



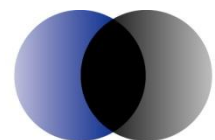
Confidential

Review of Submissions

Comments and
recommendations

Prepared for the Utilities Commission of the Northern
Territory

19 September 2008



ACIL Tasman

Economics Policy Strategy

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ACIL Tasman Pty Ltd

ABN 68 102 652 148

Internet www.aciltasman.com.au

Melbourne (Head Office)

Level 6, 224-236 Queen Street
Melbourne VIC 3000

Telephone (+61 3) 9600 3144
Facsimile (+61 3) 9600 3155
Email melbourne@aciltasman.com.au

Darwin

Suite G1, Paspalis Centrepoint
48-50 Smith Street
Darwin NT 0800
GPO Box 908
Darwin NT 0801

Telephone (+61 8) 8943 0643
Facsimile (+61 8) 8941 0848
Email darwin@aciltasman.com.au

Brisbane

Level 15, 127 Creek Street
Brisbane QLD 4000
GPO Box 32
Brisbane QLD 4001

Telephone (+61 7) 3009 8700
Facsimile (+61 7) 3009 8799
Email brisbane@aciltasman.com.au

Perth

Centa Building C2, 118 Railway Street
West Perth WA 6005

Telephone (+61 8) 9449 9600
Facsimile (+61 8) 9322 3955
Email perth@aciltasman.com.au

Canberra

Level 1, 33 Ainslie Place
Canberra City ACT 2600
GPO Box 1322
Canberra ACT 2601

Telephone (+61 2) 6103 8200
Facsimile (+61 2) 6103 8233
Email canberra@aciltasman.com.au

Sydney

PO Box 1554
Double Bay NSW 1360

Telephone (+61 2) 9389 7842
Facsimile (+61 2) 8080 8142
Email sydney@aciltasman.com.au

For information on this report

Please contact:

Chris Summerfield

Telephone (03) 9604 4430
Mobile (04) 1951 3059
Email c.summerfield@aciltasman.com.au



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1 Introduction

ACIL Tasman has been engaged by the Utilities Commission of the Northern Territory (UC) to review the Power and Water Corporation of the Northern Territory's (PWC) submission to the Networks Pricing 2009 Regulatory Reset.

PWC submitted an Initial Regulatory Proposal and populated the P_0 adjustment factor workbook supplied by the UC. ACIL Tasman has been asked to comment on:

1. The total value of the regulatory asset base as estimated at the commencement of the final year of the second regulatory period;
2. In relation to the rate of return, any proposed departure from a value, method or credit rating level set out in the Commission's "P₀ adjustment factor" MS Excel workbook;
3. The total value of the estimated cost of corporate income tax to Power and Water for the final year of the second regulatory period;
4. The total value of the estimated regulatory depreciation for the final year of the second regulatory period;
5. The total value of the estimated operating expenditure for the final year of the second regulatory period; and
6. The total value of the estimated annual revenue being raised from existing network tariffs during the final year of the second regulatory period.

In assessing whether PWC have complied with the methodology in the P_0 Workbook ACIL Tasman has taken into account several factors: The Price Control Mechanism – Final Decision dated May 2008, the P_0 Workbook which was sent to PWC and the changes that occurred between versions of the P_0 Workbook in response to PWC's requests.

2 Regulatory asset base and regulatory depreciation

In its May Final Decision paper, the Utilities Commission determined that the regulatory asset base to be used for the P_0 adjustment would be rolled forward from the \$350 million initial regulatory asset value determined for July 2002.

2.1 Non-compliance with roll-forward methodology

The Power and Water Corporation did not submit a roll-forward of their regulatory asset base in the P_0 Adjustment Workbook. Instead they submitted a Depreciated Optimised Replacement Cost (DORC) valuation as at 1 July 2007, and a roll forward only for 2007/8 and 2008/9. This value was \$562.3 million as at 1st July 2007, and is 44.5% higher than the Regulatory Asset Base that PWC submitted in its regulatory accounts for 2007.

This was the most material failure to comply with the methodology in the P_0 workbook has been PWC abandonment of the initial Regulatory Asset Base of \$350 million as at 1 July 2002 and PWC's refusal to provide any information which would assist ACIL Tasman or the UC in rolling the Regulatory Asset Base forwards from the previous price control.

ACIL Tasman was able to perform this roll forward using information submitted in past regulatory accounts, making simplifying assumptions to do so. This does not mitigate the fact that PWC performed this analysis themselves and refused to provide it to ACIL Tasman or the Utilities Commission.

The PWC revaluation does not reflect the value in use of assets and if it were included in PWC's financial accounts, it would likely fail a Recoverable Amount Test (RAT) – requiring a write down of the assets. Of course, the RAT is dependent on the prices that Networks receives for use of its assets, and so this is a circular argument where prices are determined by asset value, asset value is determined by profitability, which is determined by prices, etc.

2.2 Use of the DORC valuation

The return on and of the regulatory asset base (RAB) are important elements of the revenue requirement. In particular, the calculation of an allowed return on capital provides a benchmark against which monopoly profits should be assessed.



The intellectual justification for the DORC approach lies in the efficient pricing bounds theorem developed by Baumol and Willig, which set out the principles required for ensuring efficiency in the presence of economies of scale or scope. The bounds are designed to mimic the constraints placed on firms by contestable markets, and state that:

- No price, or set of prices, should exceed the stand-alone costs of providing the service or services, where stand-alone costs are determined as the costs that an efficient competitor would incur in providing just that service or group of services.
- No price, or set of prices, should be less than the incremental (or avoidable) costs of providing the service or services, where incremental costs are the additional costs incurred by the monopolist in providing just that service or group of services.

Thus a DORC asset value (when combined with a cost of capital) provides a measure of the maximum return that a firm would be able to earn in a contestable market. Prices that provide a return above that level create the risk of by-pass, whereby a new entrant with efficiently configured assets could set up and take over the whole of the existing market.

At each price review the DORC valuation is reassessed. Consistent with a contestable market, the benefits of technological improvements are passed through into prices to customers through their impact on the optimised replacement cost of the assets. Likewise assets which become stranded by changes in demand are removed from the asset base as part of the optimisation process.

Line in the sand

However for several infrastructure industries DORC implies prices far above those actually achieved by the service supplier. As a consequence many jurisdictions have used an alternative basis of asset valuation, one that reflects economic value rather than replacement cost. Termed “line-in-the sand”, it sets a pragmatic opening value on the assets for price regulation purposes. The regulatory asset base (RAB) is then “rolled forward” over time according to a simple set of rules which are designed to provide incentives for investment.

The line in the sand approach has been used explicitly for setting prices in utility industries in NSW, Victoria and WA. The method recognises that past expenditures are sunk and are largely irrelevant for efficient decisions regarding usage and future investment. Accordingly, the value attributed to the existing businesses is in essence a cost allocation process driven by questions of equity and acceptability to the stakeholders involved rather than efficiency per se.

Notably, such approaches are typically taken for monopoly network supplies where there is no possibility of competitive supply of services. As a result

there are no adverse implications for allocative efficiency in pricing below the levels implied by DORC.

In the context of rail access pricing, King noted that where the by-pass or contestability rule for stand-alone cost does not apply, the relevant costs (for price ceiling purposes) could be evaluated on whatever basis was seen to be relevant by the regulator¹. This could be the market's assessment of the future value of the businesses in the case of a privately owned utility². In the case of Government owned utilities, where no market values are available, regulators have tended to assess an initial value of the business on the basis of profitability given the existing level of prices.

With respect to usage and investment, the efficiency properties of a line-in-the-sand approach are secured by ensuring that

- All (approved) new investment in infrastructure is “rolled forward” in the RAV over time, and hence is remunerated appropriately by the cost of capital,
- The revenue requirement includes depreciation of the RAV alongside operating and maintenance expenditures, and
- Price structures are regulated to ensure appropriate incentives for usage by customers.

Importantly the initial value is “set in stone” to avoid moral hazard and circularity problems. If the initial value of the existing assets is revised in the light of future changes in prices, then under the building block approach prices depend on the RAB, which depends on prices.

Conclusion on UC approach

The Utilities Commission's approach is consistent with the line-in-the-sand approach used extensively by other regulators within Australia. The initial regulatory base was set by the Commission taking into account financial viability considerations for PWC. In the absence of any likely competition in the provision of regulated network services, there is no compelling argument in terms of economic efficiency for a DORC valuation approach, and equity considerations would favour the initial line-in-the-sand value as determined by the Utilities Commission.

Rolling forward the initial RAB by capital expenditure less depreciation (and disposals) provides appropriate incentives for future investment by PWC. Therefore for the purposes of calculating the P_0 adjustment, the RAB has been rolled forward from the \$350 million value in 2002.

¹ Stephen King, February 1999, “Review of Aspects of the NSW Rail Access Regime”, p3

² To avoid circularity, the assessment of future returns is undertaken on the basis of profitability prior to the introduction of the regulatory regime, and is done only once.

2.2.1 Roll forward of \$350 million RAB

ACIL Tasman calculated a roll forward of the \$350 million asset base, using total asset additions provided in the Regulatory Accounts, and using depreciation rates submitted by PWC and based on SKM assessment. The simplifying assumptions used in this analysis were:

- Asset additions are in the same proportion as the calculated 1 July 2002 asset categories.
- Solver was used to determine the 1 July 2002 asset values subject to:
 - Total must sum to \$350 million
 - Non-negativity constraint
 - Minimising the sum of squared differences between estimated 1 July 2007 asset proportions and the SKM 1 July 2007 asset proportions (i.e. implying that at 1 July 2007 the rolled-forwards RAB asset categories are in the same proportion as the SKM report)
- Regulatory depreciation was calculated as Straight-line nominal depreciation less inflation of opening assets.

The implied asset values at 1 July 2002 with this roll forward are:

Table 1 **Calculated asset values and lives at 1 July 2002**

Asset Class Name	Asset Value as at 30 June 2002 \$,000	Remaining Life at 30 June 2002 Years	Standard Life at 30 June 2007 Years
Building	1,438	41.0	59.0
Civil Works	-	54.0	50.0
Land & Easements	9,289	N/A	N/A
Plant & Equipment	1,642	6.0	5.0
Office Equipment	3,981	7.0	4.0
Communications	1,926	8.0	10.0
Meters	704	64.0	60.0
Small Plant & Equipment	2,353	25.0	27.0
Transformer (66kV & Above)	49,299	32.0	48.0
Transmission Lines	69,858	31.0	51.0
Switchgear	-	0.0	45.0
Switchyard	27,170	29.0	45.0
SCADA	1,319	8.0	10.0
Distribution Substation	18,470	5.0	35.0
LV Reticulation - Overhead	68,024	39.0	55.0
LV Reticulation - Underground	79,901	44.0	60.0
HV Reticulation - Overhead	-	0.0	55.0
HV Reticulation - Underground	-	0.0	60.0
Streetlights	-	0.0	15.0

Other	14,627	40.0	60.0
Total	350,000	33.15	49.88

Remaining lives at 1 July 2002 have not been constrained to be less than or equal to standard lives. This fit the data better, and is because there is no reason to suggest that existing assets were "standard".

Data source: ACIL Tasman calculations

When the assets are rolled forward under this approach the nominal value as at 1 July 2007 is \$417 million. The nominal capital expenditure, regulatory depreciation and closing asset values each year are shown below:

Table 2 **Roll forward of the \$350 million RAB**

\$ thousand, nominal	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09
Opening Regulated Asset Base	350,000	361,553	372,278	377,100	394,885	417,015	458,441
Net capital expenditure	15,078	17,266	11,499	22,385	28,351	44,889	56,582
Regulatory depreciation	3,525	6,541	6,677	4,600	6,220	3,464	2,278
Closing Regulated Asset Base	361,553	372,278	377,100	394,885	417,015	458,441	512,745

Data source: ACIL Tasman Calculations

The impact of using this rolled-forward RAB, rather than the SKM asset valuation is to decrease the opening RAB in 2008/9 by \$147.8 million, or 24%. This reduces the return on assets by a similar percentage.

2.2.2 Back-casting the DORC valuation

The SKM DORC valuation is 44.5% higher than the RAB figures submitted in the regulatory accounts for the year ended 30 June 2007. In order to see what this valuation implies about the asset value at 1 July 2002 ACIL Tasman back-cast the additions and depreciation, and annual inflation of the opening assets, with the following simplifying assumptions:

- Depreciation was calculated through the initial proposed UC model for depreciation
 - Adjusted to include half a year's depreciation on new additions
 - Half a year's return on new additions
 - With an adjustment to show regulatory depreciation as straight-line nominal depreciation less inflation on opening asset balances
- Using SKM remaining asset lives
 - Increased by one for each year back-cast where:
 - Maximum asset life is the standard asset life determined by SKM
- Applying annual capex between asset categories in the same proportion as each category's proportion of total assets noted in the SKM valuation (a simplifying assumption which leads to a small error compared to actual depreciation)
- Using Excel Solver to determine the amount and proportion of the 1 July 2007 opening assets, with the following constraints:

- Total assets at 1 July 2007 equal the SKM valuation
- The sum of the squared differences between the proportion of assets predicted through the model and provided in the SKM valuation is minimised. This ensures the most appropriate allocation to asset classes.

By back-casting the depreciation in the manner, ACIL Tasman determined that the SKM valuation implies an asset valuation of \$476 million in 1 July 2002-36% higher than the \$350 million determined in the Off-Ramp decision.

2.3 Capital expenditure

In its Initial Regulatory Proposal PWC describes its capital improvement plan and the results of moving away from the funding envelope which was self-imposed prior to 2007/8. It seems reasonable that the capital expenditure scheduled for completion in 2008/9 represents a degree of “catch-up” expenditure, although the IRP and discussion with PWC suggest that going forward capital expenditure will continue to be of this magnitude. Table 3 shows the capital expenditure programme over time:

Table 3 **Capital expenditure over time**

	2005/6	2006/7	2007/8	2008/9
Capital expenditure	22.4	28.4	44.9	56.6
Change on prior year (%)		27%	58%	26%

Data source: Power and Water Corporation's Initial Regulatory Proposal, August 2008

It is beyond the scope of this study to undertake an efficiency audit of these past and current capital expenditures. We have some concerns regarding PWC's ability to manage so many projects in one year, although we note that many of these expenditures relate to the continuation of projects which are already underway (for example the activities related to the Ron Goodin Power Station, which represents 30% of planned expenditure). Minor capital works projects represent another 28% of total expenditure, and we have some concerns that these might not all be completed within 2008/9. However, such questions require a full engineering efficiency audit. Consequently, we propose no adjustments to the capital expenditure used for the roll forward.

2.4 Regulatory depreciation

2.4.1 Change in agreed methodology

The P₀ Workbook which the UC initially requested be completed by PWC contained a calculation of depreciation that was consistent with the AER methodology. However, PWC requested that it be allowed to enter depreciation figures which were based on the depreciation of individual assets,

rather than asset categories. Because the proposed PWC method would be more accurate the Utilities Commission changed the P₀ Workbook to allow depreciation to be an input into the model.

When PWC submitted their P₀ Workbook they abandoned the detailed asset calculation, and instead incorporated their own calculation based on asset classes. Their calculation was simply nominal straight line depreciation, did not separate out depreciation on the rolled forward asset base and new additions each year, and did not clearly demonstrate that the calculations were correct and based on nominal asset values. Some small errors were also identified in the PWC calculation.

To check that PWC were using an appropriate methodology, ACIL Tasman re-performed the calculation of straight-line depreciation. In calculating this ACIL Tasman used the SKM valuations of remaining life and standard life, assuming that the remaining life at 2002 was simply five years' higher than the remaining life in 2007. New additions received half a year's depreciation charge, based on the standard life of assets for that category – again from the SKM valuation. This calculation suggested that in their submission PWC were underestimating nominal straight-line depreciation by 16% to 19%.

Offsetting this understatement, the depreciation amounts calculated by PWC were not based on a roll forward of the \$350 million asset base, but instead on the SKM valuation and are therefore overstated. ACIL Tasman has not sought to determine the net impact of these two errors.

2.4.2 Error in the UC Workbook

The appropriate depreciation figure to include in the “Return Of” assets is not nominal straight line depreciation but Regulatory Depreciation, which is nominal straight line depreciation less the holding gain. This error was present in the initial UC P₀ Workbook.

By using the previous UC calculation PWC correctly calculate the movement each year as inflation of opening assets plus additions less depreciation, but in their “Return Of” assets calculation PWC only include the nominal straight line depreciation. This has the effect of compensating PWC for the depreciation of assets, but not reducing compensation by the amount by which the value of the asset has appreciated through the holding gain. The correct treatment (which is consistent with the approach undertaken by the AER) is to calculate Regulatory Depreciation as straight line depreciation less the holding gain.

2.5 ACIL Tasman's calculation of adjustments

ACIL Tasman has made a correction for this and under the \$350 million roll forward RAB the Regulatory Depreciation is \$2.3 million in 2008/9, and it is \$2.56 million in 2008/9 under the SKM valuation. The reason for the approximate equivalence of the two regulatory depreciation figures is that the higher SKM valuation attracts higher depreciation but also higher holding gains, which almost net out.

Of course, with a higher opening Regulatory Asset Base the same cannot be said of the return on capital, which is 24% higher when applying the SKM valuation to the asset base.

The difference between PWC's submission and our calculation of RAB is shown below.

Table 4 **Proposed adjustments to RAB and Regulatory Depreciation**

	ACIL Tasman calculation	PWC Submission	Proposed adjustment to the submission	
			\$'000	%
\$ 000, nominal	2008-09	2008-09	\$'000	%
Opening Regulated Asset Base	458,441	606,242	-147,801	-24%
Net capital expenditure	56,582	56,582	0	0%
Regulatory depreciation	2,278	17,978	-15,700	-87%
Indexation of opening RAB		18,187		
Closing Regulated Asset Base	512,745	663,033	-150,288	-23%

Data source: ACIL Tasman calculations, PWC P₀ Adjustment Workbook

2.6 Return on capital

PWC have applied the Commission's calculation of the rate of return, only changing the debt risk premium from 1.1% to 2%. All parameter values which were fixed by the Utilities Commission have been used by PWC. There are no matters arising from this, although the Utilities Commission will need to update the cost of capital parameters when undertaking the final price determination.

3 Operating expenditure

ACIL Tasman was asked to analytically review PWC's operating expenditure submitted in its Initial Regulatory Proposal. ACIL Tasman was subsequently asked to review the past costs with a view to ensuring that the schedule is accurate and appropriate for analysis of efficiency.

ACIL Tasman has reviewed the actual operating costs submitted by PWC in the P₀ adjustment workbook. PWC included a time series of operating expenses and an explanation of unusual amounts or movements. The costs are shown in Table 5 below:

Table 5 **Regulated Networks operating expenditure - submitted**

\$'000	2004-05 actual	2005-06 actual	2006-07 actual	2007-08 actual	2008-09 estimate
Repairs and maintenance	13,580	12,826	15,285	14,959	18,587
Raw materials & consumables used	584	606	557	450	1,131
Personnel – Direct	12,654	13,446	14,473	16,171	25,417
Cost of Sale	430	547	404	504	-
Operational recovery	-8,460	-7,524	-7,238	-5,798	-15,224
Corporate Overheads	18,936	9,420	11,133	11,132	17,267
External Service Level Agreements	49	68	45	36	72
Professional fees	268	297	345	1,082	227
Other expenses	4,082	5,848	5,306	6,795	8,097
Transfer Pricing expense	266	41	3,643	3,661	1,342
Internal consumption	265	266	274	338	359
TOTAL OPERATING EXPENDITURE	42,654	35,841	44,227	49,330	57,275

Data source: PWC submission - Po ADJUSTMENT MODEL - part of Power and Water's Initial Regulatory Proposal for the 2009-2014 regulatory period.

Below are the brief descriptions which were provided by PWC to explain the movement in these series:

Table 6 **PWC analysis operating costs**

Repairs and maintenance	Increases in labour and materials are forecasted.
Raw materials & consumables used	Increases in commodities prices are forecasted.
Personnel - Direct	Increase in the required number of staff, award salaries and allowance provisions provided for in UCA.
Cost of Sale	The 2008-09 budget is based on the 2007-08 Budget which was calculated prior to the restructure.
Operational recovery	Increase in labour and materials are forecasted due to the increased capital and maintenance programs.
Corporate Overheads	Change in allocation of overheads due to the restructure.
External Service Level Agreements	Increased budget due to the movement of positions due to the restructure.

Professional fees	Unusually high engagement of consultants in 2007-2008.
Other expenses	Increase in market prices generally.
Transfer Pricing expense	Reduction in transfer pricing budget for the 2008-2009 financial year.
Internal consumption	Higher electricity, water and sewerage tariffs.

Data source: PWC submission - Po ADJUSTMENT MODEL - part of Power and Water's Initial Regulatory Proposal for the 2009-2014 regulatory period.

Further explanation was provided for the 2008/9 estimates and these can be found in section 6 of PWC's Initial Regulatory Proposal (IRP) to the Utilities Commission (August 2008). However these explanations were inadequate to explain the 16% increase in total operating costs and the larger movement in individual expenses and so further questions were asked. PWC submitted a response on September 4th, and a follow-up visit was arranged at PWC premises on September 11th.

3.1 Methodology

In general the appropriate methodology was applied by PWC in determining their operating expenditure forecasts for 2008/9. There were some small issues with unidentified costs of Alternative Control Services, but these are unlikely to be material to the overall determination of P_0 .

There were also issues regarding PWC's ability to provide data that were consistent with the data that Meyrick used to derive the X factor adjustments in the previous price control. Generally PWC have undertaken a large exercise in trying to organise its financial processes and improve its financial reporting, but frequent changes to accounting policies, lack of continuity of staff, and a fundamental restructure which occurred in December 2007³, have all meant that PWC are generally not able to produce any time series which is unaffected by some of these effects.

3.1.1 Reconciliations were not accurate

Part of the P_0 Workbook required reconciliation to the financial statements; due to a misunderstanding by the staff member completing this schedule, there were misallocations from the general ledger to cost lines in the model, as well as some costs being excluded because the descriptor was not in the model. The descriptors could have been changes by PWC to fit their ledger system, and better communication would have avoided this issue.

After completion of a visit to PWC on September 11th, these reconciliations remained outstanding, although PWC provided the means by which ACIL

³ When Tech Services were moved into the Networks business unit

Tasman might be able to reconcile these accounts themselves. However, it is much more difficult for ACIL Tasman to predict the mapping of cost lines than it is for PWC to correct their mapping in the P_0 model, and therefore we propose that this is corrected in any subsequent submission by PWC.

3.2 Efficiency adjustment

The forecasts of operating expenditure were significantly higher in 2008/9 than the 2007/8 actual operating expenditure. This is because of the inclusion of Tech Services, which has internalised an estimated loss of approximately \$5 million in the Networks business. A consistent time series which attempts to attribute the Networks proportion of Tech Services' losses was provided to the UC, and through the UC to Meyrick. This series was used to determine an efficiency adjustment parameter for the P_0 model. ACIL Tasman was advised on 23 September 2008 that this X factor is 16.9%.

3.3 Analysis

3.3.1 Impact of the restructure

One event which had a huge impact on the movement in operating costs from 2007/8 to 2008/9 was the incorporation of Technical Services into the Networks business unit. This has significantly increased payroll, allocated corporate overhead and all other costs⁴, with only a small decrease in SLA expenses to compensate. Whether the restructure is appropriate needs to be determined by the Utilities Commission. The following comments are made on the basis that the transfer is allowed, and that it is effected in the regulatory and financial accounts at the beginning of the 2008/9 accounting period.

The restructure actually took place on December 2007, but was not effected in the financial accounts until the 2008/9 financial year. Whilst this does not match the expenses with the physical move, we can understand the accounting complexities avoided by not effecting the move mid-way through a financial year. For accuracy, an adjustment could be proposed to allocated six months' of Tech Services activity to the Networks business in 2007/8, but since this would leave 2008/9 forecasts unchanged this adjustment is not recommended.

A key question was whether the costs of Tech Services should have already been covered by Service Level Agreements (SLAs), Operational Recoveries and Transfer Pricing with the other PWC business units. If so, Tech Services should have been making a profit in the past (or at least breaking even).

⁴ By as much as 50% for payroll and allocated corporate overhead

Instead, it is clear that the SLAs were inadequate for cost recovery and that Tech Services often made a loss, as shown in Table 7 below.

Table 7 **Unfunded loss in Tech Services 2004/5 to 2008/9**

\$'000	2004/5	2005/6	2006/7	2007/8	2008/9
Unfunded loss	2,053	763	0 ^a	3,197 ^b	0 ^c

^a 2006/7 loss was allocated to business units at the end of the financial year

^b Prior to 2007/8 Tech Services provided services to other business units. Half way through 2007/8 staff and assets not related to Networks (and some System Control) were allocated out to other business units, meaning that for half of 2007/8 Tech Services' costs related only to Networks (and some System Control).

^c 2008/9 all losses are now internalised within Networks

Data source: Power and Water Corporation Technology Services Annual Comparatives at posting level

Now that Tech Services is incorporated within Networks, Networks no longer pays the SLA charge from Tech Services. However, it must fund all the operations of Tech Services which were previously not covered by the Service Level Agreement – the unfunded loss within Tech Services. The loss is now internalised to the Networks business unit and this has led to an increase in costs for Networks. As a result of the restructure, Networks has reduced costs by the SLA revenue attributable to Tech Services, but it has increased costs by the whole of Tech Services' costs – the net effect will be an increase in Networks' costs equal to the unfunded loss in Tech Services.

In order to understand the impact of the re-structuring for the level of costs attributed to Regulated Networks in 2008/9, it is necessary to estimate the annual shortfall between Service Level Revenue and the costs of the Tech Services business unit. This shortfall will be the amount by which we could expect Networks' costs to increase as a result of incorporating Tech Services. This is equal to the unfunded loss in Tech Services which will now be internalised in the costs of the Networks business unit.

If the revenues of Tech Services increase by CPI to approximately \$6.1 million (2007/8 actual was \$5.9 million), and costs increase to reflect both inflation of 3.4% and a 26% increase in activity (growth in capex to 2008/9), costs would increase from approximately \$9.1 million in 2007/8 to \$11.8 million in 2008/9. This could mean that the loss in Tech Services and the consequent increase in the operating costs of Networks could be as much as \$5.75 million in 2008/9. Alternatively, if 2007/8 costs were simply multiplied by 3.4% inflation the estimate costs would be \$9.4 million and a consequent loss of \$3.3 million. Therefore costs have increased in the Networks business by between \$3.3 million and \$5.75 million purely as a result of this restructure.

3.3.2 Errors resulting from restructure

In looking at the movement of Tech Services into the Networks business, some small errors were identified, such as the inclusion of Tech Services



employees who were working on System Control in the 2008/9 forecasts. Correcting this reduces the 2008/9 operating expense attributed to Regulated Networks by \$500,000.

3.3.3 Other increases in costs

The IRP explained the reasons for a number of other increases in costs. These have been discussed with PWC staff and supporting documents have been provided. Generally, PWC has forecast higher than inflation increases in the costs of labour and materials. The recent Union Collective Agreement provides some support for increased per capita payroll costs, and other costs have been agreed to supporting analysis.

3.3.4 Debt raising costs

PWC included in the P₀ workbook \$295,000 of costs related to the costs of raising debt. Such costs are allowed in the building blocks calculation by the AER. However, the cost of this item is driven by the WACC – because this has been revised downwards, the cost of raising debt has also fallen by \$72,000. An adjustment has been proposed to reduce these costs in 2008/9.

3.4 Summary of adjustments

Table 9 sets out the material adjustments proposed to the 2008/9 submission of operating costs.

Table 8 **Proposed adjustment to operating cost**

\$'000 nominal	2008/9	
Other expenses	-71.8	Adjustment to remove debt-raising costs from opex ⁵
Personnel - Direct	-500.0	Removal of costs related to system control ⁶
Total Adjustments	-571.8	-1% of total operating expenses

Data source: Adjustments proposed to correct errors identified in PWC submission

ACIL Tasman has also been informed that the efficiency X factor which will apply to the Power and Water Corporation in the next regulatory period will be 16.9% per annum. Assuming the adjustments in Table 8 above are put through as well, this would indicate a further reduction in operating expenses in 2008/9 of \$9.633 million, leaving operating expenses of \$47.365 million.

Table 9 **Adjusted operating cost**

\$ million, nominal	2008/9	
Submitted opex	57.570	From P ₀ Workbook submitted by PWC
Adjustments	-0.572	On accuracy grounds
"Cleansed" opex	56.998	
Efficiency adjustment	-9.633	16.9% efficiency adjustment
Final opex	47.365	

Data source: Adjustments proposed to correct errors identified in PWC submission

⁵ Debt-raising costs are dealt with through the Weighted Average Cost of Capital

⁶ Per discussion with PWC's finance team, some technical services employees (and related expenses) related to System Control were not disaggregated from Tech Services when it was transferred to Networks.

4 Estimated revenue

4.1 Forecasting methodology

As with costs there were some small issues identified with Alternative Control Services revenues being recorded as Standard Control Services. Generally, the impact of this error is not material to the determination of the P_0 , although it may be material to the determination of prices for Alternative Control Services.

Otherwise, the methodology applied in determining the estimated revenue was consistent with the UC's Final Decision paper.

4.2 Analysis

Power and Water Corporation estimates that its sales revenue in 2008/9 will be \$75.9 million. This forecast is based on the Networks Transfer Pricing Model – a model used by PWC to forecast intercompany charges. For the past history it would have been more appropriate to use actual revenue rather than revenue per a forecast model.

We note that by reviewing the past two years' history one can see that the network pricing model has consistently under predicted the sales revenue attributable to Regulated Networks. Although we are led to believe the model is in nominal terms, the extent of the under prediction seems to approximate one year's movement in the CPI index.

Table 10 **Comparison of actual and forecast revenues in Networks**

	2006/7	2007/8	2008/9
Regulated - Non contestable	54,268	56,215	58,264
Regulated – Contestable	16,365	17,110	17,674
Total - Regulated Networks	70,634	73,325	75,938
Actual - Regulated Networks	72,873	77,457	
Difference	3.2%	5.6%	

Data source: Networks Transfer Pricing Model

An analysis carried out by the Utilities Commission and provided to ACIL Tasman provides a relatively accurate predictor of PWC's past sales revenue, and this indicates a possible understatement of PWC's revenue of \$3.9 million for 2008/9. The calculation of this adjustment is shown in Table 12 below. We do not expect revenue to be declining over time, particularly with the strong growth predicted by PWC. Consequently we consider it appropriate to adjust PWC's revenue forecast to increase it by \$3.9 million.

The overall impact of this adjustment on estimated revenue is shown below"

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Table 11 **Adjustment to revenue**

	2008/9
Original estimated revenue	\$76,034
Adjustment	\$3,860
Adjusted estimated revenue	\$79,893

Data source: IRP from Power and Water Corporation, proposed adjustments

Table 12 **Comparison of sales revenue predictions**

	2004/5	2005/6	2006/7	2007/8	2008/9 forecast
Pricing parameters					
Po	4.40%	(11.80%)			
X1	1.75%	1.75%	1.75%	1.75%	1.75%
X2	0.25%	0.25%	0.25%	0.25%	0.25%
X3	0.00%	0.00%	0.00%	0.00%	0.00%
CPI	2.77%	2.34%	2.67%	3.54%	2.33%
CPI-X+Po price path	5.17%	-11.46%	0.67%	1.54%	0.33%
Actual price cap index	103.569	92.134	92.699	94.060	94.329
Annual growth in price	5.15%	-11.04%	0.61%	1.47%	0.29%
Growth Parameters					
GWh	1,418	1,449	1,475	1,520	1,562
Annual growth in quantity	1.2%	2.2%	1.8%	3.1%	2.8%
Revenue predictions					
Predicted revenue path	79,503,892	72,312,162	74,033,292	77,424,719	79,797,133
Annual growth in revenue	6.4%	-9.0%	2.4%	4.6%	3.1%
Actual revenue path	78,920,809	71,903,837	72,671,316	77,475,000	
Difference from prediction	-0.7%	-0.6%	-1.8%	0.1%	
2008/9 estimated revenue per the IRP					75,937,558
IRP difference from prediction					-3,859,575
% difference					-5%

Data source: Revenue model provided by the Utilities Commission

5 Conclusion

Using the P_0 Adjustment Workbook and making the adjustments identified above, ACIL Tasman calculates the appropriate P_0 adjustment to be 23.03%. This takes into account the operating cost efficiency adjustment advised by the Utilities Commission.

The key factors producing this revision to the P_0 adjustment are shown below:

Table 13 **Building blocks components**

\$'000 Nominal	2008/9	2008-09
	Submitted	Adjusted
Return on Opening Capital	63,334	47,894
Return on New Capital	1,989	1,992
Return of Capital (Depreciation)	17,978	2,278
Operating Expenditure	57,570	47,365
Total 2008-09 required revenue	140,871	99,528
Estimated revenue	76,034	79,893
P_0 adjustment	85.28%	24.58%

Data source: PWC submission and ACIL Tasman adjustments

The specific adjustments and their impact on the P_0 are shown below:

Table 14 **Impact of adjustments**

	\$' 000	P_0	Adjustment
Estimated revenue	76,034		
Original required revenue	140,871	85.28%	
Return of Capital (Depreciation)	-18,187	-23.92%	Adjustment for UC error in regulatory depreciation
Corrected required revenue	122,684	61.36%	
Operating Expenditure	-500	-0.66%	Removal of system control expenses
Operating Expenditure	-72	-0.09%	Adjustment to debt financing costs resulting from change in RAB
Operating Expenditure	-9,633	-12.67%	Efficiency adjustment
Return on Opening Capital	-15,441	-20.31%	Adjustment of RAB to reflect \$350 million valuation at 1 July 2002
Return of Capital (Depreciation)	2,490	3.27%	Adjustment to regulatory depreciation on revised asset base
Estimated revenue	-3,860	-6.32%	Increase in estimated revenue
Recommended P_0		24.58%	

Data source: ACIL Tasman calculations