine	$35.455

Capital expenditure (CAPEX)

Discussion paper proposal

9.28   The regulated capital base must also include an estimate of the expected additional capital employed on account of construction or acquisition of new assets during the year.

9.29   The Interim Commissioner requested PAWA to provide estimates:

(a)   for the financial year in the context of a three-year series, together with an indication of the rigor of the evaluation processes underlying this series; and

(b)   by asset class (to the same level of disaggregation as for the ODV figures).

Submissions by interested parties

9.30   NTP questioned the use of PAWA's actual capital expenditure in the calculation of the asset base, submitting that clause 69(2) of the Code required the use of efficient, rather than actual, capital expenditure.

Financial data provided by PAWA

9.31   PAWA provided details of their Capital Works Program for Networks, including minor works.

9.32   PAWA drew to the Commission's attention that PAWA's overall program is submitted to Treasury for its consideration and funding approval. Approvals are only given for a single year at a time and PAWA keeps forward estimates as estimates only without specific approval. PAWA stated that:

> "The upshot of this is that whilst PAWA has a fairly good idea of future capital expenditure, the formal approval process is not complete and there is always some uncertainty associated with forward estimates."

9.33   The capital expenditure data provided by PAWA for 1999-00 was comprised of the following elements:

Capital Expenditure	Direct ($M)	Common services ($M)	Total ($M)	Effect of excluded services	Amount for inclusion
Alice Springs	1.513	1.251	2.764		
Darwin	5.440	4.498	9.938	0.776	9.162
Katherine	1.801	1.489	3.290	0.497	2.794
Tennant Creek	0.144	0.120	0.264		
TOTAL	**8.898**	**7.358**	**16.256**		

	Darwin $M	Katherine $M
Normal Capex	9.162	2.794
plus gifted assets	5.512	1.646
plus recoverable works	0.563	0.168
CAPEX	**15.237**	**4.608**

Commission's decision

9.34   The Commission has used the numbers provided by PAWA, despite what it considers to be inadequate documentation, on the basis that the figures are based largely on actuals. The Commission will undertake a review of PAWA Network's capital works program as part of its determination of the X factor to apply from 1 July 2001.

Decommissioned assets (DECOM)

Discussion paper proposal

9.35   The Interim Commissioner proposed that capital employed during the year be reduced wherever assets are decommissioned in the financial year before the end of their economic life. The figure required is of the ODV of any such network assets.

Submissions by interested parties

9.36   No submissions were received in relation to the treatment of decommissioned assets.

Financial data provided by PAWA

9.37   In a relatively new and expanding system such as that in the Northern Territory, PAWA submitted that it is unusual for assets to be removed and retired.

9.38   PAWA indicated that it did not yet have a firm basis in place for evaluating this figure. An estimate of $0.5M and $0.1M for Darwin and Katherine respectively was provided for the seventeen month period 31 January 1999 to 30 June 2000. This has been applied on a pro-rata basis to derive estimates for the 1999-00 financial year.

9.39   The resultant estimates for the value of decommissioned assets for 1999-00 were:

Location	DECOM ($M)
Darwin	$ 0.345
Katherine	$ 0.069

Commission's decision

9.40   The Commission accepted the figures provided by PAWA on the basis that PAWA recognises some decommissioning is likely to occur but this has not been well quantified at this stage.

Annual inflation rate (ΔPI)

Discussion paper proposal

9.41   The capital base calculation requires that estimates of additional capital being employed during the year in question should be expressed in 1 July dollars for the year in question.

9.42   Effectively, the approach used in equation (10) involves an estimate of additional capital in place at the mid-point of the year (31 December), expressed in prices applicable at this mid-point, which is then deflated by half the annual forecast change in the appropriate price index.

Submissions by interested parties

9.43   NTP expressed uncertainty as to why different inflation rates would be used at different points in determining the revenue cap.

9.44   NTP also submitted that the Darwin inflation rate be used, rather than a national rate as proposed.

Commission's decision

9.45   The Commission's preference is to use an annual inflation rate of 2.39%, being an average of the forecast rates published by five industry forecasters for the 1999-00 year.

9.46   The Commission also confirmed its intention to use a different rate in this instance than in calculating the WACC. The requirement here is specifically for a short-term (12 months) inflation rate. The higher rate proposed for deriving the WACC reflects the capital market's average annual expectations of inflation over the longer-term (10 years), and so is relevant in converting long-term rate of return expectations from nominal to real terms.

9.47   Based on the data provided, the Commission has accepted the following values:

	Darwin $M	Katherine $M
0.5*(CAPEX - DECOM)	7.446	2.269
Adjusted to 1 July 1999 $'s	7.358	2.243

Capital contributions and gifted assets (CAPCON)

Discussion paper proposal

9.48   A network provider is only entitled to a return on the capital invested by owners of the business, not on that capital contributed by customers in the form of gifted assets or capital contributions towards the cost of constructing or acquiring otherwise uneconomic assets.

9.49   Where records may be deficient, only partial allowance for historical capital contributions may be possible. The Interim Commissioner agreed not to make an estimate of the unrecorded capital contributions, provided PAWA substantiated that data on such contributions is unreliable prior to 1 July 1998[10] and an estimate is not feasible in the circumstances.

9.50   The Interim Commissioner proposed to estimate capital contributions received (CAPCON) since 1 July 1998 on the following basis:

CAPCON = (CONCUR – AMORT) + CONNEW   …(11)

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[10] The reference to 1 July 1999 in the Discussion Paper was a typographical error.

where:

CONCUR = total capital contributions made since 1 July 1998 towards new network assets to the extent that each contribution increased the optimised deprival value;

AMORT = the amount amortised from the capital contributions since 1 July 1998 up to the commencement of the financial year in question; and

CONNEW = capital contributions expected to be made towards new asset during the financial year.

Submissions by interested parties

9.51   PAWA advised that its records do not permit allowance for capital contributions made before 1 July 1998.

9.52   NTP submitted that, while acknowledging that:

"*…it would not appear to be feasible for the [Commission] to estimate PAWA's unrecorded capital contributions…, [the Commisssion's] proposed treatment of net capital contributions received before 1 July 1998 would appear to give PAWA a perverse incentive to demonstrate that its records are deficient and unreliable and cannot therefore be used in determining its capital base.*" (p.6)

Financial data provided by PAWA

9.53   The net capital contributions included in the opening capital base as at 1 July 1999 provided by PAWA were as follows:

	Darwin $M	Katherine $M
Distribution System Extension Policy (DSEP) contributions	0.359	Nil
plus gifted assets (DRC value)	3.600	0.884
plus recoverable works	0.235	0.070
CONCUR	**4.194**	**0.954**

9.54   The expected capital contributions towards capital expenditure during 1999-00 provided by PAWA were as follows:

	Darwin $M	Katherine $M
Distribution System Extension Policy (DSEP) contributions	0.257	Nil
plus gifted assets	5.512	1.646
Plus recoverable works	0.563	0.168
CONNEW	**6.332**	**1.814**

9.55   No data was available on the amortisation of capital contributions since 1 July 1998 (AMORT).

Commission's decision

9.56   Based on the data provided, the Commission has accepted the following values:

	Darwin $M	Katherine $M
CONCUR	4.194	0.954
less AMORT	Nil	Nil
plus CONNEW	6.332	1.814
equals CAPCON	10.526	2.768

Commission's estimates of regulated capital base

9.57   Based upon the various components described in this Chapter, the Commission has derived the regulated capital base for 1999-00 as follows:

	Darwin $M	Katherine $M
Working capital	5.299	0.654
plus opening fixed assets	214.048	35.455
plus 50% of net new fixed assets in July '99 $'s = $(CAPEX-DECOM)*(1 + \Delta PI)^{-\frac{1}{2}}$	7.358	2.243
less capital contributions	10.526	2.768
equals Regulated Capital Base	**216.179**	**35.584**

CHAPTER
10

RETURN OF CAPITAL

Framework

10.1   Depreciation is the mechanism by which invested capital is returned to owners of a network business over the anticipated economic life of depreciable assets. The central issue is not whether capital should be returned to investors, but the pattern of, and period over which, the invested capital should be returned.

Discussion paper proposal

10.2   For the purposes of modelling movements of asset values over the life of the regulatory period and for determining the return of capital, the Interim Commissioner proposed calculating depreciation (DEP) using the straight line method, as follows:

$$DEP = DCUR + 0.5*(DNEW - DDEC) \qquad\qquad ...(12)$$

where:

DCUR   = depreciation charge for the year based on the assets in service at the start of the year

= $ODV * {}^{1}/_{L_C}$

where:

L_C = average remaining economic life (in years) of current assets;

DNEW   = depreciation on new assets added during the financial year

= $CAPEX * {}^{1}/_{L_N}$

where:

L_N = average economic life (in years) of new assets; and

DDEC   = the adjustment to depreciation for assets decommissioned during the financial year

$$= \text{DECOM} * {}^1/_{L_D}$$

where:

L_D = average remaining economic life (in years) of assets being decommissioned.

Submissions by interested parties

10.3   Neither AGL nor NTP submitted any comment in relation to calculation of the depreciation charge.

10.4   PAWA supported the approach proposed by the Interim Commissioner.

Financial data provided by PAWA

10.5   The depreciation data initially supplied by PAWA was calculated:

"…in accordance with the principle in the [Interim Commissioner's proposed] methodology, though not in accordance with its exact detail… [T]he Asset Valuation carried out for PAWA determined written down values on a line by line basis according to the best knowledge of asset age and appropriate life. An additional column was added within PAWA to explicitly determine the individual item annual depreciation."

10.6   While the figures provided by PAWA are not disputed, the Commission has preferred to derive asset life estimates from the original SKM-D revaluation data for use in the equations proposed in the Discussion Paper.

10.7   PAWA provided estimates of annual depreciation. The average remaining economic life (in years) of existing assets was estimated by the Commission by dividing the depreciated replacement cost of total network assets as at 1 July 1999 (see above) by this depreciation charge as follows:

	DRC	DEP	Average remaining life (L_C)
Darwin	220.700	14.830	14.882
Katherine	38.885	2.131	18.244

10.8   PAWA advised that the average remaining economic life (in years) of new assets (L_N) was 35 years, based on industry averages.

10.9   PAWA did not provide estimates of the average remaining life of decommissioned assets.

Commission's decision

10.10   In the absence of any firm information on decommissioned assets, the Commission has assumed that the average remaining economic life for decommissioned assets (L_D) to be the same as for existing assets.

10.11   The Commission also recognised that the average increase or decrease in capital was 50% of the relevant CAPEX and DECOM values, on the assumption that such expenditures took place evenly o ver the course of a financial year.

10.12   Applying this assumption and the other data provided by PAWA to equation (12), the Commission estimated depreciation (DEP) as follows:

	Darwin	Katherine
ODV ($M)	214.048	35.455
L_C (years)	14.882	18.244
DCUR	**14.383**	**1.943**
50% of CAPEX ($M)	7.619	2.304
L_N (years)	35.000	35.000
DNEW	**0.218**	**0.066**
50% of DECOM ($M)	0.172	0.035
L_D (years)	14.882	18.244
DDEC	**0.012**	**0.002**
TOTAL DEPRECIATION CHARGE	**14.613**	**2.011**

CHAPTER

11

RETURN OF OPERATING COSTS

Framework

11.1   The Interim Commissioner identified the following issues in relation to operating costs:

(a)   assessing PAWA Network's degree of efficiency, including the extent to which allowance should be made for a progressive phasing-in of available efficiencies; and

(b)   the treatment of PAWA's payments to the operators of the Darwin-Katherine transmission line (hereafter "DKTL").

Assessing and allowing for efficiency

Discussion paper proposal

11.2   The Interim Commissioner proposed use of the efficiencies assessed as available by the Government's 1998 strategic review of the Power and Water Authority and as revealed in the savings target set by the Government. In effect, the operating cost savings element of the $30 million financial target approved by the Government in November 1998 amounts to a reduction of around 18% in PAWA's operating cost structure as it stood in 1997-98. This target was based on the maximum savings available under continuing government ownership, and related to the whole of PAWA.

11.3   It was also proposed to allow the phasing-in of such efficiencies equally over a three year period concluding in 2001-02.

Submissions by interested parties

11.4   NTP stated that:

"…[NTP] opposes in the strongest possible terms the [Interim Commissioner's] proposal to allow PAWA to phase-in the introduction of efficient pricing over a three-year period." (p.7)

11.5 NTP argued that such an approach would be inconsistent with approaches taken in other jurisdictions and also with requirements of clause 69(2) of the Code for the rate of return to be applied to efficient investment and maintenance practices. In this regard:

> *"PAWA should not be able to continue to pass the costs of its inefficiencies on to its customers. Rather, it should be forced to charge in an efficient manner from the beginning of the new regulatory period, even if its operations are themselves not efficient."* (p.7)

11.6 The PAWA submission did not directly comment on the issues covered in the Discussion Paper, restricting comments to some aspects of their proposed methodology for measuring these costs. In general, their submission appeared to support the broad approach outlined by the Interim Commissioner.

Financial data provided by PAWA

11.7 PAWA advised that the approved overall budget for 1999-00, incorporating both capital and operating components, stood at $385.0M at the end of calendar 1999. Of this amount, the PAWA Network's share was some $69M (or 18%).

11.8 This amount was made up by:

Operating and Capital Budget	$M
'Below the line' amounts – financing (dep, advances, dividend) and other	19.3
DKTL payments	6.3
Control system costs	1.0
Capital expenditure	16.3
Other operating, maintenance & administration (OM&A) costs	25.9
TOTAL	**68.8**

11.9 The combined 'other operating' and 'capital expenditures' were:

- allocated by location (Darwin, Katherine, Alice Springs, Tennant Creek and other; and

- sorted and filtered to isolate those tasks which are properly Capital, from those which are Operations and Maintenance, and those which involved services outside the revenue cap (streetlighting and relocations).

11.10 The following Table summarises the result:

Operating, Maintenance and Admin	Direct ($M)	Common Services ($M)	Total ($M)	Effect of excluded services	Amount for inclusion
Alice Springs	2.944	2.434	5.378		
Darwin	8.949	7.400	16.349	2.027	14.322
Katherine	1.751	1.448	3.200	Nil	3.200
Tennant Creek	0.536	0.443	0.978		
OM&A Total	**14.180**	**11.725**	**25.905**		

Commission's decision

11.11   Under of the Access Code, the regulator must set a revenue cap having regard to, among other things:

"…the potential for efficiency gains to be realised by the network provider in expected operating, maintenance and capital costs…" (clause 68(c)); and

"…(the degree of) efficient operating and maintenance practices on the part of the network provider…" (clause 69(2)).

11.12   Moreover, para.7(3) of Schedule 6 states that:

"…the operating expenditure to be included in the calculation of a revenue cap is to be based on costs facing an efficient operation in Territory circumstances."

11.13 PAWA provided insufficient information to allow for a detailed assessment of the degree of efficiency factored into its operating, maintenance and administration costs. Among the deficiencies were:

- the data provided was not directly comparable with the operating, repairs & maintenance and administration (overhead) classification required by the Commission;

- it was not clear to what extent the figures provided progress towards the $30 million financial improvement target, or how that target was allocated among PAWA's various lines of business (including networks); and

- it was not clear how the administration (overhead) component was allocated across lines of business or among the various regions.

11.14   Nonetheless, the Commission has chosen to accept the data provided by PAWA for the time being, rather than apply some arbitrary discount factor. The Commission flags that these issues will be closely examined as part of the process to determine the 2000-01 revenue cap (targeted for 31 March 2000) and when setting the X factor for use in determining the 2001-02 cap (by 31 March 2001).

11.15   The Commission agreed to allow PAWA Networks to phase in its targeted efficiencies over a three-year period. This phasing-in approach has been used by other regulators where the adjustment task is substantial.

11.16   The figures used by the Commission for allowable operating costs are as follows:

Location	OMA ($M)
Darwin	14.332
Katherine	3.200

Payments by PAWA for use of the DKTL

11.17   Clause 68(f) of the Code allows a network provider to recover 'reasonable costs' associated with, among other things:

"(ii) the tariffs and charges paid to other network providers irrespective of whether these tariffs and charges are regulated under the Code."

11.18   The extent to which such costs are taken into account is a matter for the Commission under clause 68 of the Code.

Discussion paper proposal

11.19   The Interim Commissioner made no specific proposals, but sought comment and proposals from interested parties.

Submissions by interested parties

11.20   NTP submitted that:

".....PAWA should not be able to include the charges it pays NT Power for transmission services in its operating and maintenance costs, as these are not distribution-related costs and there should be clear ring-fencing between transmission and distribution charges." (p.9)

11.21   PAWA submitted that:

"...principles need to be established for the allocation, between the two networks, of the costs associated with the Darwin to Katherine 132 kV line." (p.8)

and that, in developing these principles:

"...... whatever process is used, it should be capable of being translated to a "regulated" environment should the line ever be "declared" or otherwise become a regulated network." (p.45)

11.22   PAWA proposed that the costs of its contract for the reservation of capacity to deliver power to Katherine, Manton, Pine Creek, and the Channel Island Power Station be met by PAWA Networks and recovered by charges levied against users (including PAWA Generation and other generation/retail pairings) on an apportionment basis which follows user pays principles.

Financial data provided by PAWA

11.23   PAWA provided the following information:

"Payments over recent years have been around $6 M per year, though at the current time there is a "failure to agree" about some aspect of the continuing contract, so that the payment has reverted to the "base" minimum amount of some $4.0 M plus some $1.0 M in operating charges and some $0.25M in profits, for an aggregate amount around $5.25 M."

Commission's decision

11.24   The Commission acknowledges that PAWA (but not necessarily PAWA Networks) must recover the costs of its usage of the DKTL from its customers.

11.25   Rather than being a amount to be recovered through the revenue cap, the Commission considered the matter of the DKTL payments to be one more appropriately recovered by PAWA outside the network caps. This is a matter to be explored more closely as part of the pricing approval process.

CHAPTER
12

REVENUE CAP DETERMINATION

12.1   Based upon the financial data chosen by the Commission, and the determined WACC, the revenue caps applying to PAWA's Darwin and Katherine networks with respect to the April to June 2000 period are determined as follows:

REVENUE CAP DETERMINATION				
$ million		**Darwin**		**Katherine**
Regulated Asset Base	$	210.880	$	34.930
Plus Working Capital	$	5.140	$	0.654
Regulated Capital Base	$	216.020	$	35.584
Return on Capital	$	17.174	$	2.829
Less potential interest income on cash component of Working Capital	$	0.246	$	0.031
Return on Capital (net)	$	16.928	$	2.798
Plus Return of Capital (Annual Depreciation)	$	14.612	$	2.011
Plus Return of Costs (Operations, Maintenance & Administration)	$	14.322	$	3.200
Maximum Allowable Revenue 1999-00	$	45.862	$	8.009
April-June period as % of 1999-00 (based on number of days)		24.86%		24.86%
Maximum Allowable Revenue 1 April to 30 June 2000	$	11.403	$	1.991