



strata

Review of Transpower's Capital Expenditure Plans

**(Asset Replacement, Refurbishment
& Enhancement and Information
Services & Technology)**

For: The Commerce Commission

June 2009



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Strata would like to thank Transpower management and staff for their cooperation and patience in producing the detailed information required for this review. We would like to acknowledge the positive manner in which Transpower has engaged with us during the review process.

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Executive Summary

The key purposes of this review are to:

1. Confirm that Transpower has conformed to the terms of the May 2008 Settlement Agreement (Settlement Agreement) section relating to capital expenditure on Replacement, Refurbishment, Enhancement and Development¹ (RRE), and Information Services & Technology (IST) for 2009/10. This follows on from the reviews of Transpower's 2007/08 and 2008/09 plans undertaken by Strata in the previous two years.
2. Provide advice to the Commission on the appropriateness of the use of Transpower's draft 2009/10 Business Plan as a threshold for capital expenditure.

We have been asked to provide advice to the Commission on Transpower's compliance with the terms of the Settlement Agreement and if it is considered that there are any areas of non compliance, provide advice on any adjustment that would be appropriate to the proposed thresholds for the 2009/10 financial year. The review excludes expenditure requiring approval under Part F of the Electricity Governance Rules (EGR)² or capital expenditure that is required for Transpower to perform its obligations under the System Operator Service Provider contract³. Also excluded is capital expenditure undertaken under bilateral agreements (Customer Contracts) between Transpower and its customers.

Strata has completed a review of the information provided by Transpower. The relevant requirements and Strata's view of the level of compliance with each is provided in the table below:

Compliance requirement	<i>Strata's comment</i>
1. The levels of contingency included in the project budgets have been established so that they are no more than 7.5% for IT and 0% for replacement, refurbishment, minor development and enhancement expenditure.	<p><i>Transpower has advised that Draft Business Plan capital expenditure for RRE contains no contingency sums. Transpower has advised that Draft Business Plan capital expenditure for IST includes a 6% contingency.</i></p> <p>Strata confirms that Transpower has complied with this requirement</p>

¹ This is enhancement and development capital expenditure that is not submitted by Transpower to the Electricity Commission for approval under Part F of the EGRs and is therefore intended to fall within the Commerce Commission Threshold.

² Electricity Commission approval for capital expenditure as provided under Part F of the Electricity Governance Rules and Regulations

³ Transpower performs the System Operator functions under a service provider contractual arrangement with the Electricity Commission.

Compliance requirement	<i>Strata's comment</i>
<p>2. The expenditure forecasts have been prepared in accordance with Transpower's capital works and IT planning processes and policies.</p>	<p><i>No breaches in RRE or IST planning processes and policies have been identified in the material considered.</i></p> <p>Strata confirms that Transpower have complied with this requirement in respect of the projects approved. However, given 71% of IST and 54% (by value) of RRE projects have not yet been approved Strata cannot confirm that Transpower has met this requirement for the overall 2009/10 Business Plan. Whilst the capital works and IT planning processes do not require that all projects have achieved full approval at the business planning stage, the level that have not been approved indicates that many have not completed stages of the processes.</p>
<p>3. Transpower's processes have considered and targeted appropriate least-cost, efficient, interventions.</p>	<p><i>Since the 2008/09 Review Transpower has taken a number of steps forwards in targeting appropriate least-cost, efficient, interventions. A key step by RRE is the strengthening of project planning and management capabilities. The change in the IST Business Planning Process is expected to improve the management and planning of capital expenditure. However it is not entirely clear whether this and other interventions made will result in capital expenditure savings. A key aspect, which in Strata's view remains missing, is the setting and monitoring of specific capital expenditure reduction and containment targets.</i></p>
<p>4. Transpower has proactively pursued and implemented process improvements and delivered on commitments made to review the scope for improvement to its non-Part F capital works processes around (a) procurement audit, (b) review of open book tendering for R&R, and (c)</p>	<p><i>Transpower has reviewed the applicability of open-book tendering for RRE capital expenditure. IST has confirmed the projects undertaken have been compliant with Rules for Procurement Policy. We understand that in respect of RRE capital expenditure, Transpower has continued to rely on the</i></p>

Compliance requirement	<i>Strata's comment</i>
PAD templates.	<i>WD Scott 3 yearly audit cycle to establish compliance, which Strata considers to be inadequate. Also Strata is not aware of improvements made specifically to PAD templates.</i>

Strata considers that Transpower has not fully complied with requirements 2, 3 and 4. This report discusses the areas where Transpower is considered to be non compliant and provides advice on adjustments that it is considered appropriate to make to the proposed 2009/10 thresholds. In particular, Strata considers that adjustments must be made to take into account the likely gains that can be achieved as currently unapproved projects pass through validation and approval stages.

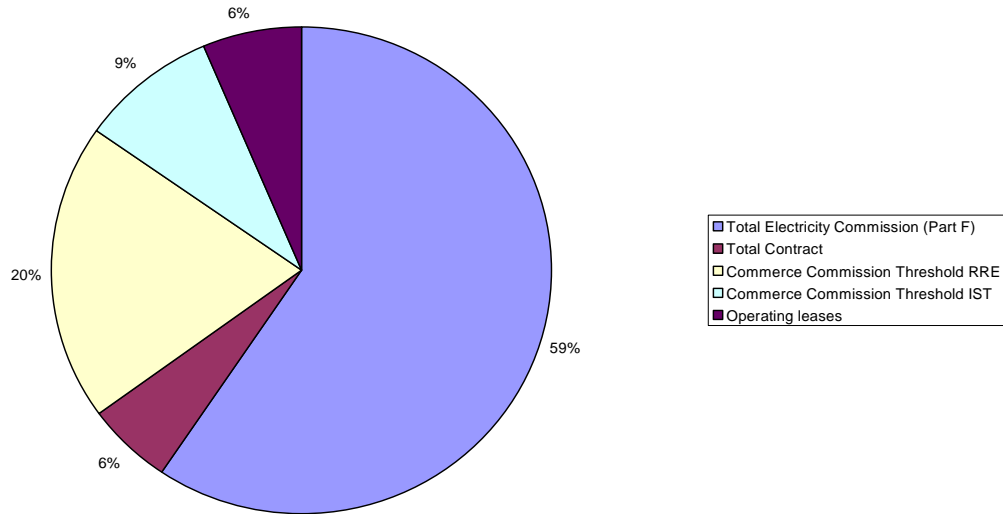
Schedule 2 clause C (ii) of the Settlement Agreement requires that Transpower will make available to the Commission a schedule that shows, for non Part F capital expenditure projects completed in the second half of the calendar year before the commencement of the assessment period (July to Dec 2008), a comparison of actual expenditure in that second half versus budgeted expenditure for that second half. Reasons for variations are to be provided for projects that have exceeded 10% of budgeted costs.

For RRE Transpower has provided information on projects completed in the second half of the calendar year. However, it is surprising that only 24 projects were completed in a six month period. On the basis that the information provided by Transpower is correct, Strata considers that Transpower has met the requirements of Schedule 2 clause C (ii) of the Settlement Agreement and that no significant concerns have arisen from Strata's review of the information provided.

For IST, Strata has examined data for projects completed during the period from July 2008 to January 2009 at a detailed project level. However as the total spend on the 19 projects completed was just \$220,000 they were not considered material and Strata has not taken steps to investigate further.

2009/10 Draft Business Plan

Transpower's Draft Business Plan total capital expenditure for 2009/10 is shown in the chart below. It can be seen that, whilst Part F makes up the largest proportion of Transpower's capital expenditure, 41% of the total capital expenditure spend falls outside the Electricity Commission approval process.



Comparison of 2008/09 and 2009/10 capital expenditure

Total (\$ millions)	2009/10	2008/09
Total Electricity Commission (Part F)	\$351	\$211
Total Contract	\$33	\$53
Commerce Commission threshold		
RRE	\$116	\$98
IST	\$53	\$66
Operating leases	\$41	\$40
Total threshold	\$210	\$204
Total Non Threshold Non Part F	\$0	\$31
Total Capital expenditure	\$593	\$498

The approach taken in this review has been to build on the reviews undertaken in previous years. The information gained from three years actual performance has enabled a wider view to be taken.

The approach taken this year has been structured in three steps:

1. Review actual performance against thresholds and account for material variations
2. Identify and assess improvement initiatives developed and implemented
3. Assess the 2009/10 RR&E and IST Business Plans as appropriate thresholds.

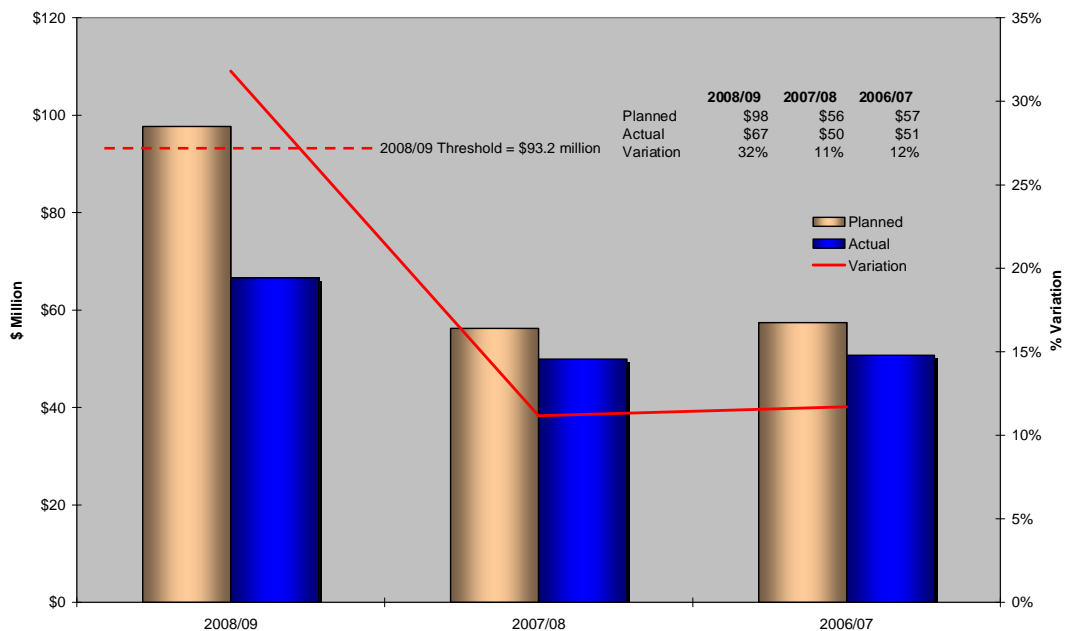
During the development of the Business Plan Transpower introduced projects that it has classified as 'Accelerated Infrastructure'. These projects have been brought forward into the 2009/10 Business Plan in response to the changing economic conditions. Accelerated Infrastructure projects account for 16% (\$18.6 million) of the 2009/10 RRE budget. Transpower has provided a cost benefit analysis to support the inclusion of these projects in the 2009/10 Business Plan.

Review of actual performance against thresholds

Replacement Refurbishment and Enhancement Capital Expenditure

The 2008/09 Business Plan for RRE capital expenditure at \$97.7 million was a 74% increase on the 2007/08 Business Plan figure. However this figure represented a 94% increase above the actual expenditure achieved in 2007/08. This was a significant increase in workload for both Transpower and its contractors.

The figure below provides Transpower's forecast year end actual performance against the 2008/09 Business Plan. It should be noted that the 2008/09 actual figure is Transpower's January forecast year end out turn.



Comparison of forecast year end actual vs planned RRE expenditure

The RRE component of the 2008/09 threshold recommended by Strata in its previous review report was \$93.2 million. The forecast year end actual expenditure of \$66.6 million is 29% below the threshold.

An area of concern highlighted in this year's review is the widening variation between plan and actual expenditure.

Transpower provided a spreadsheet containing a summary of project expenditure against Business Plan for 2008/09. The following points were noted from the data. For the 2008/09 year (based on the January 2009 year end forecast) out of 784 projects:

- 432 were underspent against budget;
- 268 projects (34%) did not have a budget (e.g. had not gained approved status);
- 18 were on-budget;
- 332 were over-budget;
- 286 projects (52% of those with a budget) were more than 10% under budget); and
- 90 projects (18% of those with a budget) were more than 10% over budget).

The accuracy of the Business Plan is critical to the establishment of reasonable thresholds and a low level of approved projects in the Business Plan significantly increases the risk the Business Plan will not reflect actual expenditure outcomes. This low level of project approvals in the 2009/10 Business Plan was a key factor considered when assessing the Business Plan as an appropriate threshold.

Information Systems Technology Capital Expenditure

Forecast year end actual vs planned IST expenditure (excl capitalised lease costs)

\$ millions	2008/09			2007/08			2006/07		
	Bus Plan	Forecast	Variance	Bus Plan	Actual	Variance	Bus Plan	Actual	Variance
Planned	66.2	33.9	-32.3	31.2	25.5	-5.7	29.5	16.1	-13.4
Rollover		2.9	2.9		1.7	1.7		0.5	0.5
Unplanned		5.1	5.1		5.1	5.1		3	3
Total	66.2	41.9	-24.3	31.2	32.3	1.1	29.5	19.6	-9.9

The table above sets out IST threshold capital expenditure (excluding capitalised operating leases) over the current 2008/09 year and preceding 2 years, according to whether it was planned, rolled over from the previous year, or unplanned. The forecast outturn for the 2008/09 year is as at March 2009.

The table reflects a steady increase in the level of actual (as distinct from planned) annual IST threshold capital expenditure spend over the 3 years to June 2009. Key points to note are:

- the 07/08 actual was an increase of 65% over 06/07;

- the 08/09 (forecast) actual is a 30% increase over 07/08;
- the (forecast) actual spend for 08/09 is more than double that of 06/07; and
- the Business Plan spend in 08/09 is more than double either of the preceding two years.

The IST component of the 2008/09 threshold recommended by Strata in its previous review report was \$109.6 million. As shown in the table below the forecast year end actual expenditure of \$41.9 million plus \$15.7 million in capitalised operating leases is 47% below the threshold.

IST Threshold Compliance Evaluation 2008/09	
TNP & Grid Related IST Capex (forecast year-end)	41.9
Capitalised Operating Leases (forecast year-end)	15.7
Total	57.6
Recommended IST Threshold	109.6
Percentage Under Threshold	47.4%

Data on the forecast outturn for the full FY08/09 year as at January 2009 indicates that out of 207 projects:

- 97 projects (47%) did not have budgets;
- 73 projects (35%) were forecast to be underspent against budget;
- these 73 projects were \$35.7m under budget of which \$30.3m related to TNP;
- 116 (56%) projects were forecast to be over-budget;
- in total the 116 over budget projects were forecast to be over budget by \$19.6m, of which \$11.2m related to TNP and \$8.2m to Real-time & Stations;
- 18 (9%) projects were on budget;
- 70 (34%) projects were more than 10% under budget;
- 111 (54%) projects were more than 10% over budget.

Where higher than budgeted spend is forecast to occur on individual projects the key reasons were:

- additional costs / incorrect costing (approximately 42%); and
- project rollovers from the previous year (approximately 17%).

As at January 2009 the forecast overspend on projects over budget was \$19.6m which was more than offset by projects where the spend in 2008/09 was forecast to be less than budget by a total of \$35.7m.

As discussed in the RRE section above the accuracy of the IST Business Plan is critical to the establishment of reasonable thresholds. The relatively low level of approved projects in the Business Plan significantly increases the risk the Business Plan will not reflect actual expenditure outcomes. This low level of project approvals in the 2009/10 IST Business Plan was a key factor considered when assessing the IST Business Plan as an appropriate threshold.

Assessment of the 2009/10 RRE and IST Business Plans as appropriate thresholds

A key function of Strata's Review is to form a view and recommend to the Commerce Commission whether the Draft Business Plan figures for RRE and IST should be accepted as an appropriate base on which to calculate a threshold and to consider what discount(s) should be applied in calculating it.

The approach taken considers the policies, processes and practices of Transpower with respect to capital expenditure on RRE and IST and considers their appropriateness and effectiveness in achieving the least-cost objective set out in the Government Policy Statement⁴ and in Transpower policy documents⁵.

A full technical review of individual projects has not been undertaken.

The nature of this review is to consider where improvements can be made. It is important for the reader to recognise that this report is not intended to present a balanced review of Transpower's performance and as such does not provide detailed information on the areas in which Transpower performs well. The focus we have maintained on areas for potential improvement may create a negative impression of Transpower's overall performance. This is not our view and we acknowledge the highly professional manner in which Transpower undertakes its business.

Threshold for RRE Capital Expenditure

Key factors Strata has taken into account are:

- the recent rigorous project by project review of the draft Business Plan by the CEO and senior management which reduced the previous Plan figure for RRE threshold capital expenditure by \$2.0m (2%). Given this was in addition to the processes already applied Strata considers it is reasonable to now assume the planned projects:
 - are essential to maintaining the performance of the Grid

⁴ Government Policy Statement on Electricity Governance, May 2009.

⁵ In focusing on the least-cost objective Strata is not suggesting this should be achieved at the expense of meeting other objectives set out in the Government Policy Statement. Strata regards the 'least-cost objective' and 'minimising the whole of life costs' as synonymous. The quantum and timing of capital expenditure is directly relevant to achieving least cost. It is considered that this view is consistent with the Government Policy Statement.

- reflect an economically justifiable and efficient package
 - are achievable in the context of the skills and resources available to Transpower;
- the top (by value) 16 projects included in the 2009/10 Business Plan have been reviewed by Strata. These projects account for 33% of the total RRE planned spend for 2009/10. It is considered that all 16 of the projects can be considered to be required to maintain the future performance of the transmission assets. However, Strata considers there is a reasonable possibility that the two metering projects will not be undertaken in 2009/10;
- Strata is of the view that gains of 2.5% on the Business Plan should be possible through efficiency gains. It is considered that the benefits achievable from improvements in Transpower's policies and processes have not been fully included in the Business Plan. Whilst our assessment can be considered to be subjective, we consider that the 2.5% is a relatively conservative adjustment. An adjustment of 2.5% is recommended to the Business Plan to reflect the potential efficiency gains;
- as 54% (by value) of the projects in the Business Plan have not yet been approved, an opportunity remains for further savings to be made as the rigour of the validation and approval process is applied. Strata considers that reductions of approximately 5% should be achievable however, it is acknowledged, that this is a subjective view and it is therefore necessary to take a cautious conservative approach. Strata considers it would be reasonable to apply an additional downwards adjustment of 2.5% to the unapproved projects included in the Business Plan to take into account of likely cost reductions derived through the validation and approvals process;
- Strata has also considered whether to adjust the Business Plan figure downwards because of underperformance against budget. The forecast actual outturn for 08/09 is expected to be 32% under budget and in the preceding two years was 11% and 12% under. Strata is not recommending a downwards adjustment because, in our opinion, the Business Plan review by the CEO and senior management means that the projects in the Business Plan should be regarded as essential, justifiable and achievable. However, consistent with the experience in previous years some rollovers will inevitably arise. Strata recommends an average adjustment across RRE and IST of 6% to take into account expected rollovers into the 2010/11 financial year; and
- in respect of the Accelerated Projects, Strata has concluded that Transpower's case has not demonstrated a clear net

tangible benefits. However, the intangible benefits arising from smoothing resource requirements and reductions in unit costs are likely to be realised and there is a reasonable likelihood that the non-quantifiable benefits will outweigh the costs. Strata considers that the Accelerated Projects should be allowed in the Threshold for 2009/10 without adjustment.

Strata therefore considers it is appropriate to use Transpower's Draft Business Plan figure of \$116m as a basis to establish a threshold component for RRE capital expenditure, subject to the figure being adjusted to reflect:

- non-approved projects subject to an additional adjustment of 2.5%;
- all projects subject to a 2.5% efficiency factor adjustment; and
- An adjustment to reflect rollovers into 2010/11 of 6%.

Adjusting the Draft Business Plan figure on this basis would result in a threshold component for RRE of \$ 104.8m.

Threshold for IST Capital Expenditure

A key function of Strata's Review is to form a view and make a recommendation to the Commerce Commission regarding whether the Draft Business Plan figures for IST should be accepted as an appropriate base from which to calculate a threshold and to consider what discount (if any) should be applied in calculating it. Key factors Strata has taken into account are:

- the recent rigorous project by project review of the draft Business Plan by the CEO and senior management. This reduced the previous Plan figure for IST threshold capital expenditure by \$12.4m (19%). Given that this was in addition to the processes already applied, and achieved such a significant reduction, Strata considers it is reasonable to now assume the planned projects:
 - are essential to making the contribution required of IST in order for Transpower to maintain the performance of the Grid
 - reflect an economically justifiable and efficient package
 - are achievable in the context of the skills and resources available to Transpower;
- however, Strata is of the view that efficiency gains of 2.5% should be possible. An adjustment of 2.5% is recommended to the Business Plan to reflect the potential efficiency gains;
- also as just 29% of the projects in the Business Plan have been approved, an opportunity remains for further savings to be made as the rigour of the approval process is applied.

Strata considers a reduction of approximately 5% should generally be achievable as a result of this process. However, it is acknowledged this is a subjective view and, because of this, it is necessary to take a conservative position on the gains available. In the light of these factors, Strata considers an additional downwards adjustment of 2.5% to the unapproved projects included in the Business Plan would be reasonable to take into account likely cost reductions derived through the validation and approvals process;

- Strata has also considered whether to adjust the Business Plan figure downwards based on previous underperformance against budget given the actual outturn for 08/09 is expected to be just 54% of budget. The logic for such an adjustment is that, if Transpower has demonstrated a consistent and significant underperformance against budget, then a threshold calculated without any adjustment would arguably place no pressure on Transpower to achieve the least-cost objective. Indeed, IST is forecast to underperform by 46% in 08/09 and underperformed by 53% in 07/08. However, despite this, Strata is not recommending a downwards adjustment because, as discussed immediately above, the Business Plan review by the CEO and senior management means that the projects in the Business Plan should be regarded as essential, justifiable and achievable. However, while Strata's expectation is for significantly better performance against the budget in 2009/10, some rollovers will inevitably arise. Strata is recommending a 6% downward adjustment to take into account expected rollovers into the 2010/11 financial year;
- as noted last year little (if any) assumption of benefit from Vendor & Procurement Management function appears in the Draft Business Plan whereas it should now be beginning to have an impact. This is still our view for 2009/10; and
- Strata understands that Transpower conservatively calculates project costs on the basis that it may have to meet the entire costs itself, even where there is potential for costs to be shared. Strata has considered whether the potential for cost sharing arrangements with third parties should be reflected in a discount being applied. Strata considers that whilst very significant gains have been made in the past, the level economic uncertainty may constrain these opportunities as businesses defer major capital expenditure. Strata therefore does not recommend a discount is applied in anticipation of third party cost-sharing. We note that in the absence of a discount in previous years that IST has, nevertheless, put significant effort into achieving significant cost- savings.

On this basis, we therefore consider it would be appropriate, if using Transpower's Draft Business Plan figure of \$93.6m as a basis to establish

a threshold for IST capital expenditure, the following adjustments are made:

- non-approved projects subject to an additional adjustment of 2.5%;
- all projects subject to an efficiency factor adjustment of 2.5%; and
- an adjustment to reflect rollovers into 2010/11 of 6%.

Adjusting the Draft Business Plan figure on this basis would result in an IST threshold component of \$ 84.8m.

Combined threshold

It is therefore considered appropriate to use Transpower's Draft Business Plan figure for the combined Refurbishment Replacement and Enhancement and IST capital expenditure of \$209.6m as a basis to establish a cap on capital expenditure, and for that amount to be reduced to a threshold of \$189.6m.

Strata considers that an appropriate threshold for the 2009/10 financial year would be \$189.6 million.

1. Introduction

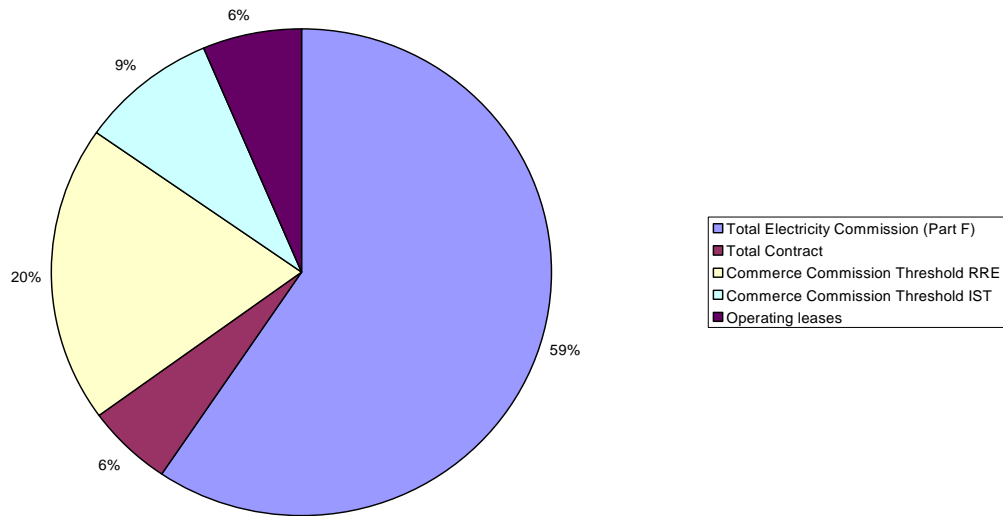
1. Following on from the reviews of Transpower's 2007/08 and 2008/09 plans undertaken by Strata in the previous two years the key purposes of this review are to:
 - confirm that Transpower has conformed to the terms of the 12th of May 2008 Settlement Agreement (Settlement Agreement) section relating to capital expenditure on Replacement, Refurbishment, Enhancement and Development⁶ (RRE), and Information Services & Technology (IST) for 2009/10; and
 - provide advice to the Commission on the appropriateness of the use of Transpower's draft 2009/10 Business Plan as a threshold for capital expenditure.
2. Under the Settlement Agreement Strata's review is required to assure the Commission that:
 - the levels of contingency included in the project budgets have been established so that they are no more than 7.5% for IT and 0% for replacement, refurbishment, minor development and enhancement expenditure;
 - the expenditure forecasts have been prepared in accordance with Transpower's capital works and IT planning processes and policies;
 - Transpower's processes have considered and targeted appropriate least-cost, efficient interventions; and
 - Transpower has proactively pursued and implemented process improvements and delivered on commitments made to review the scope for improvement to its non-Part F capital works processes around (a) procurement audit, (b) review of open book tendering for R&R, and (c) PAD templates.
3. This report also considers the variations between actual expenditure and both the Business Plan and threshold for the 2008/09 financial year. The knowledge gained of the drivers causing the variations was applied when considering the appropriateness of the 2009/10 Business Plan as a threshold.
4. The review excludes capital expenditure that Transpower submits to the Electricity Commission for approval under Part F of the Electricity Governance Rules (EGR)⁷ customer contracts or capital expenditure

⁶ This is enhancement and development capital expenditure that is not submitted by Transpower to the Electricity Commission for approval under Part F of the EGRs and is therefore intended to fall within the Commerce Commission Threshold.

⁷ Electricity Commission approval for capital expenditure as provided under Part F of the Electricity Governance Rules and Regulations.

required in relation to the System Operator Service Provider Agreement between Transpower and the Electricity Commission⁸.

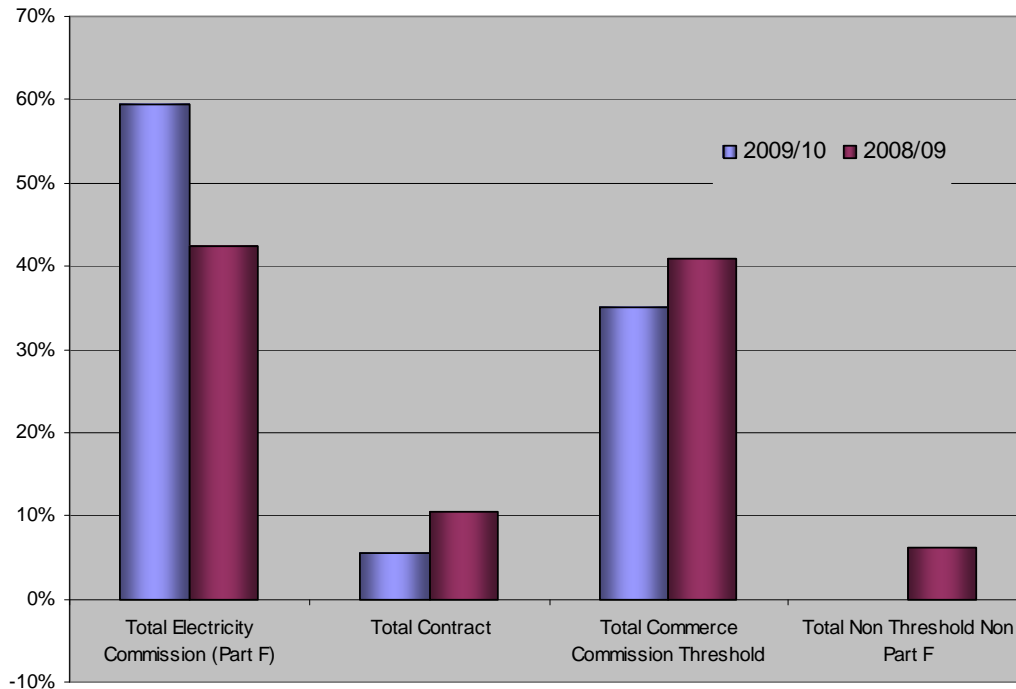
5. This review follows on from reviews of Transpower's capital expenditure in these areas that was completed by Strata in 2007 in respect of the 07/08 financial year and in 2008 in respect of the 08/09 financial year. This review has taken a consistent approach to the previous reviews and builds on that work.
6. As shown in the graphic below, whilst Part F makes up the largest proportion of Transpower's 2009/10 budgeted capital expenditure, 41% of the total capital expenditure spend falls outside the Electricity Commission approval process. Of the total capital expenditure, 35% falls under the Commerce Commission threshold.



7. The graphic below provides a comparison between the main components of the Business Plan capital expenditure for 2008/09 and 2009/10.

⁸ Transpower performs the System Operator functions under a service provider contractual arrangement with the Electricity Commission.

Relative proportions of capital expenditure components



Comparison of 2008/09 and 2009/10 capital expenditure

Total (\$ millions)	2009/10	2008/09
Total Electricity Commission (Part F)	\$351	\$211
Total Contract	\$33	\$53
Commerce Commission threshold		
RRE	\$116	\$98
IST	\$53	\$66
Operating leases	\$41	\$40
Total threshold	\$210	\$204
Total Non Threshold Non Part F	\$0	\$31
Total Capital expenditure	\$593	\$498

8. The 'Total Contract' component at 6% of total capital expenditure relates to the bilateral contracts that Transpower holds with its customers. The 'Total Non Threshold Non Part F' relates to IST business support and minor fixed assets for 2009/10. This has reduced to below zero due to the sale of some freehold land.
9. A full breakdown of Transpower's two year Capital Expenditure budget (excluding IST System Operator capital expenditure) is provided in the table below. The December 2008 Asset Management Plan forecast for the 2009/10 year is also provided for comparison. This forecast was based on the 2008/09 Business Plan forecast for 2009/10.

RRE and IST comparisons with AMP forecast 2008/09 and 2009/10		
\$ millions	2009/10 AMP forecast	2009/10 Business plan
Commerce Commission Threshold		
Refurbishment, replacement & enhancement	97	116
IST Expenditure (excluding capitalised leases)	48	53

The above IST figures excludes capitalised operating leases.

10. The above table shows the RRE and IST is 17% above the AMP forecast. The RRE and IST expenditure Business Plan figures are discussed in detail in the body of this report. Some differences between the AMP and Business Plan are to be expected. The current level of variation at 17% is broadly in line with expectations and Strata do not consider that this difference gives cause for concern.
11. We have been asked to provide an opinion on the reasonableness of the above proposed levels of capital expenditure on asset replacement, refurbishment and enhancement and on IST for 2008/09. In preparing the advice we have:
 - considered the relevant requirements of the Settlement Agreement;
 - considered how, in the year since the previous review, Transpower has developed and made improvements to those procedures and policies which impact on the management of capital expenditure. As part of this process, attention has been given to the issues identified last year by Strata;
 - reviewed the proposed and historical expenditure and trends;
 - considered the underlying assumptions for reasonableness;
 - examined the appropriateness of processes and policies;
 - conducted sample testing of adherence to these policies;
 - examined a selection of relevant internal business cases and other project documentation; and
 - identified any areas in which Transpower is considered to be non compliant with the terms of the Settlement Agreement.

2. Approach

12. A top down approach has been taken to avoid a detailed technical and economic review of a very large number of individual projects. The basic premise is that if Transpower's policies, processes and procedures deliver technically appropriate capital expenditure projects at least cost, then the output Business Plan will be sound. This review assesses Transpower's policies, processes and procedures and seeks evidence that projects have progressed through these

stages prior to being included in the Business Plan. Efficiency gains that are not reflected in the Business Plan are considered when making recommendations on an appropriate threshold value.

13. Information was gathered from Transpower and assessed against the relevant requirements of the Settlement Agreement. Following confirmation of Transpower's compliance with the first two requirements, the focus of the review has been on Transpower's performance against the 2008/09 threshold and the content and application of policies and processes which impact on the management of the capital expenditure that is subject to the threshold. Particular attention has been paid to the effect of these policies and processes on achieving the least-cost objective. Strata has not sought to conduct a technical review of individual projects, however, documentation for a selection of the largest projects was reviewed for assessment against process compliance requirements.
14. At the commencement of this review, Strata asked Transpower to identify and provide details of changes made to relevant policies and processes since the previous review. For the purposes of this review, Strata has assumed that, unless otherwise advised by Transpower, the policies and processes identified and reviewed in previous reviews remained unchanged.

2.1. Report Structure

15. This report contains two main sections:
 1. Asset replacement, refurbishment and enhancement review
 - RRE 2008/09 threshold performance review
 - RRE Policy and process improvements
 - Assessment of 2009/10 Business Plan
 2. IST expenditure review
 - IST 2008/09 threshold performance review
 - IST Policy and process improvements
 - Assessment of 2009/10 Business Plan
16. Whilst each section contains common areas, for clarity of reading, some additional topics are included where necessary.
17. The review of Transpower's performance against the 2008/09 threshold provided the opportunity to assess the appropriateness of that threshold and identify issues to be considered when assessing the 2009/10 Business Plan as an appropriate threshold.
18. Throughout the review, information has been gathered in order to address each of the relevant requirements of the Settlement

Agreement. The concluding section of this report provides Strata's advice to the Commission on each of the above requirements.

2.2. Limitations

19. As in the previous reviews, Strata has applied a 'top-down' approach to its investigation and focused on whether appropriate policies and processes have been created and properly applied in order to best ensure the least-cost objective is achieved. This contrasts with the alternative approach of examining a sample of individual projects to establish, on a technical basis, whether in those instances the capital expenditure was reasonable or not and then extrapolating from those findings.

2.3. Data Sources

20. Our analysis is based on data and documentation provided by Transpower and on discussions with Transpower management and staff.

3. Policy Principles & Objectives

21. Government policy established for the electricity industry provides a framework for Transpower which flows through to Transpower's high level policy documents.

3.1 Government Policy Statement on Electricity Governance

22. The May 2009 Government Policy Statement on Electricity Governance (GPS) provides (at Para 83) that among the objectives for the provision of transmission services:
 - “the efficiency of transmission services should be continuously improved so as to produce the services grid users and consumers want at least cost”.
23. It should be noted that, whilst the primary focus of this report is on the extent to which the least-cost objective is being achieved, Strata does not suggest this should be at the expense of achieving the other objectives set out in the GPS. These include grid reliability, security, diversity of supply to larger load centres and the facilitation of competition.

3.2 Statement of Corporate Intent

24. Transpower's 2008/09 Statement of Corporate Intent (SCI), which sets out Transpower's overall intentions for the 2008/09 year and succeeding financial years, includes objectives to:
 - promote efficient investment in the National Grid to provide the platform for a competitive wholesale market thus

enabling options for investment in generation and demand-side management;

- seek to recover efficiently the full costs of its services;
- improve the efficiency of its services, whilst optimising asset reliability and availability;
- be as profitable and efficient as comparable businesses not owned by the Crown; and
- provide transmission services at the standard of quality and security agreed with National Grid users or required by regulatory agencies.

25. In addition, the 2008/09 SCI recognises the important role taken by Transpower in facilitating the economic well being of the nation. Transpower states that its view of the role of the National Grid is to:

- sustain commercial confidence;
- enable economic growth and development;
- enable New Zealand to participate effectively and be competitive in the global community; and
- maintain and enhance the living standards of all New Zealanders.

Being successful in this role would not be possible if transmission services were not delivered at the least cost.

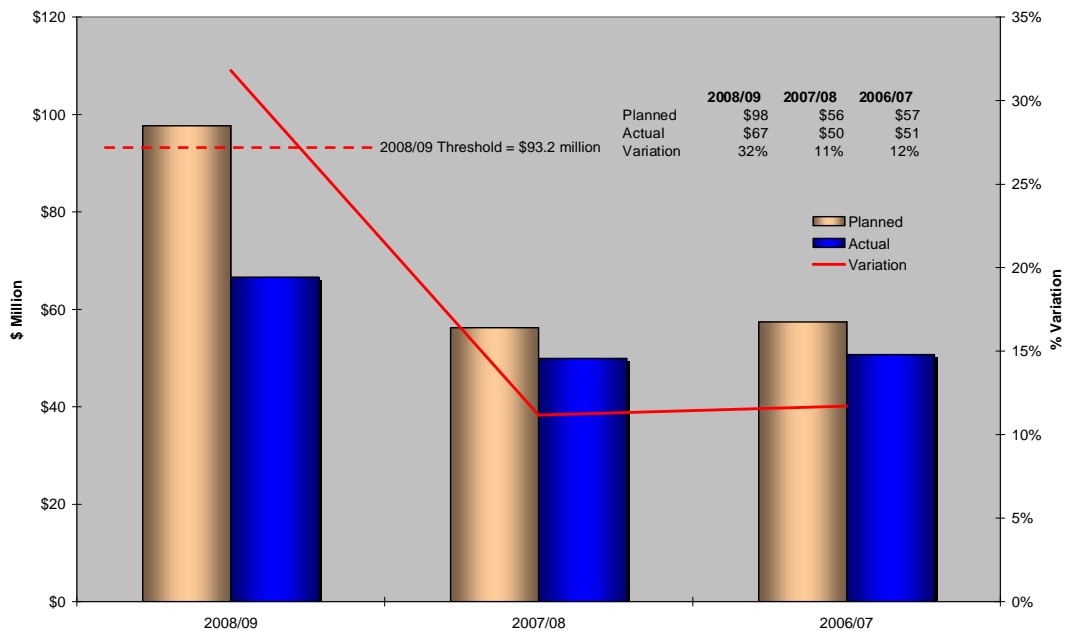
26. It is considered that together, the GPS and Transpower's SCI provide clear direction for Transpower's management to perform efficiently and produce the transmission services at least cost. This review considers the extent to which the relevant Transpower capital expenditure plans for 2009/10 have been developed in accordance with the objectives and direction set by the GPS and Transpower's Board of Directors in the SCI.

Section I: Asset Replacement, Refurbishment & Enhancement Capital Expenditure

4. RRE 2008/09 Performance Review

27. The 2008/09 Business Plan for asset RRE capital expenditure at \$97.7 million was a 74% increase on the 2007/08 Business Plan figure. This increase had been anticipated due to the increased workload associated with aging and deteriorating assets. The asset management strategies applied to various asset categories were producing project schedules that increased RRE capital expenditure across several asset categories.
28. The 2008/09 Business Plan for the RRE component represented a 94% increase above the actual expenditure achieved in 2007/08. This was a significant increase in workload for both Transpower and its contractors. It should be noted that the 2008/09 actual figure is Transpower's January forecast year end out turn.
29. Figure 1 provides Transpower's forecast for year end actual performance against the 2008/09 Business Plan together with historical data for the preceding two years. It should be noted that the 2008/09 actual figure is Transpower's January forecast year end out turn.

Figure 1 Comparison of forecast year end actual vs planned RRE expenditure



30. The forecast RRE expenditure for 2008/09 is 33% above the actual spend in 2007/08. However the 2008/09 forecast actual year end out turn of \$66.6m falls 32% short of the 2008/09 Business Plan figure of \$98m.
31. The RRE component of the 2008/09 threshold recommended by Strata in its previous review report was \$93.2 million. The forecast year end actual expenditure of \$66.6 million is 29% below the threshold.
32. Schedule 2 clause C (ii) of the Settlement Agreement requires that Transpower makes available to the Commission a schedule that shows, for non Part F capital expenditure projects completed in the second half of the calendar year before the commencement of the assessment period (July to Dec 2008), a comparison of actual expenditure in that second half versus budgeted expenditure for that second half. Reasons for variations are to be provided for projects that have exceeded 10% of budgeted costs.
33. Strata has obtained and reviewed information on all projects completed in the second half of the 2008/09 calendar year (July to January) from Transpower at a detailed project level. The project information is provided in the table below.

Assessment of projects completed in the second half of calendar 2008

PROJECT ID	DESCR	TYPE	MAJOR ASSET	Planned STATUS	Project Mgr	APPR STATUS	Prior Years	Year to Date		Full Year		Total Project			Completed projects in 2nd half of 2008 - actual costs exceed budget	Projects with variance >10%
							Actual	Jan-09		2008/09		Actual	Approved	Variance		
								Actual	Budget	Forecast	Budget					
CP_TIM_24_00_00	TIM 110kV ES129 Replace	Replacement	AC Substations	Planned Existing	Upton,Blair	Z	\$3,424	\$36,104	\$32,488	\$36,104	\$32,488	\$39,528	\$32,200	(\$7,328)	(\$3,616)	-11.1
CP_TIM_25_00_00	TIM 110kV ES139 Replace	Replacement	AC Substations	Planned Existing	Upton,Blair	Z	\$3,348	\$35,290	\$32,530	\$35,290	\$32,530	\$38,638	\$32,200	(\$6,438)	(\$2,760)	
CP_TWI_26_00_00	TWI Sprinkler System Upgrade	Enhancement	AC Substations	Planned New	Upton,Blair	Z	\$0	\$100,280	\$90,925	\$100,280	\$90,925	\$100,280	\$94,300	(\$5,980)	(\$9,355)	-10.3
CP_VAR_AA_00_00	Misc Acquisition HVDC Easement	Development	Other	Planned New	Cundy,Colleen	Z	\$273,224	\$0	\$1,925,000	\$0	\$3,300,000	\$273,224	N/A	\$0		
CP_BRB_21_00_00	BRB Control Room Air Con Upgra	Enhancement	AC Substations	Planned New	Harrild,Samantha	Z	\$0	\$25,832	\$13,937	\$25,832	\$23,891	\$25,832	\$26,278	\$446	(\$11,895)	-85.3
CP_PEN_76_00_00	PEN Install 2xSplit System A/C	Enhancement	AC Substations	Planned New	Harrild,Samantha	Z	\$0	\$39,869	\$32,571	\$39,869	\$32,571	\$39,869	\$40,609	\$740	(\$7,298)	-22.4
CP_HAM_51_00_00	HAM Control Room Air Con Upgra	Enhancement	AC Substations	Planned New	Harrild,Samantha	Z	\$0	\$40,200	\$34,786	\$40,200	\$34,786	\$40,200	\$41,149	\$949	(\$5,414)	-15.6
CP_ROT_29_00_00	ROT Control Room Air Con Upgra	Enhancement	AC Substations	Planned New	Harrild,Samantha	Z	\$0	\$49,300	\$13,164	\$49,300	\$13,164	\$49,300	\$50,608	\$1,308	(\$36,136)	-274.5
CP_MNG_73_00_00	MNG Install 2xSplit System A/C	Enhancement	AC Substations	Planned New	Harrild,Samantha	Z	\$0	\$23,873	\$23,006	\$23,873	\$23,006	\$23,873	\$25,277	\$1,404	(\$867)	
CP_WAI_20_00_00	WAI Control Room Air Con Upgra	Enhancement	AC Substations	Planned New	Harrild,Samantha	Z	\$0	\$13,600	\$13,164	\$13,600	\$13,164	\$13,600	\$15,036	\$1,436	(\$436)	
CP_HEP_56_00_00	HEP Control Room Air Con Upgra	Enhancement	AC Substations	Planned New	Harrild,Samantha	Z	\$0	\$13,492	\$13,164	\$13,492	\$13,164	\$13,492	\$15,035	\$1,543	(\$328)	
CP_MTO_29_00_00	MTO Control Room Air Con Upgra	Enhancement	AC Substations	Planned New	Harrild,Samantha	Z	\$0	\$13,080	\$13,164	\$13,080	\$13,164	\$13,080	\$15,035	\$1,955		
CP_WHU_16_00_00	WHU Control Room Air Con Upgra	Enhancement	AC Substations	Planned New	Harrild,Samantha	Z	\$0	\$12,933	\$13,164	\$12,933	\$13,164	\$12,933	\$15,036	\$2,103		
CP_KPU_14_00_00	KPU Control Room Air Con Upgra	Enhancement	AC Substations	Planned New	Harrild,Samantha	Z	\$0	\$12,929	\$13,164	\$12,929	\$13,164	\$12,929	\$15,036	\$2,107		
CP_KIN_49_00_00	KIN Control Room Air Con Upgra	Enhancement	AC Substations	Planned New	Harrild,Samantha	Z	\$0	\$34,700	\$32,319	\$34,700	\$32,319	\$34,700	\$36,915	\$2,215	(\$2,381)	
CP_HEN_61_00_00	HEN Control Room Air Con Upgra	Enhancement	AC Substations	Planned New	Harrild,Samantha	Z	\$0	\$23,582	\$23,006	\$23,582	\$23,006	\$23,582	\$26,278	\$2,696	(\$576)	
CP_CBG_13_00_00	CBG Control Room Air Con Upgra	Enhancement	AC Substations	Planned New	Harrild,Samantha	Z	\$0	\$33,400	\$31,816	\$33,400	\$31,816	\$33,400	\$36,340	\$2,940	(\$1,584)	
CP_WHI_28_00_00	WHI Sub-station septic tank	Refurbishment	AC Substations	Planned New	Black,Janet	Z	\$0	\$25,719	\$22,276	\$25,719	\$22,276	\$25,719	\$29,558	\$3,839	(\$3,443)	-15.5
CP_TAK_17_00_00	TAK ACON	Enhancement	AC Substations	Planned New	Harrild,Samantha	Z	\$0	\$14,541	\$23,006	\$14,541	\$23,006	\$14,541	\$25,277	\$10,736		
CP_MPE_78_00_00	MPE Control Room Air Con Upgra	Enhancement	AC Substations	Planned New	Harrild,Samantha	Z	\$0	\$19,202	\$32,385	\$19,202	\$32,385	\$19,202	\$36,990	\$17,788		
CP_BOB_45_00_00	BOB Install Air conditioning	Enhancement	AC Substations	Planned New	Harrild,Samantha	Z	\$0	\$16,990	\$32,385	\$16,990	\$32,385	\$16,990	\$35,583	\$18,593		
CP_OWH_11_00_00	OWH Control Room Air Con Upgra	Enhancement	AC Substations	Planned New	Harrild,Samantha	Z	\$0	\$16,900	\$35,894	\$16,900	\$35,894	\$16,900	\$40,998	\$24,098		
CP_IGH_16_00_00	IGH Substation Gravel Replacem	Refurbishment	AC Substations	Planned New	Upton,Blair	Z	\$0	\$91,717	\$64,827	\$91,717	\$111,130	\$91,717	\$125,000	\$33,283	(\$26,890)	-41.5
CP_776_03_00_00	TKR-WIL A Reconnector	Replacement	AC Transmission Lin	Planned Existing	Mason,Jonathan	Z	\$6,872,478	\$757	\$447,111	\$821	\$766,474	\$6,873,235	\$8,796,472	\$1,923,237	(\$112,978)	8 projects

Notes

34. Comparisons have been made between project budgets and actual spend over the same period. The following points were noted in relation to Transpower's compliance with Schedule 2 clause C (ii) of the Settlement Agreement:
- there were 15 projects in total that produced a cumulative variance of \$112k where actual spend exceeded budget during the period;
 - there were only three projects that had actual expenditure above the total project approval and the combined value of these was \$20k; and
 - it is considered that the \$112k overspend is not material and did not warrant Strata seeking further detailed information from Transpower.
35. Whilst Transpower has confirmed that the information supplied on projects completed in the second half of the calendar year is correct, it is surprising that only 24 projects (\$0.7m) out of a total of 784 projects were completed (Z status) in the six month period. On the basis that the information provided by Transpower is correct, Strata considers that Transpower has met the requirements of Schedule 2 clause C (ii) of the Settlement Agreement and that no significant concerns have arisen from Strata's review of the information provided.

5. Issues regarding 2008/09 RRE performance

5.1. Widening variation between plan and actual expenditure

36. Transpower provided a spreadsheet containing a summary of project expenditure against Business Plan for 2008/09. The following points were produced from the Transpower project expenditure data.

For the 2008/09 year (based on the January 2009 year end forecast)

Out of 784 projects:

- 432 were underspent against budget;
- 268 projects (34%) did not have a budget (e.g. have not gained approved status);
- 18 were on-budget;
- 332 were over-budget;
- 286 projects (52% of those with a budget) were more than 10% under budget; and

- 90 projects (18% of those with a budget) were more than 10% over budget.

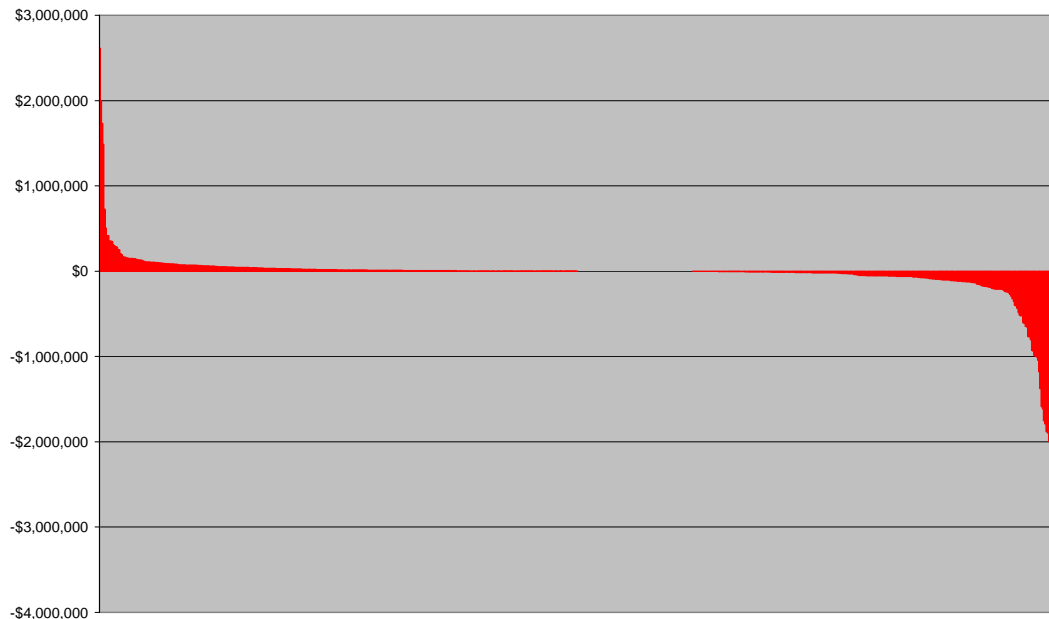
In terms of the total project status (i.e. full project life)

Out of 784 projects

- 86% had approved budgets;
- 115 projects had spent more than the level of approval (\$3.98m, 3% of total approvals);
- 108 did not have approval at all; and
- 559 projects had spent less than approvals.

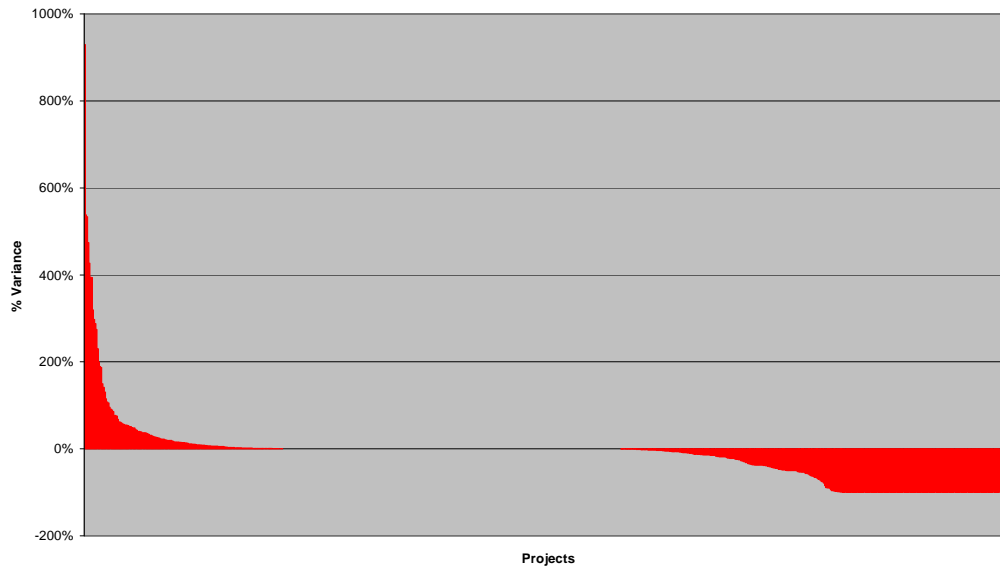
37. Figure 2 shows the variation between plan and actual costs for individual projects, this indicates that the majority of projects are close to budget with a relatively small proportion causing the variations. Given the magnitude of the variations at the extremes it can be assumed that there are some large projects (in terms of cost) that experienced significant variations.

Figure 2 Projects above or below budget (\$ variance)



38. The total value of projects above the line in figure 2 is \$24.79m and the total value of projects under the line is \$55.86m. Forecast total actual spend is \$66.3m against a plan of \$97.7m.
39. The percentage variation between actual and budget for each project is provided (Figure 3). It can be seen that a small number of projects have a large overspend relative to their original budgets.

Figure 3 Projects above or below budget (% variance)



40. It is considered that there are five main potential causes for the variation between planned and actual outcomes, these are:

- planning accuracy;
- efficiency gains;
- resources and/or capability;
- performance; and
- other external factors.

Each of the above components is considered below.

5.2. Planning accuracy

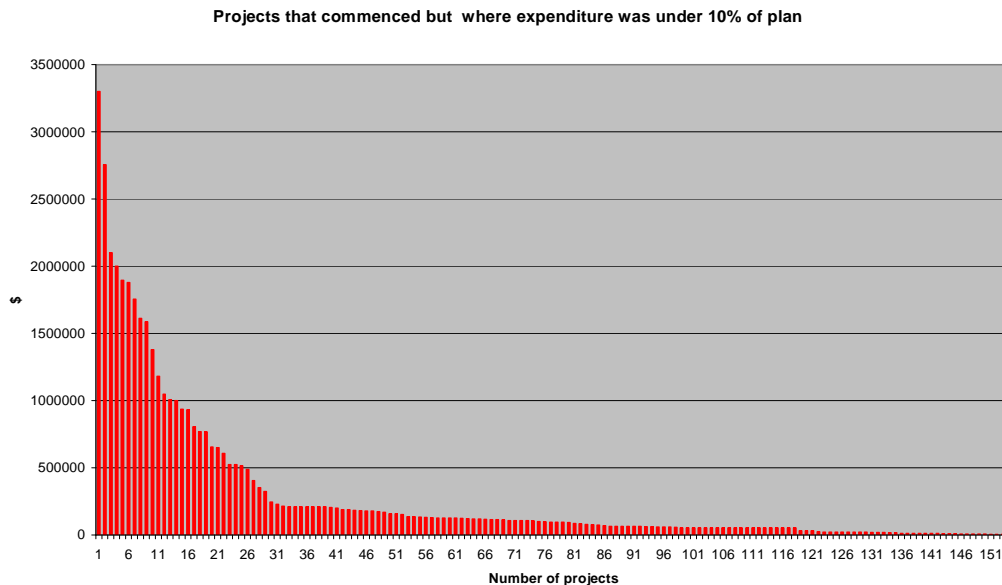
41. In the 2007/08 review Strata made the following comments:

The fact that in excess of one third of the planned projects in the 2007/08 Business Plan are not now proceeding during the year raises serious questions about the degree of certainty regarding the projects included in the budget and its usefulness as a threshold. Whilst it is to be expected that some projects will be rolled over into the next year and others will be discontinued the actual figure seems very high.

The extent of the current rollover may indicate issues regarding Transpower's capacity to resource and complete projects contained in annual budgets. Given that Transpower has indicated that significant increases in RRE capital expenditure will occur over the next few years, gaining confidence that budgeted projects can be achieved in practice is important.

Also of potential concern is the 61% increase in project costs on those projects in the Business Plan where increases have occurred. It is possible that this may be due to changes in scope or to projects being completed within the current year when the initial plan assumed they would not. However, this issue highlights the significant degree of uncertainty of some project costs when the budget is approved.

- 42. Whilst the proportion of projects that have not proceeded in 2008/09 is 18% lower than the figure in 2007/08 Strata considers that the above issues are still present. Transpower forecasts that in 2008/09 there will be a total of 154 projects that will have spent less than 10% of the allocated budget for the year. The total underspend arising from these projects is \$44m or 45% of plan (and \$21.6m of this is planned to roll forward into 2009/10). Given the increased variation between actual expenditure and threshold levels, Strata's concerns regarding the accuracy of the Business Plan figures are heightened.
- 43. The chart below shows projects that commenced (i.e. had some spend against them) but spent less than 10% of budget. It can be seen that there are 25 projects where the under spend exceeded \$500k. It can be concluded that there are a relatively small number of projects with high levels of under spend that are driving the variation between budget and actual spend.



- 44. Transpower's asset management and works management planning processes are based on condition assessment and age profiling of the assets. It is considered that, whilst these processes could be improved, they deliver appropriate technical outcomes for maintaining the capability of the assets from an RRE perspective. If

Transpower complies with the requirements of its processes, there should be a good degree of comfort that the projects that make up the Business Plan are technically appropriate and are required to be undertaken in that year. We note that a corollary of this is that if the planned works are not undertaken during the year then there is the potential to impact on future Grid performance.

45. An important feature of the application of the Threshold is the ability for Transpower to manage its work programme dynamically within the threshold. Projects can be 'rolled' into and out of years and unplanned projects undertaken so long as the total capital expenditure does not breach the combined RRE and IST threshold.
46. In the 2008 report Strata identified that rollovers could present a challenge to the application of the threshold. This view was taken because rollovers have the potential to be used to inflate the Business Plan beyond that which would be delivered with unspent project costs rolled-over into the subsequent year's Business Plan. In effect, the current year's Business Plan would contain an additional margin above that which was actually required.
47. It has been noted that for the 2006/07 and 2007/08 years that the total value of projects rolled-over into the following year were generally consistent with the level of unplanned project costs. This meant that, the threshold could be seen as accommodating flexibility whilst not containing an additional margin. It was concluded that, whilst there was potential for a margin to be introduced, the project approvals process was likely to reduce the potential if a high proportion of projects in the Business Plan had gained approval via a PAD. In addition, it was seen that monitoring the level of rollovers would provide a discipline in terms of the establishment of the Business Plan.
48. Transpower's forecast rollover from the 2008/09 year into the 2009/10 Business Plan is \$21,588,292 with 60 projects contributing to the rollover.
49. It has been found that variations between the 2008/09 Business Plan and the forecast out turn were influenced by significant changes to major projects. In RRE excluding 3 transformer (\$13.4 million) and meter (\$4.1 million) projects which rolled over into the following year, the variation reduced from 32% to 17%.

5.3. Efficiency gains

50. With regards to efficiency gains, Transpower has provided information on improvements to its process during 2008/09. These initiatives are discussed in section 7. Strata has reviewed this information together with variations to project expenditure and considers that efficiency gains have not been a material contributor to the variation in 2008/09 expenditure levels.
51. Consistent with our previous reviews, Strata considers that it has not yet seen hard evidence of sustained cost reductions achieved across

broad cost categories. If measures have been implemented, Transpower has not demonstrated that the benefits have been realised. The overall impression gained is that the improvement measures taken by Transpower has been slow to impact and therefore improvement on capital expenditure levels is still to be expected.

5.4. Resources and/or capability

52. Transpower has undertaken structural reviews following the appointment of Dr Patrick Strange as Chief Executive Officer. Transpower's management and engineering resources have also been engaged in progressing large projects under Electricity Commission Part F approvals. It is considered likely that these additional demands on Transpower's resources have contributed to the variation between actual expenditure and Business Plan. However it is not possible to quantify the extent to which this has occurred.

5.5. Performance

53. Performance can be considered to be the extent of success or failure to complete projects to plan, assuming resources to achieve this were available. The scope of Strata's review did not cover a detailed performance review of Transpower's project management and it cannot provide a view on the contribution that any performance shortfall has made to the variation.

5.6. External factors

54. External factors include aspects of the projects that are largely outside the control of Transpower. These factors include unforeseen delays in delivery of equipment and changes that may be due to global economic changes. Strata considers that the extended delivery dates for the 3 transformer projects totalling \$13.4 million could be attributed to external factors that were beyond the control of Transpower. However, it is also possible that, at the time of preparing the Business Plan, Transpower could have foreseen that delivery dates for transformers were becoming extended and have moved the projects out into the 2009/10 Business Plan.

6. RRE Policy Process & Documentation

55. In this section we outline the policies, processes and documentation relevant to Refurbishment Replacement & Enhancement capital expenditure.

6.1. Asset Management Plan

56. Transpower's December 2008 Asset Management Plan (AMP) presents its intended programmes of asset management works for the National Grid. The AMP notes that this is based on its understanding of customer and stakeholder requirements, knowledge of the existing and projected grid assets, the measured and expected condition of the assets, and the expected asset performance requirements.

57. It states in the Executive Summary of the AMP that:

'The main outcomes of this AMP are the maintenance programmes covering each category of asset held by Transpower. The goal of the programmes is to achieve sustainable assets and to deliver the grid now and in the future. Transpower aims to ***maintain least-cost service quality and capability*** by managing existing and new grid assets reliably, safely, efficiently and economically. To achieve this goal, Transpower considers the asset status, condition assessment information and performance requirements for each asset and establishes the planned actions required to meet reliability and performance targets.'⁹

58. The Plan further notes that:

'The AMP outlines how Transpower manages existing and new grid assets reliably, safely, efficiently and economically to maintain service quality and quantity obligations in a least-cost way.'¹⁰

6.2. Asset Specific Policies

59. Transpower also has specific policy documents which deal with capital expenditure in major asset categories. These set out the basis on which a decision is made as to whether and when to refurbish or replace a particular asset type. Criteria include (in addition to safety, whether fit for task, reliability, the availability of spares and the age of the technology) the costs of and options for maintaining, refurbishing and replacing the asset. In some instances, specific reference is made to a Net Present Value (NPV) cost benefit analysis, and the inputs and parameters for the calculations have obviously been given some considerable thought.

⁹ P5 Transpower Asset Management Plan 2008

¹⁰ P8 Transpower Asset Management Plan 2008

60. These asset specific policies are discussed further below at 7.2 Asset Management Strategies.

6.3. Policy Development & Review

61. Transpower policy documents are controlled documents which are subject to registration and version control. The requirements for the content and the procedure for developing such documents are set out in the Guidelines for Transpower Controlled Document Development (October 2005). Policy documents are generally required to explain the reasons for the policy, identify any linkages to high-level, overarching policy documents (such as the SCI), and define the process by which the policy is to be given effect. Transpower has not advised of any changes to this policy and Strata has therefore assumed that it has not changed.
62. Material provided by Transpower indicates that the review dates for a number of policies have been extended beyond the date originally set. Transpower advise this process requires the policy owner to agree to any date reset. Transpower has also indicated it plans to review the Corporate Procurement Policy in 2009/10 which has been in place since Dec 2006. On the basis of the information provided Strata has concluded that Transpower is conducting a satisfactory periodic review of its policies..

6.4. Asset Works Planning

63. The Asset Works Plan (AWP) for 2009/10 derives from Transpower's annual planning process. Supporting the AWP are:
- the Asset Management Plan (AMP) which forms an aggregated plan of asset renewal, refurbishment and maintenance;
 - the Annual Planning Report (APR) which outlines works planned for the enhancement and development of the Grid;
 - Grid Upgrade Plan (GUP) containing specific project initiatives put up for Electricity Commission approval. The AMP is included within each GUP application to set the context for the proposed grid upgrades and to demonstrate a coordinated approach to investment planning; and
 - Capital Works Process (CWP) which is the process framework adopted by Transpower to ensure that the planning, scoping, costing and approval of all proposed capital investment is undertaken in a consistent and appropriate manner.¹¹
64. The following excerpt from Transpower's document 'Capital Works Process Improvements' (page 1) sets out the objectives of the process:

¹¹ Strata 2008/09 Non Part F Capital Expenditure Review – Notes to accompany the draft 2008/09 capital expenditure from AMDB

Transpower's Capital Works Process is designed to deliver jobs identified in the Asset Works Planning process as necessary, in the most efficient way possible for the job. It is worth reiterating the objectives of the process:-

- Robust option assessment & selection process to meet RMA, CC and EC requirements
- Co-ordination and Optimisation
 - Across years, sites, capex and opex spend to enable efficiencies
 - Higher degree of plan certainty to enable identification of optimal solutions.
- Greater certainty & accuracy (cost, process & time requirements) for projects in the Capital & Maintenance Works Plan (tagged to start within a 3 year timeframe) to enable resource planning, levelling and development.
- Standardisation of project management approach

65. In Strata's view, this process is appropriate.

6.5. Asset Management Database

66. The Asset Management Database (AMDB) is loaded with capital expenditure projects across a fifty year plus timeframe. A more focused three year time horizon is used to provide for the detailed coordination and availability of resources within Transpower and contractors for the various functions (engineering, planning, environmental, field services, grid economics, grid planning, project managers, inventory and procurement, finance, etc) to coordinate their roles.
67. A key driver in the scheduling of replacement, refurbishment and enhancement capital expenditure is the condition assessment process. The condition of a range of different asset types is monitored and data relating to factors which impact on asset life and serviceability are captured. This information is used as a basis to determine the optimal timing of replacement, refurbishment and enhancement and, in conjunction with data on the costs of the available options, is also used to determine which option best meets requirements. The focus is on replacing and refurbishing assets when the condition requires rather than at a particular point in the life of a particular asset.
68. Projects are entered into the AMDB on the basis of a High Level Response (HLR) document or a Project Verification Document (PVD) which set out details of the project, including the estimated cost. These require authorisation from an appropriate level of delegated authority.
69. Closer to the commencement of the financial year, the costs for projects occurring in that year are further refined as part of the process of obtaining approval for the capital expenditure under a Project Approval Document (PAD). Transpower's previous target

position, as at 1 July of each year, is for 80% of the works in AMDB, which are due to occur during that year to be the subject of a PAD approval.

6.6. Business Planning Processes

70. The asset management planning process for constantly updating project data dovetails into the preparation of the Business Plan. Policy stream reviews take place in the September quarter and full review meetings of all streams in October. Then in March/April, the asset management planning process provides final inputs into the overall Transpower Business Plan, and capital expenditure for the following financial year is then fixed.
71. The annual Business Planning process commences with a budgeting process through which each division produces its own Business Plan. These are then consolidated into an overall Business Plan which is finally put to the Board for approval.

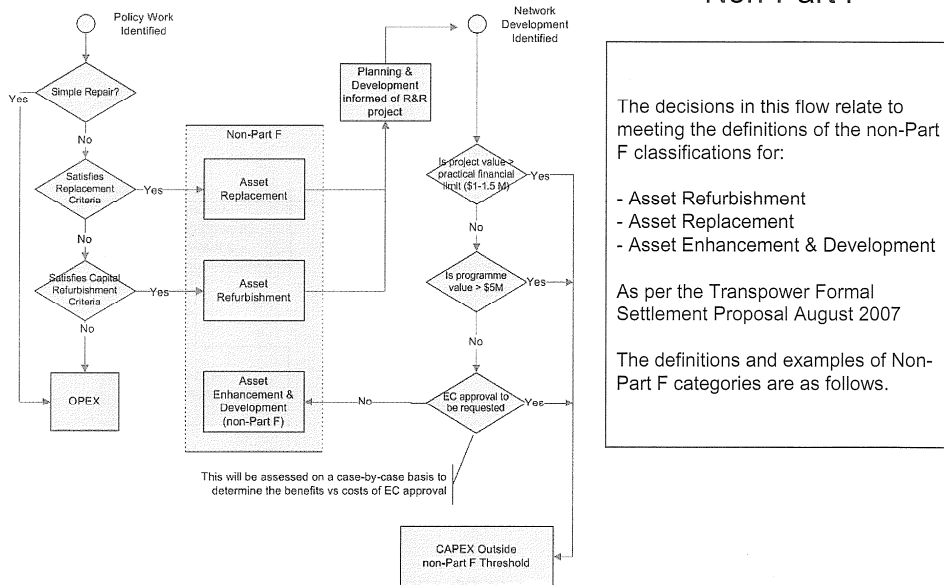
6.7. Challenge & Review Processes

72. The challenge process begins with meetings held in September of each year to review the 10 year Asset Works Plan (AWP), with a primary focus on years 1-3. This is followed by the October Full Review Challenge Round attended by representatives of Engineering Services, Asset Development, Customer Services, Asset Planning, Environmental, Grid Economics and Grid Planning.
73. A further challenge process occurs at the time approval is sought under a PAD to incur the costs. We are not aware of any changes to the PAD process which requires that the approving authority must consider fully whether adequate steps have been taken to ensure the project will be carried out at least cost.

6.8. Expenditure Categorisation & EC Approvals

74. Transpower has discretion regarding what capital expenditure it seeks approval for from the Electricity Commission, under Part F and what is considered part of its capital expenditure on replacement, refurbishment and enhancement that falls within the threshold.
75. Strata has not been advised of any changes made to the process for determining the expenditure category and whether it falls under the Threshold or should be submitted to the Electricity Commission. On this basis it has been assumed that the process set out (at a high level) in the diagram below is current.

Project Classification Non-Part F



The decisions in this flow relate to meeting the definitions of the non-Part F classifications for:

- Asset Refurbishment
- Asset Replacement
- Asset Enhancement & Development

As per the Transpower Formal Settlement Proposal August 2007

The definitions and examples of Non-Part F categories are as follows.

76. Where replacement capital expenditure includes an element of enhancement, the costs are apportioned on the basis of what the primary driver for the expenditure is. If it is enhancement, then the whole job is classified as enhancement irrespective of whether assets are being replaced, and the proposed expenditure is submitted to the Electricity Commission for approval. If the primary driver is replacement, but there is an element of enhancement, then Transpower may seek approval for the enhancement element from the Electricity Commission. If the Electricity Commission does not approve this and Transpower still wishes to continue to undertake the project, then that component will need to be within the (proposed) Commerce Commission threshold.
77. In addition, there are some relatively small projects (below \$1- \$1.5 million) that are exclusively enhancement and development but are not submitted to the Electricity Commission for approval under Part F of the EGRs. Such expenditure is intended to be included within the proposed Commerce Commission threshold.

6.9. Competitive Tendering Process

78. Transpower has advised that a key means by which it ensures project costs are genuinely least-cost is through a competitive tender process with its contractors. This outsourcing process is governed by procedures for tendering, Rules for Procurement Policy, the project management guide, contract support templates, project controller’s handbook and business processes. These determine the content of the tender documents, the evaluation and award of contracts and drafting of a final contract. Transpower has indicated that, because

of the specialised nature of much of the work and market size limitations, there is often a small number of potential tenderers.

6.10. Key Issues Identified in 08/09 Study

79. Key issues identified and conclusions reached in the 2008/09 Strata review of Transpower's Non Part F Replacement, Refurbishment and Enhancement capital expenditure were:

No Capex Reduction Targets	There are still no specific targets set for the reduction or containment of capital expenditure costs on a category by category basis and no monitoring and reporting on cost reduction improvements;
Analysis of Improvements	There is insufficient analysis of the impact changes to processes and strategies will have on costs and what the timing of those impacts will be and when the full benefit will begin to accrue;
Cost Estimation Processes	Whilst there is discussion (but not implementation as yet) of a rigorous and effective process of feeding back cost data into cost estimation processes it is not actually happening despite the need being evident from the 07/08 review;
Condition Assessment	The reliability and quality of condition assessment processes should be reviewed in the light of the findings relating to tower painting;
Post Completion Inspection	The reliability and quality of post-completion inspection procedures should be reviewed in the light of the findings relating to tower painting;
Procurement Policy	The processes for assuring compliance with Procurement Policy are inadequate;
Benchmarking	The lack of appropriate benchmarking still remains an issue;
Contracting Options	Whilst it is accepted that there are some limitations on the applicability of open-book contracting, Strata considers that there is still significant capacity to progress different contractual structures and tendering techniques.

Rollovers & Discontinuances The incidence of a significant value of rollovers and discontinued projects raises concerns regarding the management of the threshold methodology. If Transpower is permitted to use rollovers as a means of complying with the Threshold then, in Strata's view, there will no longer be adequate downward pressure on capital expenditure.

7. Improvements made by Transpower

80. Transpower has advised it has made a number of improvements to its policies, procedures and processes for the development of asset management plans, Business Planning and capital works plans since Strata's previous Review which was finalised early in calendar 2008.

7.1. Du Pont Review

81. Transpower advise that a key driver of change since the 2008 Strata Review was the Du Pont review of Transpower's asset management in September 2008. The objective of the review was to identify improvement opportunities which support the timely replacement of ageing assets and provide sustainable strategies to assess and ensure asset health.

82. Key actions recommended by Du Pont were:

- ***Develop an assertive replacement plan for aging assets.*** Du Pont noted that many assets were rapidly approaching end of life and needed to be replaced before system integrity was compromised and asset replacement became difficult to manage proactively. Little asset replacement has been undertaken on a broad basis in the past decade. Some 39% of the switchgear assets are of old technology with an average age of around 37 years. Transformers have an even higher average age of around 40 years with approximately 40 per cent of the in-service power transformers ranging in age from 40 to over 70 years old.
- ***Establish strategic spares for the asset categories transformers and circuit breakers.*** Du Pont noted a severe lack of strategic spares in all the main asset areas which, given long lead times, could severely compromise Transpower's ability to operate a reliable system if not addressed.
- ***Establish Transpower's position with respect to retention of in-house core activities which includes capturing and retaining intellectual knowledge.*** Du Pont found that significant intellectual knowledge from within Transpower had been lost to contractors over the last 10 years. Although there are many specialists and highly trained engineers still within

Transpower, it needs to regain some of the knowledge lost **to once again become a truly informed buyer of both services and assets** (emphasis added).

- **Investigate an asset management system to complement the existing Maintenance Management System (MMS)**
Whilst considerable asset condition data is stored in MMS, the data is not linked to asset performance monitoring, asset operational data or an asset health system. Maximising the potential of the current data stored in MMS will provide essential information for decisions related to the care, reliability and risk assessment of transmission assets.

7.2. Asset Management Strategies

83. Transpower has recently acknowledged that the range of strategy documents for individual asset classes require enhancement

"...to add context, performance objectives and appropriate economic and risk analysis."¹²

Transpower also noted (in the same document) that

'The current policies do not include asset performance targets and linkages to corporate objectives are not always clear.'

84. Having acknowledged deficiencies in strategy documents for individual asset categories Transpower is now undertaking a programme of revising its asset strategies. Asset strategies for the following asset categories are under development:

- power transformers;
- outdoor 33kV switchyards;
- outdoor HV circuit breakers;
- synchronous condensers; and
- transmission lines.

85. Strata has previously indicated its view that the corporate least-cost objective is not always set out explicitly enough in policy and process documentation. Therefore it is not surprising to Strata that the linkages to corporate objectives are not always clear.

7.3. Project Planning & Management Processes

86. Transpower's overall budgeted annual capital expenditure is projected to increase over the next 12-18 months, from \$498m in 2008/09 to approximately \$593m in 2009/10. Transpower advise that there is also a general increase in the value and complexity of projects. Transpower has stated that this project workload:

'...cannot be delivered with current resources.'¹³

¹² Process Changes & Improvement Initiatives 30 Jan 2009 – Transpower document provided to Strata

87. Transpower has also advised that:

'Recent organisation reviews have identified significant cracks within Transpower's project management capability and systems:

- Transpower's core project management capability has been contracted out and now resides external to Transpower;
- project delivery is inconsistent, often fast tracked, and a risk to asset performance; and
- Transpower lacks consistent processes, procedures and standards for project and programme management.

The PWC Programme and Project Management audit found that, due to inconsistencies in the standards of programme and project management discipline across Transpower, the organisation is exposed to the risk that projects will fail to deliver the required business results.¹⁴

88. Transpower has now sought to develop and resource a project management culture with resource planning, standard governance and project management methodologies. However, at this point the formal project management methodology has not been implemented for all projects that fall under the threshold. Where it has been implemented it has made a number of enhancements to project planning documentation and processes including:

- adopting consistent project management procedures – a Programme Management Office has now been set up with development planned to run through 2009/10;
- establishing a Project Centre – MS Project Server has been implemented and is being developed further;
- implement resource planning and optimisation across all projects – MS Project Server now provides a 5 year view of the work plan;
- adopting a common project management methodology to be used across all projects. The Capital Works Process was benchmarked against ISO10006 and PMIBOK (Project Management Institute Book of Knowledge). Transpower advised that it substantively conformed but changes in approach were required to:
 - remove the distinction between customer, network and policy work;
 - ensure the Project Plan supported project verification and validation;
 - restructure the Capital Works website; and

¹³ Grid Projects A New Delivery Model – Transpower Powerpoint presentation to Strata 2009

¹⁴ Grid Projects A New Delivery Model – Transpower powerpoint presentation to Strata 2009

- ensure continuous improvement of the process and project management.

PMBOK has now been adopted.

- establishing a common reporting process for all projects – a data warehousing solution is being considered at present to draw project data from a range of sources within Transpower;
- establishing a cost engineering methodology - a methodology (NZQS) is being implemented;
- establish a standard Transpower project governance framework;
- developing a project management culture – Transpower advise they are taking steps to improve training, mentoring, project management succession planning;
- requiring all works in the Asset Works Plan have a Project Plan, even at an early stage;
- Transpower has been working with the Electricity Commission to develop and streamline project approval processes. Transpower expects RRE expenditure will benefit from this work as the process explicitly requires Transpower to consider RRE works and to co-optimize that work with the projects put to the EC for approval; and
- a strategy of consolidating minor projects into work programmes.

89. Strata has significant concerns about Transpower's capacity to achieve aspects of the planned works which are subject to the Threshold. This is because of the significant step up in the level of overall capital works (from \$67m 08/09 forecast actual to \$116m budget in 09/10) and because it is apparent that in the 2008/09 year, Transpower will significantly underspend its budget. This in part appears due to the lack of internal resources to achieve the projects on time.

90. Strata considers the changes described above are likely to have a positive impact on achieving the least-cost objective. However at this point it is too early in the process of implementation to gauge their impact. We note that no specific targets are set for the future against which to measure the impact of the changes. While not all aspects will lend themselves to this approach there are a number which could be assessed such as whether projects:

- are on time;
- are on budget;
- are subject to consistent project management, reporting and knowledge capture;
- experience significant movements in unit costs; and
- have clear accountabilities for safety and delivery, etc.

7.4. Cost Estimation Processes

91. Transpower has advised that an improvement made since the previous review has been to begin implementation of the US Cost System. This system is intended to standardise the platform and framework used to develop cost estimates at all stages of a project and provide a single repository of costing information. Transpower advise the system has limited deployment as yet and is being trialled by the Asset Development Team and, to a limited extent, by one of Transpower's consultants.
92. Although described as an improvement since Strata's 2008 Review, in fact Strata reported in that Review that Transpower had adopted the US Cost System and developed a Draft Standard for Cost Estimating Processes – Operational Procedures. We noted that from the documentation provided, the system appeared to be very comprehensive and could be used to track costs through from project initiation (HLR) to project outturn costs.
93. Strata's view is that successful implementation of US Cost is likely to better ensure achieving the least-cost objective because it would be expected to deliver transparency and robustness to the costing of projects. However, we note Transpower's advice in 2008, that it expected to progressively rollout pricing modules from April 08 onwards. This timetable appears to have slipped somewhat as Transpower has advised that the system will now go live at the end of July and will be rolled-out to threshold/grid performance projects over the next twelve to eighteen months. Transpower expects that the US Cost System will be applied to approximately half of threshold projects in the 2010/11 business plan.

7.5. Contracting & Tendering

Tower Painting

Period Contracting

94. Transpower noted in its January 2009 paper 'Process Changes & Improvement Initiatives' that, since the previous Strata Review (which included a special focus section on tower painting), it had improved its contracting and painting strategies for transmission towers.
95. One change Transpower has implemented was to go to the market in 2008 with 3 year period painting contract packages through to 2011. Transpower had historically contracted for tower painting on an annual basis but had formed the view that:

"This has resulted in a lack of certainty of work on the part of the contractors, which then confounds their ability to invest in equipment and human resources. Furthermore, whatever investment they do make they are inclined to seek to secure a

return over the contract period which inevitably results in upward pressure on contract prices.”¹⁵

96. Following comments from contractors about the impact of a short term approach, and Strata's recommendation that Transpower review its contracting processes, Transpower made the change to longer term contracts. Strata considers this to be a positive change which is likely to significantly assist in containing or even driving down tower painting costs.
97. The only issue for Strata is the time taken to implement the strategy. Early in 2007 Strata noted in its first Review that:

“...Transpower has provided comment that a 5% reduction in tower painting costs should be achievable through contracting over a longer term.”¹⁶
98. In Strata's Review, early in calendar 2008, we noted Transpower's intention to move to longer term contracts. However it appears that it was not until October 2008 that Transpower entered into such contracts. Strata questions why the change was not implemented until at least 18 months after it advised Strata of its intention to do so when such potentially significant savings were expected to result.

Preventive Painting & Painting in Continuous Sections

99. A second significant change made by Transpower since Strata's 2008 Review was to change to a strategy of painting a substantial proportion of towers before corrosion penetrated the protective galvanised layer and began to corrode the steelwork. Transpower advised that Du Pont had considered the issue in its review in 2008 and, as a result of its recommendations and Transpower's own thinking, the change was made. The benefit is to avoid the considerably higher costs of preparing the surface for painting which arise if corrosion has penetrated through to the steel.
100. A further change by Transpower has been to move to painting continuous series of towers rather than selecting individual towers. Transpower's assessment is that, whilst some towers may be painted earlier than would otherwise be required, the overall costs are lowered because painting logistics are easier, and therefore per unit costs reduce. Strata's view is that these two changes are likely to contain or even reduce costs.
101. We note however that painting towers at an earlier stage is not a new strategy to Transpower. In April 2007 Transpower received a report it had commissioned from TLM LineTech Consulting (TLM) “Transpower Tower Painting – Detailed Analysis and Recommendations for Change”. This noted that in the past, Transpower had under-invested in the maintenance of its towers by comparison with international standards and a significant backlog of towers in various states of rust was the legacy of those policies.

¹⁵ Process Changes & Improvement Initiatives 30 Jan 2009 – Transpower document provided to Strata

¹⁶ p10 Review of Transpower's Capital Expenditure Plans March 2007 – Strata Review Report

102. The TLM Report went on to note that:

'To ensure future tower painting occurs at the optimum time (lowest long term cost), changes to Transpower policy are required. This will mean painting all towers in corrosive locations from new, (or as soon as possible) and painting towers in benign locations just before rusting breaks out. Improvements to Transpower's condition assessment process for towers are needed to ensure data accuracy is improved sufficiently that it can be reliably used for planning future tower painting.¹⁷

TLM advised that it expected the effects of its recommended approach would include a reduction in painting costs per tower of 15% for rusty towers, 30% for non-rusty towers and a reduction in comparative benchmarking costs by 50%.

103. Transpower's response to TLM's report was to develop a Ten Year Tower Painting Programme and review the Tower Painting Policy. This resulted in the changes described above. However, given the potential for very significant savings, Strata is surprised that the strategy change was not implemented until well into calendar 2008 despite the TLM report being received by Transpower in April 2007.

No Cost Savings Targets

104. Transpower has advised that overall tower painting expenditure will increase because it now needs to increase painting to 5% of its tower fleet each year to sustain the new strategy. Transpower advises that because the overall spend on tower painting will increase, it has concluded no savings targets should be put in place.

105. Strata does not agree that because more towers are being painted that it is inappropriate or illogical to set targets. Whilst Transpower has indicated that it will assess the impact of changes on tower painting costs, Strata considers that it should go further and set savings targets for particular categories of capital expenditure and then monitor performance against them.

We note that:

- tower painting occurs year after year and, at \$16.6m in 2009/10 (14.3% of Business Plan), is a very significant area of capital expenditure;
- a better understanding of the contractor's cost structure would appear to be a useful tool for Transpower in managing relationships with them. Whilst contracts are let through a tender process, Strata expects that there would be opportunities outside of that process to utilise this understanding with contractors and exert downward pressure on prices;

¹⁷ TLM LineTech Consulting (TLM) report "Transpower Tower Painting – Detailed Analysis and Recommendations for Change"

- the opportunities to make savings or constrain increases appear to be significant given:
 - 3 year contracts provide greater certainty for contractors. Contractors can invest in staff, give them greater continuity and avoid retraining costs
 - contractors can spread cost recoveries over 36 months rather than 12 months
 - the logistics involved in painting continuous sections of towers are easier
 - the increase in the total number of towers being painted allow for greater economies of scale, including the opportunity for contractors to spread the recovery of fixed overheads over a greater number of towers
 - Transpower has (according to TLM in 2007) been using the most expensive tower maintenance regime (by a factor of 2-3 times) and had been getting further and further behind in tower maintenance with the number of 'rusty' towers increasing by one a day; and
- whilst some aspects of tower painting costs are difficult to predict (e.g. wage rates) others can be more readily assessed (e.g. labour inputs).

106. In Strata's view Transpower should do the analysis on tower painting costs and form a view on the expected price path for tower painting. Strata considers that it should then set targets for Transpower's performance in managing tower painting costs and subsequently assess performance against those targets.

107. This reflects Strata's general view (discussed in previous Reviews) that Transpower should set targets for the reduction or constraint of growth in capital expenditure for different categories of capital expenditure. Strata acknowledges that this will not be appropriate for all types of capital expenditure but will generally suit situations where the spend is repeated year after year. Performance should be measured against these targets.

108. We also note that whilst overall annual tower painting costs will increase, Transpower advise that it expects a substantial reduction in unit cost over time. However, Transpower has also advised that it has not undertaken any analysis on which to base forecasts of how tower painting costs will track from year to year. Also, although contracts had been let on the new basis, Transpower advised that it was difficult to isolate the impact that the changes have had on the pricing obtained.

Other Tendering & Contracting Changes

109. Transpower has also sought to broaden tender panels through issuing ROI's because it considered that its practice of inviting tenders only

from approved suppliers was limiting the pool. Transpower expects this step to increase the level of competition and facilitate the process of reviewing tenders. Strata considers it likely that this approach will improve prospects of achieving the least-cost objective.

110. Transpower has also entered into Period Supply Contracts for projects other than tower painting. Some of these include price formulae which include an index linked materials cost basis. Transpower advise that this has fostered a form of partnership whereby the supplier has become familiar with Transpower's requirements and is better able to suggest improvements to Transpower practices.
111. Transpower has considered moving to an "open book" model for contracting. It considers this model to be worthy of consideration where there is a high degree of uncertainty around design, scope, volume of work or potential difficulties. Transpower advised that in the case of tower painting the scope, tower condition and lack of design risk were well known beforehand.
112. Transpower considers that it secured better value through a competitive tendering process and having the certainty of a fixed price. Strata notes that open book contracting does not however preclude setting a fixed price. It simply means that the margins are disclosed to Transpower. It is not evident from materials provided to Strata this year that Transpower is aware of the margins contractors achieve on tower painting.

Benchmarking

113. Transpower continues to participate in (or receive data from) a number of benchmarking surveys:
 - the TNAM (Transmission Network Asset Managers) survey of Australasian transmission network managers focuses on policies, objectives, strategies, processes, practices and data for asset replacement and refurbishment. This could potentially be very useful subject to the comparability of the data and its relevance to achieving least-cost capital expenditure
 - ITOMS continues to be a source of bench-marking data for Transpower. In the past, Strata has raised the issue of the use of ITOMS because it focuses on operational expenditure rather than capital expenditure. However it does provide asset performance data across the range of key asset categories and this has been a significant input into the asset management strategy work discussed above. However Transpower has indicated that the data has generally revealed poor asset performance relative to other transmission service providers. The effect has therefore been to add upward pressure on capital expenditure and it appears to contribute little to achieving the least-cost objective
 - the NAMITS (Network Asset Management Information Technology Services Consortium Study) survey was initiated in 2008 as a

consortium of international transmission companies. This survey captures data on asset management tool usage, best practice profiles, cost and service level measurement and customer satisfaction. Feedback is expected from this in May/June.

Project Classification

114. The restructuring of Grid Investment and National Grid, which was signalled at the time of Strata's 2008 Review, has now been completed with the creation of three divisions: Grid Development (planning functions), Grid Projects (building) and Grid Performance (operation & maintenance). Transpower advise decisions for the co-ordination and classification of the policy driven works within the Grid Performance division are now managed by the Asset Works Planning group in Grid Development. This group has oversight of all capital works across all workstreams (network, policy, IST, customer and policy network). Transpower anticipates that this will improve the appropriate classification of works. Strata considers it unclear as to how this benefit will be derived.

8. Business Plan & Threshold for 2009/10

8.1. Information Basis

115. Transpower provided a schedule setting out its proposed grid related capital expenditure plan for the financial year 2009/10. The project schedule has been extracted directly from Transpower's Asset Work Plan within its asset management database (AMDB). Transpower has provided the data in an Excel spreadsheet (Grid RR 2009_10 Threshold Analysis V3 3.xls) this data has been used as the basis for the following analysis and threshold evaluation.

116. Transpower noted the following in connection with the information:

- the capital expenditure plan is currently in draft form as the 2009/10 Draft Business Plan has not yet been formally approved by the CEO and the Transpower Board – numbers may therefore change in the final analysis;
- the following threshold expenditure categories have been applied:
 - minor enhancement and development
 - replacement
 - refurbishment
 - capital investigations
 - purchases / easements - relating to existing assets;
- no contingency provisions were included in the expenditure forecasts for any of the RRE threshold projects.

117. The total planned and rollover figures in the 2009/10 Business Plan are provided in the following table. Figures for the previous three years are provided for comparison.

8.2. RRE planned, unplanned and rollover comparison

	2009/10	2008/09			2007/08			2006/07		
	Business Plan	Business Plan	Forecast	Variance	Business Plan	Actual		Business Plan	Actual	Variance
Planned	\$94,455,985	\$87,838,571	\$49,938,102	\$37,900,469	\$50,822,525	\$34,793,411	\$16,029,114	\$52,062,295	\$34,512,457	\$17,549,838
Unplanned	////	////	\$8,798,714	-\$8,798,714	////	\$8,204,264	-\$8,204,264	////	\$9,637,224	-\$9,637,224
Planned Rollover	\$21,558,292	\$9,869,050	\$910,046	\$8,959,004	\$5,430,953	\$684,774	\$4,746,179	\$5,386,900	\$1,396,297	\$3,990,603
Unplanned Rollover	////	////	\$6,986,690	-\$6,986,690	////	\$6,279,909	-\$6,279,909	////	\$5,181,079	-\$5,181,079
Total	\$116,014,277	\$97,707,621	\$66,633,552	\$31,074,069	\$56,253,478	\$49,962,358	\$6,291,120	\$57,449,195	\$50,727,057	\$6,722,138

8.3. Planned Threshold Expenditure 2009/10

118. The planned level of RRE Non-Part F threshold expenditure for 2009/10 is \$116.01.m compared with a Business Plan figure (before any efficiency factor) of \$97.71m for the 2008/09 year¹⁸. The figure is consistent with the forecast capital expenditure published by Transpower in its 2008 Asset Management Plan.
119. This reflects a 106% increase in the level of threshold expenditure over 2007/08 and a 19% increase above the 2008/09 level. These increases are mainly driven by:
- the rollover of \$13.4m into the plan of major transformer purchases that could not be completed in 2008/09;
 - rollover of the North and South Island metering projects totaling \$4.1m;
 - increased expenditure on single phase transformer replacement following the review of the transformer replacement strategy;
 - continuing focus on addressing a significant backlog of tower painting works due to a change in the tower painting strategy; and
 - the introduction of accelerated infrastructure projects that have continued the focus on grillage foundation refurbishment.
120. Transpower's forecast total rollover from the 2008/09 year into the 2009/10 Business Plan is \$21,588,292 with 60 projects contributing to the rollover. Of the rollover total, \$17.5m can be attributed to the timing delay on expected delivery of three strategic spare transformers and the lack of progress on the North and South Island metering projects. When these projects are subtracted from the total rollover the remaining \$4m is comparable to previous year's figures.

8.4. Accelerated Infrastructure Projects

121. Transpower has provided information on a set of projects that have been included in the 2009/10 Business Plan that have been categorised as "Accelerated Infrastructure". It is understood that these projects have been considered to meet the Government's objective of increasing spending on infrastructure projects in light of the deteriorating economic conditions.

¹⁸ The \$97.71m figure is different to the \$98.1m Business Plan figure included in Strata's 2008/09 review is due to small changes made to the Business Plan following the completion of the Strata report.

122. Transpower has used the following criteria to select projects for acceleration:

- relatively short lead times;
- limited upfront design requirements;
- do not require significant approvals under the RMA or property purchases;
- work was already planned, and/or had been through Transpower's approval process;
- work can be accommodated by available resources;
- work can be combined with planned work to create synergies (economies of scale or scope).

123. The table below sets out the projects that are classified as Accelerated Infrastructure. Note Total Project Cost refers to the overall cost of the project whether it falls in the 2009/10 year or outside.

	2009/10 Business Plan Component	Total Project cost
Batteries, Banks and Charger Replacements	\$18,732	\$18,732
Circuit Breaker Replacement Programme	\$108,000	\$194,125
Disconnecter and Earth Switch Replacements	\$325,311	\$325,311
Grillage Refurbishment Programme	\$8,098,183	\$15,484,436
Other Lines Works	\$1,560,996	\$3,240,504
Other Substation Works	\$5,959,077	\$7,342,695
Protection Replacement Programme	\$1,300,825	\$1,300,825
ARI-HAM B Urban Copper Replacement	\$1,248,797	\$1,248,797
Total	\$18,619,921	\$29,155,425

124. Of the Accelerated Infrastructure spending 43% is due to grillage refurbishment programme and 32% to other substation works. The likelihood of an increase in spending due to grillage refurbishment was highlighted in Strata's 2008 review report.

8.5. Consideration of the Business Plan as an RRE Threshold

125. Strata has considered the appropriateness of the 2009/10 Business Plan for use as a threshold for RRE capital expenditure. It is considered that there are three areas of concern where an adjustment to the Business Plan may be justified when setting a threshold. Those areas of concern are:

- the extent of rollovers from the previous year
- the accuracy of the Business Plan
- the impact of the accelerated infrastructure projects

Each of these considerations are discussed below.

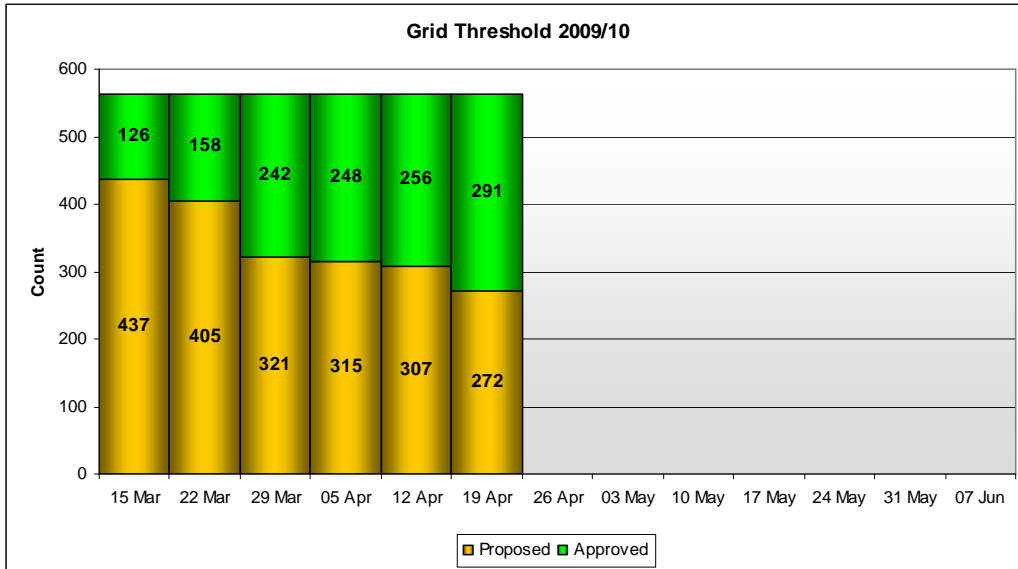
Extent of rollovers from the previous year

126. The impact of rollovers on the accuracy of the Business Plan can be considerable. In previous years projects that rolled out of a financial year were generally comparable to the level of projects that had rolled in from the previous year. It was also seen that the level of unplanned projects was to a reasonable degree comparable to projects that did not proceed. On this basis it was concluded that the Business Plan could be accepted whilst still allowing Transpower the flexibility to manage the dynamics of its work programmes.
127. However the total value of rollovers from 2008/09 is much higher than in previous years. This raises questions regarding the accuracy of planning but also the impact rollovers have on the appropriateness of the threshold levels from year to year. Accepting a project in the threshold for every year can be considered to build in a margin for inefficiency/overspend on other projects.
128. For the 2009/10 Business Plan it is clear that the delay in obtaining the strategic spare transformers had a significant impact on the levels of rollover. Transpower has provided confirmation that the delivery dates for the transformers is firm and that will be completed in the 2009/10 financial year.
129. Strata accept Transpower's assurance regarding delivery of the strategic spare transformers and considers it is appropriate to include these projects within the Threshold.
130. The large rollover value can also be attributed to the North and South Island metering projects. These projects have been included in the previous two years' Business Plan, and therefore the thresholds in those years, yet no progress has been made on them. Strata viewed the approval documents for these projects and found that no additional analysis had been completed since the high level business case produced by EMS in 2006. The overall project cost of \$12.9m included in the initial 2009/10 Business Plan did not appear to have been updated since the 2006 business case. In the latest 2009/10 Business Plan the total project cost for the metering project has risen to \$13.45m but no documentation to explain how the new value was calculated has been seen by Strata. Note the planned spend on this project in 2009/10 is \$4.1m.
131. Whilst there appears to be a case for replacing the current grid meters Strata has the following concerns regarding inclusion of these costs in the 2009/10 threshold:
- the cost of meters may have changed substantially since 2006;
 - replacement of grid metering will involve discussions with a wide range of industry stakeholders as they provide significant data and information for the electricity market operations. These discussions could take some time to complete;
 - the low level of progress made on project design and planning;
 - the potential alternatives that may need to be considered (these may include meter ownership and leaseback options).

132. Strata considers that there is a likelihood that the grid meter replacement programme will not be progressed sufficiently in 2009/10 for the Business Plan level of expenditure to be realised. This would mean that the expenditure would rollover for a further year into 2010/11.
133. As rollovers into the Business Plan from the previous year are included under the threshold, an adjustment for rollovers that rollout of the Business Plan into the following year can be considered. This has not been done in previous years because the rollovers and unplanned projects were relatively balanced. Due to the recent trend in rollovers it is considered that for 2009/10 a 6% adjustment should be made to the threshold to reflect the anticipated rollovers from the Business Plan into the following year.

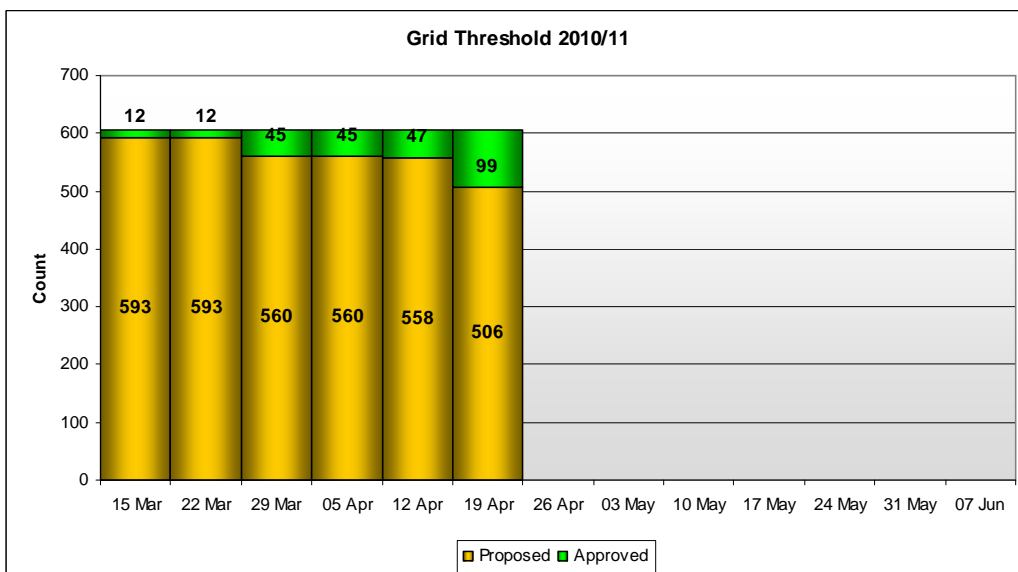
Accuracy of the Business Plan

134. Setting an appropriate threshold under the Settlement Agreement is dependent upon planning processes delivering accurate and appropriate RRE projects and programmes. This avoids the need to undertake a project by project assessment. However, variations between businesses plan and actual expenditure figures achieved in 2008/09 raise concern if a threshold is set using Business Plan information.
135. Strata considers there are five potential reasons for variations between actual and plan expenditure (as discussed above under Issues regarding 2008/09 performance). These reasons are:
 1. planning accuracy;
 2. efficiency gains;
 3. resources and/or capability;
 4. performance; and
 5. other external factors.
136. Planning accuracy can be improved by ensuring that projects included in the Business Plans have progressed through a rigorous validation and approvals process. These processes should also include components that enable efficiency gains to be identified and captured. Previously, Transpower had advised that it was targeting 80% of Business Plan projects to have completed the approval stage. As at 15th March 2009, out of the total planned RRE projects only 126 (22%) had completed the approval stage. Transpower placed a focus on this during March and as of 26th April, the number of projects that had completed approvals had risen to 291 (52%) This was 46% by dollar value.



Source: Transpower

137. Looking out a further year, 16% of currently proposed projects for 2010/11 had reached approved status by 26th April 2009. It is accepted that projects included in longer term planning will have much lower levels of completed approvals. Substantial changes do occur between the long term plan and the structure and timing projects that are eventually completed. However, basing a threshold on such plans is problematical. Given the good level of information on asset age and condition it should be possible for Transpower to develop a more accurate and reliable method of longer term capital expenditure planning.



Source: Transpower

138. The low number of projects included in the draft 2009/10 Business Plan that had completed approval stages, presents challenges for the assessment of the Business Plan capital expenditure as an appropriate threshold. Whilst the swift increase in approvals during March/April improved the level of approved projects it also raised concerns regarding the rigour of the approvals assessments that could be undertaken on a relatively large number of projects in such a short period of time.
139. In March/April 2009 Transpower's Chief Executive and senior management undertook a review and challenge of all projects proposed for the 2009/10 Business Plan. Strata was provided with information on the outcomes of the challenge. A 2% reduction in planned RRE capital expenditure was achieved through the challenge process.
140. Whilst a 2% reduction can be considered to be relatively small, the fact that Transpower undertook the challenge with senior management focus provides a strong indication Transpower's senior management consider that the projects that are included in the Business Plan are required to be completed. Strata accepts that the Business Plan reflects Transpower's Chief Executive's and senior management view that the Business Plan RRE capital expenditure is necessary to ensure ongoing performance of the transmission network.
141. Whilst improvements have been undertaken in the structure and application of the project management and approvals processes, Strata considers that further efficiency gains are still available. It is also considered that the Business Plan does not reflect the efficiency gains that can be realised in some areas. Due to the lack of measurement and assessment of potential efficiency gains it is difficult to assess the level of the gains that could be realised. However, following a review of Transpower's capital works, project validation and approval processes, Strata is of the view that gains of 2.5% should be possible. An adjustment of 2.5% is recommended to the Business Plan to reflect the potential efficiency gains.
142. Having reviewed Transpower's capital works, project validation and approval processes Strata estimates that gains of at least 5% are made through the detailed design, cost/benefit and options analysis and the procurement review components of the validation and approval process. However, it is acknowledged this is a subjective view and therefore a conservative approach needs to be taken in applying a discount. Given that only 52% of projects in the Business Plan have completed approvals, Strata considers that an additional downwards adjustment of 2.5% to the unapproved projects included in the Business Plan would be reasonable to take into account likely cost reductions derived through the validation and approvals process.

8.6. Consideration of Accelerated Infrastructure projects

143. The introduction of Accelerated Infrastructure project categorisation raises questions regarding the appropriateness of such projects being allowed for under the threshold. If Accelerated Infrastructure projects increase expenditure in 2009/10 without producing at least an equivalent benefit, they can be considered to be inefficient and as such, the threshold may be adjusted downwards to reflect the inefficiency.

144. Transpower has provided a cost benefit analysis for the Accelerated Investment projects. In its review Transpower states that:

"Transpower considers that for the most part, the projects it wishes to accelerate should be undertaken as soon as possible because the benefits in terms of meeting best practice standards and/or improving reliability and/or improving safety are likely to outweigh any incremental costs associated with bringing this work forward by a few years."

145. To support the above proposition Transpower considers benefits arise in three areas:

- *"It will smooth work flows over the next four years. Transpower expects the need for skilled workers for both transmission lines and substations investment to peak in the 2011 to 2013 period. Contractors have already increased staff numbers and invested in up-skilling staff to implement tactical transmission upgrades between 2005 and 2009, and also to provide resources for the significant peak between 2011 and 2013. However, in the intervening period from 2009 to 2011 there is a dip in the predicted transmission upgrade projects. Bringing forward maintenance investment into the next two years will help maintain the current contractor resources and help reduce the resourcing peak in 2011 to 2013. This will reduce the training burden, and increase the probability that skilled staff will be available in the future when they are needed. The improved use of staff over the short term is likely to result in lower contract costs and/or better quality of work now and in the future. This benefit is explained in more detail in Annex 1.*
- *The economic downturn means that labour resources are likely to be available at lower cost now compared with the past few years or the future. Bringing forward some investment allows Transpower to take advantage of these lower costs.*
- *The unit costs for some of the proposed work can be reduced by offering larger packages of work to contractors. Transpower expects that because of the economies of scale and scope, and the continuity of work, significant cost savings can be achieved. The packaging of work will also*

reduce landowner disturbances by coordinating related work programmes."

146. Transpower has assessed that increased costs of accelerating the projects may arise from the following:

"Bringing forward of investment will bring forward the investment cost. The cost to customers will be approximately equal to the cost of capital times the capital cost, for the period the investment is brought forward."

147. Transpower's assessment of the likely cost/benefits arising from the accelerated investment projects is contained in the following extract from their briefing to Strata :

"For the most part, Transpower considers that the cost will be more than offset by the benefits of reducing future costs (net present value) and/or by improving the reliability of the grid and/or improving safety.

For a few of the projects, the above benefits may not be sufficient on their own to justify advancing the projects. However, for these projects Transpower considers that the other benefits, including the benefits of smoothing work-flow, achieving economies of scale and scope, and realising lower unit costs given the more competitive environment at the moment, will outweigh the costs.

These benefits may not necessarily lead to lower expenditure in the short-term as a number of projects e.g. grillage refurbishment, are part of long term implementation plans where the benefits that accrue will be used to fund additional grillage refurbishment."

148. Strata considers that the only firm benefit that can be quantified for accelerating the projects is the potential cost reductions that may arise from reduced charges from contractors. Benefits from smoothing labour patterns through 2009/11 may exist but are difficult to confirm and quantify.
149. Strata considers that the ability for Transpower to capture the benefits of reduced contractor charges is likely to be reduced due to the existing long term contracts at fixed rates.
150. Based on the information provided by Transpower, Strata has concluded that Transpower's case for acceleration of the projects has not produced a clear net benefit. As such acceleration may produce increased costs to consumers above those that would be expected from an efficient capital investment programme. However, Strata considers that at least some of the non quantifiable benefits arising from smoothing resource requirements and reductions in unit costs are likely to be realised.
151. As the potential cost of accelerating the projects (by one year) is estimated at less than \$1.5m, Strata considers that there is a reasonable likelihood that the non-quantifiable benefits will outweigh the costs.

152. Given the above conclusions, Strata considers that the Accelerated Projects should be allowed in the Threshold for 2009/10 without adjustment.

9. Conclusions & Recommendations

9.1. Have Transpower's processes considered and targeted appropriate least-cost, efficient, interventions?

153. Transpower advises that it seeks to achieve the lowest whole-of-life cost through a number of measures, some of which have been introduced since the previous review:

Project Management Processes

154. Transpower advises that it is significantly expanding its project management functions to strengthen processes and build greater in-house capabilities.

Design Standardisation

155. Standardised component design leads to a commoditisation of the design and installation process and also to shorter fabrication and installation times and lower installation risk. Transpower quoted the example of standardisation design for equipment stands for substations which had led to procurement cost reductions of approximately 30%.

Period Supply / Maintenance Contracts

156. Period contracts for a range of products are established by competitive tender for periods of 3-5 years. Pricing is established for the term of the contract, this acts to incentivise suppliers to invest in productivity enhancements and cost efficiencies based on improved volumes and longer time frames. Transpower considers that this has lowered tendering and procurement costs.

Tower Painting Strategy

157. As well as entering into period contracts, Transpower has also changed its painting strategy to preventing corrosion penetrating the galvanized layer and to painting continuous sections rather than selected towers.

Preferred Consultants

158. Transpower has selected three preferred consultants for design engineering services. Tenders are let through a competitive process and performance is monitored through quarterly meetings and KPI's.

Prequalified Suppliers

159. Transpower has prequalified certain suppliers on the basis of demonstrated technical and commercial factors.

Governance Arrangements

- Delegated Financial Authority – appropriate delegations
- Tender Evaluation – evaluation templates
- Standard Conditions of Contract for Non – IT work – establishes an efficient and consistent mechanism.

Standard Estimating Methodology and Tool

160. Increased standardisation maximises cost estimation accuracy and reduces project variations.

Policies & Standards

161. Transpower asserts its policies and standards are based on international practice through benchmarking such as ITOMS.

9.2. Strata's View

162. Strata accepts that these policies, processes and strategies are likely to assist in achieving the least-cost capital expenditure objective. However, in our view, the focus on constraining capital expenditure in the processes and their application remain incomplete. Strata takes this view because it appears that:

- there are still no specific targets set for reductions in capital expenditure costs on a category by category basis;
- there is no monitoring and reporting of cost reducing improvements;
- there is little quantification of the benefits to be obtained from improvements (in dollar or percentage terms);
- there is little analysis of the impact on costs of the timing of the implementation of these measures (where not yet implemented) and little estimation of the period over which the full benefit will begin to accrue;
- whilst there is discussion (but not implementation as yet) of a rigorous and effective process of feeding back cost data into cost estimation processes, it does not appear to be happening; and
- benchmarking remains an issue, although the relevance of the data to achieving least-cost capital expenditure appears to be improving.

9.3. Reasonableness of Draft Business Plan Costs

163. A key function of Strata's Review is to form a view and recommend to the Commerce Commission whether the Draft Business Plan figures for RRE should be accepted as an appropriate base on which to calculate a threshold and to consider what discount(s) should be

applied in calculating it. Key factors Strata has taken into account are:

- the recent rigorous project by project review of the draft Business Plan by the CEO and senior management which reduced the previous Plan figure for RRE threshold capital expenditure by \$2.0m (2%). Given this was in addition to the project approval processes already applied Strata considers it is reasonable to now assume the planned projects:
 - are essential to maintaining the performance of the Grid
 - reflect an economically justifiable and efficient package
 - are achievable in the context of the skills and resources available to Transpower;
- the top (by value) 16 projects included in the 2009/10 Business Plan have been reviewed. These projects account for 33% of the total RRE planned spend for 2009/10. A list of the top 16 projects is provided in the table below;

Work Name	Asset Cat	Activity	Process	Programme
National Spare 220/33 kV 100 M	Substation	Replacement	Policy/Development	National Spare 220/33 kV 100 M
National spare 110/33 kV 60 MV	Substation	Replacement	Policy/Development	National spare 110/33 kV 60 MV
BPE-WGN B Reconductor	Transmission	Replacement	Policy/Development	BPE-WGN B Reconductor
HAM T4 Supply Transformer Repl	Substation	Replacement	Policy/Development	Transformer Replacement Programme
Metering Replacement Project - South Island	Substation	Enhancement	Policy	Metering Replacement Project
Metering Replacement Project - North Island	Substation	Enhancement	Policy	Metering Replacement Project
Aerial Laser Survey - Stage VII (2009/10)	Transmission	Investigation - Capital	Network Development	Aerial Laser Survey
TUI 110 kV Bus Zone Protection	Substation	Development	Policy	TUI 110kV Full Local Backup
WDV 110/11 kV 1x10 MVA Supply Transformer Replacement	Substation	Replacement	Policy/Development	Transformer Replacement Programme
BPE-WKMB Grillage Refurbishment	Transmission	Refurbishment	Policy	Grillage Refurbishment Programme
TNG Bus, Structure, Fence and Building Refurbishment	Substation	Refurbishment	Policy	TNG Bus, Structure, Fence and Building Refurbishment
ARI-HAM B Urban Copper Replacement	Transmission	Enhancement	Policy	ARI-HAM B Urban Copper Replacement
WHU 110kV Full Local Backup	Substation	Development	Policy/Development	WHU 110kV Full Local Backup
HAY-DC Synchronous Condensers Refurbishment	HVDC	Refurbishment	Policy	HAY-DC Synchronous Condensers Refurbishment
BPE-WKM A Grillage Refurbishment	Transmission	Refurbishment	Policy	Grillage Refurbishment Programme
SBK 66 kV Bus Zone and CB Fail	Substation	Development	Policy	SBK 66kV Full Local Backup

- Strata considers that all 16 of the projects can be considered to be required to maintain the future performance of the transmission assets. This view is consistent with the outcome of the CEO and senior management challenge. However, as discussed in previous sections, Strata considers there is a reasonable possibility that the two metering projects will not be undertaken in 2009/10. Strata considers the challenge process may have erred in one respect by not adequately assessing the probability of these projects proceeding in 2009/10;
- Strata is of the view that gains of 2.5% on the Business Plan should be possible through efficiency gains. An adjustment of 2.5% is recommended to the Business Plan to reflect the potential efficiency gains;

- as 54% (by value) of the projects in the Business Plan have not yet been approved, an opportunity remains for further savings to be made as the rigour of the validation and approval process is applied. Having reviewed Transpower's capital works, project validation and approval processes, Strata estimates that gains of at least 5% are made through the detailed design, cost/benefit and options analysis and the procurement review components of the validation and approval process. However, as discussed, this is a subjective view and therefore any adjustment should be conservative. Given that only 52% (41% by value) of projects in the Business Plan have completed approvals, Strata considers that a downwards adjustment of 2.5% to the value of the unapproved projects included in the Business Plan would be reasonable to take into account likely cost reductions derived through the validation and approvals process. The approved projects in the Business Plan total \$48 million and the unapproved projects total \$68 million. The proposed adjustment would be applied to the \$68 million figure;
- Strata has also considered whether to adjust the Business Plan figure downwards because of underperformance against budget. The forecast actual outturn for 08/09 is expected to be 32% under budget. In the preceding two years was 11% and 12% under. The logic for an adjustment is that if Transpower has consistently and significantly underperformed against budget then a threshold calculated without any adjustment would arguably place no pressure on Transpower to achieve the least-cost objective. However, despite this, Strata does not recommend a downwards adjustment because, as discussed immediately above, the Business Plan review by the CEO and senior management means that the projects in the Business Plan should be regarded as essential, justifiable and achievable. However, given the high level of rollovers in the current year and the inevitability rollovers will occur, Strata is recommending an adjustment to take into account expected rollovers into the 2010/11 financial year; and
- in respect of the Accelerated Projects, Strata has concluded that Transpower's case has not produced a clear net benefit. However, the intangible benefits arising from smoothing resource requirements and reductions in unit costs are likely to be realised and there is a reasonable likelihood that the non-quantifiable benefits will outweigh the costs. Strata considers that the Accelerated Projects should be allowed in the Threshold for 2009/10 without adjustment.

164. Strata therefore considers it appropriate to use Transpower's Draft Business Plan figure of \$116m as a basis to establish a threshold for RRE capital expenditure. This figure should be adjusted to reflect:

- non-approved projects subject to an adjustment of 2.5%;

- all projects subject to a 2.5% efficiency factor adjustment; and
- an adjustment to reflect rollovers into 2010/11 of 6%.

The adjustment to non-approved projects is applied first as this has the effect of bringing these projects to an expected post approval level. The efficiency adjustment is then applied to all projects as this reflects the gains that can be made across all if process efficiencies are achieved. The rollover adjustment is then applied to the adjusted business plan figure.

Adjustment calculation

RRE threshold calculation

Approved projects in threshold	\$48,021,991
Proposed projects in threshold	\$67,992,286
	\$116,014,277

Unapproved adjustment	Less 2.5%	\$1,699,807
Efficiency improvement	Less 2.5%	\$2,857,862
Rollover adjustment	Less 6%	\$6,687,396
Total adjustment		\$11,245,065

RRE Threshold	\$104,769,211
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Adjusting the Draft Business Plan figure on this basis would result in an RRE component of the Threshold of \$ 104.8m.

Section II: Information Systems & Technology Capital Expenditure

10. Background

165. In order to meet its obligations as system operator and network owner and to comply with the relevant legislation, standards and EGR, Transpower undertakes investment in IST.
166. In addition to this capital expenditure, Transpower undertakes a number of other capital projects to upgrade or replace IT services. Such expenditure is not scrutinised and approved by the Electricity Commission under Part F. However whilst still meeting its service obligations, Transpower is required to manage these programmes in a manner that ensures the services grid users and consumers want are delivered at least-cost.¹⁹
167. Transpower defines each of the key categories of IST capital expenditure which are subject to a threshold as follows:
- | | |
|-----------------------|--------------------------------------------------------------------------------------|
| Telecommunications: | TNP, other projects and the telecommunications capital works programme; |
| Real Time & Stations: | All real time and stations projects including the stations capital works programmes; |
| Grid Asset Systems: | All grid asset systems such as iPass, ACI, ALS, MMS. |

These definitions align with those used in the Settlement Agreement.

Excluded are:

- Market Systems related applications (examined under SOSPA);
- Business Support applications and services (eg; underpinning infrastructure, FMIS, HRIS etc).

¹⁹ Government Policy Statement on Electricity Governance May 2009 Section 6, Objectives for the provision of transmission services, bullet point 6

11. IST Performance Review 2008/09

Overall Performance

Forecast year end actual vs planned IST expenditure (excl capitalised lease costs)

\$ millions	2008/09			2007/08			2006/07		
	Bus Plan	Forecast	Variance	Bus Plan	Actual	Variance	Bus Plan	Actual	Variance
Planned	66.2	33.9	-32.3	31.2	25.5	-5.7	29.5	16.1	-13.4
Rollover		2.9	2.9		1.7	1.7		0.5	0.5
Unplanned		5.1	5.1		5.1	5.1		3	3
Total	66.2	41.9	-24.3	31.2	32.3	1.1	29.5	19.6	-9.9

The table above sets out IST threshold capital expenditure (excluding capitalised operating leases) over the current (08/09) year and preceding 2 years, according to whether it was planned, rolled over from the previous year, or unplanned. The forecast outturn for the 2008/09 year is as at March 2009.

168. The table reflects a steady increase in the level of actual (as distinct from planned) annual IST threshold capital expenditure spend over the 3 years to June 2009. Key points to note are:

- the 07/08 actual spend was an increase of 65% over 06/07;
- the 08/09 (forecast) actual spend is a 30% increase over 07/08;
- the (forecast) actual spend for 08/09 is more than double that of 06/07; and
- the Business Plan spend in 08/09 is more than double either of the preceding two years.

As for RRE capital expenditure, Strata found a significant disparity between the actual spend and Business Plan figures.

Operating Leases

169. In 2007/08 the actual operating lease spend was just 2% of Business Plan. In 2008/09 the forecast outturn is expected to reach just 39% of the Business Plan. However Transpower has taken advantage of new opportunities to negotiate cost-sharing arrangements which has resulted in delays and reduced costs.

Planned TNP & Grid Related Capital expenditure

170. Over the past three years Transpower has underspent on planned projects (ie excluding rollovers and unplanned) against the Business Plan as follows:

IST Planned Projects (excludes rollovers and unplanned projects)

Year	Business Plan	Actual	Underspend %
06/07	29.5	16.1	45.4%
07/08	31.2	25.5	18.3%
08/09	66.2	33.9	48.8%

171. The above table shows the spend on planned projects has always been at least 18% under budget over the past three years and, in the current financial year, is forecast to reach nearly 50%.

All TNP & Grid Related Capital expenditure

172. Rollovers and unplanned projects may impact to some extent on the progress of planned projects. If these are taken into account the following picture emerges:

IST projects - Planned, Unplanned & Rollovers

Year	Business Plan	Actual	Underspend %
06/07	29.5	19.6	33.6%
07/08	31.2	32.3	-3.5%
08/09	66.2	41.9	36.7%

173. The 07/08 year resulted in a small (3.5%) overspend against budget, however, in the 06/07 and 08/09 years the budget was underspent by 33.6% and 36.7% respectively. Therefore even after including rollovers and unplanned projects (but excluding operating leases), a very significant difference between Business Plan spend and the actual spend remains, particularly in 08/09.

174. Key factors which have impacted IST's actual spend in 08/09 are:

- a number of changes occurred in the telecommunications market, including the unbundling of relevant aspects of Telecom's services. These changes created a number of opportunities to negotiate more favourable than budgeted fibre build costs and fibre leasing arrangements. An example is the OTC03 Blenheim-Islington Link Project which was budgeted at \$10.5m. This went to tender and a price of \$12.0m resulted however, as a result of the subsequent negotiation of a cost-sharing arrangement, this will now cost \$7.9m. Transpower advise that, to an extent, such reductions in cost have been offset by higher than expected site make-ready costs and a higher than expected battery replacement requirement;
- the pursuit of opportunities to negotiate reduced build or leasing costs has not only reduced the level of actual spend once projects proceeded, but also significantly delayed

capital expenditure whilst Transpower participated in negotiations;

- IST has acknowledged that whilst core services projects have gone well, its performance on asset management and substations has not been as good. The Chief Executive also commented in January 2009 that IST's commitments '...are already greater than we are capable of delivering.'²⁰;
- IST has changed its approach to one of building and operationalising larger sections of the inner core communications network at a time rather than doing so incrementally; and
- an audit by PWC took place Dec 2007 to March 2008. IST has advised that the moratorium on processing business cases during that period time resulted in delays during the 08/09 year. We note however that when the data on the relevant initial and actual start dates were compared, it did not appear that these were significantly impacted. However it is possible that the capacity to progress projects was hindered even if start dates remained much the same.

175. We note that whilst there have been delays to the TNP project, IST advise that they are confident that the overall 5 year timeframe is achievable.

Rollovers & Unplanned Projects

176. As shown in the table at the beginning of this section the forecast outturn for 08/09 rollovers is \$2.9m. This represents 4.4% (or 2.25 weeks pro rata) of budgeted spend and 6.9% (3.6 weeks) of forecast actual spend. Strata does not consider this to be unduly high.

Threshold Compliance

177. The IST component of the 2008/09 threshold recommended by Strata in its previous review report was \$109.6 million. As shown in the table below the forecast year end actual expenditure of \$41.9 million plus \$15.7 million in capitalised operating leases is 48% below the threshold.

IST Threshold Compliance Evaluation 2008/09	
TNP & Grid Related IST Capex (forecast year-end)	41.9
Capitalised Operating Leases (forecast year-end)	15.7
Total	57.6
Recommended IST Component of 2008/09 Threshold	109.6
Percentage Under Threshold	47.4%

²⁰ Transpower CEO memo to GM's 27 Jan 2009

Project Approvals & Performance

178. Schedule 2 clause C (ii) of the Settlement Agreement requires that Transpower makes available to the Commission a schedule that shows, for non Part F capital expenditure projects completed in the second half of the calendar year before the commencement of the assessment period, a comparison of actual expenditure in that second half versus budgeted expenditure for that second half. Reasons for variations are to be provided for projects that have exceeded 10% of budgeted costs. Strata has obtained and reviewed information on all projects completed in the second half of calendar 2008 (see table overleaf).

Assessment of projects completed in the second half of calendar 2008

PROJECT ID	DESCR	Programme	TYPE	MAJOR ASSET	Planned STATUS	Approval Status	Prior Years	YTD to 31st Jan 09	Full Year 2008/09		Total Project	Forecast to exceed budgeted costs by more than 10%	Excess of actual over budget where >10% over	
							Actuals Net of SO	Actuals Net of SO	Budget Net of SO	Forecast Net of SO	Budget Net of SO			Approved Net of SO
CP_OTA_CX_00_00	OTA-PEN ADSS & OTA OPGW	Telecommunications	Development	IT Infrastructure	rollover	Z	\$39,278	\$134,882	\$0	\$135,285	\$0	\$183,867	yes	135,285
CP_KWA_04_00_00	KWA RTU Upgrade	Real Time & Stations	Development	IT Infrastructure	rollover	Z	\$64,904	\$10,988	\$0	\$12,472	\$0	\$95,552	yes	12,472
CP_TMU_18_00_00	TMU CBG SCADA Data for Waipa	Real Time & Stations	Enhancement	Communications	rollover	Z	\$5,670	\$12,431	\$0	\$12,431	\$0	\$11,998	yes	12,431
CP_ARA_10_00_00	ARA RTU Upgrade	Real Time & Stations	Enhancement	Communications	rollover	Z	\$78,994	\$10,442	\$0	\$12,011	\$0	\$109,278	yes	12,011
CP_WPA_10_00_00	WPA RTU Upgrade	Real Time & Stations	Development	IT Infrastructure	rollover	Z	\$68,775	\$8,689	\$0	\$10,173	\$0	\$82,449	yes	10,173
CP_LFD_01_00_00	LFD RTU Upgrade	Real Time & Stations	Development	IT Infrastructure	rollover	Z	\$68,545	\$7,763	\$0	\$9,077	\$0	\$90,560	yes	9,077
CP_PPI_04_00_00	PPI RTU Upgrade	Real Time & Stations	Development	IT Infrastructure	rollover	Z	\$63,078	\$7,688	\$0	\$9,002	\$0	\$84,321	yes	9,002
CP_SWN_06_00_00	SWN RTU Upgrade	Real Time & Stations	Enhancement	Communications	rollover	Z	\$73,045	\$6,342	\$0	\$7,402	\$0	\$93,180	yes	7,402
CP_MNI_08_00_00	MNI RTU Upgrade	Real Time & Stations	Development	IT Infrastructure	rollover	Z	\$72,560	\$4,583	\$0	\$4,583	\$0	\$96,799	yes	4,583
CP_OPK_18_00_00	OPK RTU Upgrade	Real Time & Stations	Development	IT Infrastructure	rollover	Z	\$65,734	\$4,096	\$0	\$4,096	\$0	\$83,697	yes	4,096
CP_TRK_61_00_00	TRK RTU Upgrade	Real Time & Stations	Enhancement	Communications	rollover	Z	\$319,457	\$1,997	\$0	\$1,997	\$0	\$400,219	yes	1,997
CP_TEL_AH_01_00	Te Puroa- NCCN Radio Link Rep	Telecommunications	Replacement	IT Infrastructure	rollover	Z	\$87,568	\$1,075	\$0	\$1,075	\$0	\$0	yes	1,075
CP_RTS_PA_00_00	SCADA/EMS Upgrade	Real Time & Stations	Development	IT Infrastructure	rollover	Z	\$13,659,735	\$678	\$0	\$678	\$0	\$14,274,302	yes	678
CP_OTG_14_00_00	OTG RTU Upgrade	Real Time & Stations	Development	IT Infrastructure	rollover	Z	\$77,850	\$481	\$0	\$481	\$0	\$74,338	yes	481
CP_RTS_AQ_00_00	RTU Test Equipment Purchase	Real Time & Stations	Development	IT Infrastructure	rollover	Z	\$88,286	\$42	\$0	\$42	\$0	\$89,642	yes	42
CP_VAR_LH_00_00	NNI Dig n/w Sync Strengthening	Telecommunications	Enhancement	IT Infrastructure	rollover	Z	\$59,837	\$0	\$0	\$0	\$0	\$0		-
CP_OTA_CC_00_00	Otauhu Remote Terminal Unit	Real Time & Stations	Enhancement	IT Infrastructure	rollover	Z	\$426,189	\$0	\$0	\$0	\$0	\$167,919		-
CP_MND_01_00_00	MND 48VDC Battery Replacement	Telecommunications	Replacement	Communications	rollover	Z	\$22,446	\$0	\$0	\$0	\$0	\$45,772		-
CP_RLT_AC_00_00	Electricity Comm Freq Reportin	Real Time & Stations	Development	IT Infrastructure	rollover	Z	\$0	\$0	\$0	\$0	\$0	\$0		-
CP_RTS_AR_00_00	VSAT Version 7.2 Upgrade	Real Time & Stations	Development	IT Infrastructure	rollover	Z	\$0	\$0	\$0	\$0	\$0	\$0		-
CP_RTS_AV_00_00	VSAT Input File Access	Real Time & Stations	Development	IT Infrastructure	unplanned	Z	\$0	\$0	\$0	\$0	\$0	\$0		-
CP_TEL_CF_00_00	MCo Network Connection Changes	Telecommunications	Development	IT Infrastructure	rollover	Z	\$0	\$0	\$0	\$0	\$0	\$0		-
CP_TPU_07_00_00	SI 4F RTU Replacement	Telecommunications	Replacement	Control	rollover	Z	\$4,094,878	\$0	\$0	\$0	\$0	\$4,093,000		-
CP_VAR_43_00_00	C50 RTU Upgrades	Real Time & Stations	Enhancement	Communications	rollover	Z	\$407,946	\$0	\$0	\$0	\$0	\$326,900		-
CP_VAR_KR_00_00	Telecoms Network Upgrade VAR	Telecommunications	Development	Communications	rollover	Z	\$292,867	\$0	\$0	\$0	\$0	\$281,157		-
CP_TEL_BC_00_00	Internet Connectivity Impl	Telecommunications	Development	IT Infrastructure	rollover	Z	\$155,355	-\$2,177	\$0	-\$2,177	\$0	\$161,392		-
CP_ROS_89_00_00	ROS RTU Upgrade	Real Time & Stations	Development	IT Infrastructure	rollover	Z	\$273,658	-\$99,584	\$0	-\$99,584	\$0	\$217,000		-
							\$20,566,653	\$110,414	\$0	\$119,045	\$0	\$21,063,342	15 projects	\$19,490,396

179. Strata has examined data for projects completed during the period from July 2008 to January 2009 at a detailed project level. Strata found that out of 207 projects:

- 19 were completed in the period;
- 16 had an actual spend more than 10% higher than the cost in the plan;
- all 19 projects were rollovers; and
- none had a budget for 08/09 however, all but two had budgets in the previous year.

However the total spend on these 19 projects was just \$220,000 so they were not considered material and Strata has not taken steps to investigate further.

Detailed Review of Forecast Full Year 2008/09 Performance

180. Data on the forecast outturn for FY08/09 as at January 2009 indicates that out of 207 projects:

- 97 projects (47%) did not have budgets;
- 73 projects (35%) were forecast to be underspent against budget;
- these 73 projects were \$35.7m under budget and \$30.3m of this related to TNP;
- 116 (56%) projects were forecast to be over-budget;
- in total the 116 over budget projects were forecast to be over budget by \$19.6m, of which \$11.2m related to TNP and \$8.2m to Real-time & Stations;
- 18 (9%) projects were on budget;
- 70 (34%) projects were more than 10% under budget;
- 111 (54%) projects were more than 10% over budget.

181. Where higher than budgeted spend is forecast to occur on individual projects the key reasons were:

- additional costs / incorrect costing (approximately 42%); and
- project rollovers from the previous year (approximately 17%).

As at January 2009 the forecast overspend for 2008/09 was \$19.6m which was more than offset by projects where the spend was forecast to be less than budget by a total of \$35.7m.

12. Issues regarding 2008/09 performance

IST Resources & capabilities

182. As discussed above, at least part of the explanation for underspending against budget was the issue of IST resources and capabilities. This was effectively confirmed by the Chief Executive's statement in January 2009 that IST already has commitments greater than its capacity to deliver.
183. Since that time the Chief Executive, together with the senior management team have conducted a major review of planned 09/10 capital expenditure. This has resulted in a significantly reduced IST draft Business Plan figure for threshold projects from \$65.4m to \$52.9m. This is a reduction of \$12.4m (19%). This reduction was made after the projects had progressed through the normal challenge process.
184. Whilst reducing the level of spend through deferring, eliminating or reducing the scope or specification of some projects is a sure means of making the Business Plan spend more readily achievable, it raises a number of questions:
- If the Chief Executive could achieve a 19% reduction, how effective was the sequence of challenges the Plan had gone through prior to that, particularly as one of the key areas to be addressed in the challenge processes was to assess the achievability of the Business Plan? Do these processes need to be reviewed?
 - Underspending a capital expenditure budget would, in most circumstances, be regarded positively and considered a more economically efficient use of capital. However Transpower's Business Plan is formulated, in part at least, on the basis of making economically efficient investments. This is assessed with regard to the whole of life costs associated with each project so the timing of the spend is optimised to meet not only operational requirements, but also to maximise economic efficiency. Does this therefore mean a significant underspend against the Business Plan raises the risk planned capital expenditure is not economically efficient and the least-cost objective is not achieved?
 - If the reduced spend is the most economically efficient capital expenditure programme, does this mean that the process by which the earlier draft Business Plan was determined to be economically efficient was flawed? Or was the earlier process correct and the new draft Business Plan is flawed in that respect?

- Does the new Business Plan figure simply reflect the reality of the situation and the new figure represent all that can realistically be achieved with the resources available?
- Can we be confident that even the reduced figure is achievable?
- If the outcome is sub-optimal from an economic efficiency perspective should consideration be given to meeting the capability and capacity issues another way? Is it an issue which could and should be addressed by applying additional resources, if additional resources are available?

185. Strata suggests that it may be appropriate for the above questions to be considered by Transpower. However, based on the strenuous testing of the CEO Review, Strata concludes that it is appropriate to assume the following regarding the reduced Business Plan:

- all projects are required during 2008/09 and cannot easily be deferred without adverse consequences; and
- the Plan is achievable in terms of timing and pricing.

Efficiency Gains

186. Achieving the least-cost objective requires a process of continuous improvement to derive the most economically efficient capital expenditure programmes. Two issues arise in respect of efficiency gains:

- as discussed in the section on the review of process improvements IST (Section 15) below has not set targets for benefits of the improvements it has made in its processes or defined processes by which its performance in achieving the least-cost capital expenditure objective could be measured. Strata acknowledges that for some projects, particularly the larger one-off projects, some aspects of this may be difficult to achieve. However for other components of the capital expenditure spend, Strata's view is that targets should be set and performance measured against them; and
- IST has indicated that in setting its draft Business Plan figures it has not taken account of efficiencies of the kind previously achieved through the TNP (such as cost-sharing on fibre build). The Business Plan figures may well leave scope for savings. However as discussed at 16.2 Threshold Expenditure 2009/10 Strata does not consider it appropriate to discount the Business Plan figure to reflect this.

13. Key IST Policies and Processes

187. To provide a background to our assessment of policy and process improvements made during the past year we describe below the key policies, processes and documentation relevant to Information Services & Technology (IST) capital expenditure. We also describe the areas of concern noted in the previous study.
188. We note that Strata asked Transpower to identify and provide details of changes made since the previous review to relevant policies and processes. For the purposes of this review, Strata has assumed that unless otherwise advised by Transpower, the policies and processes identified in previous Reviews have remained unchanged.

13.1. Policy, principles and objectives

189. Transpower's policies and other documents that govern and provide guidelines for the evaluation, planning and implementation of capital expenditure on IST were identified and reviewed in 2007. These documents included:
- Rules for Procurement – Dec 2006;
 - Information Systems Strategic Plan – September 2004;
 - Information and Communications Technology Governance Board Charter – May 2004;
 - Condition Assessment policy for IST equipment and facilities – October 2004;
 - Contingency & Management Reserve Funding guidelines – June 2006;
 - Technical Standards (12 in total) for specific items of equipment or specific actions – various dates.

13.2. Statement of Corporate Intent

190. Transpower's 2008/09 Statement of Corporate Intent (SCI) includes objectives to:
- promote efficient investment in the National Grid to provide the platform for a competitive wholesale market thus enabling options for investment in generation and demand-side management;
 - seek to recover efficiently the full costs of its services;
 - improve the efficiency of its services, whilst optimising asset reliability and availability;
 - be as profitable and efficient as comparable businesses not owned by the Crown; and
 - seek to provide transmission services at the standard of quality and security agreed with National Grid users or required by regulatory agencies.

191. It is considered that Transpower's Statement of Corporate Intent (SCI) provides a clear direction for Transpower's management to perform efficiently and produce the transmission services at least cost objective.

13.3. 2003/04 IST Restructuring

192. During the course of 2003/2004, Transpower's IST functions underwent a major restructuring and re-focusing which arose as a result of studies identifying a number of issues. In May 2004 the Information & Communication Technology Governance Board (ICTGB) was established

193. In September 2004, PA Consulting produced the Information Systems Strategic Plan (ISSP) document for Transpower which defined key strategic objectives:

- establishment of an Enterprise Architecture capability (EA)
- fulfilment of Transpower's immediate critical information needs whilst establishing a sustainable information management capability;
- establishment of a robust and flexible Applications Environment
- strengthening of the Telecommunications & Networking environment
- strengthening of the IST processes.

A five year programme of nine workstreams arose out of these strategic objectives, including the SCADA Upgrade and TNP.

13.4. Service Delivery Life Cycle

194. In FY 07/08 Transpower IT changed the way in which service improvements were delivered. The Service Delivery Life Cycle (SDLC) replaced the Transpower Solution Life Cycle (TPSLC). In Transpower's view, the SDLC provided a more robust process for refining costs. The SDLC sets out the steps and processes by which projects are initiated and taken through to implementation. It includes a comprehensive set of templates which assist in managing concept development, workflow modelling, design, requirement mapping, investment analysis, testing, deployment and transition.

13.5. Procurement Policy

195. Transpower's procurement policy is governed by the Rules for Procurement Policy (2006) which operates in conjunction with the Contractor Acquisition and Management Policy. The Rules for Procurement policy provides (at 1.1 page 3) that:

'It is a requirement that Transpower procurement activities deliver goods and services to meet specified minimum performance criteria

for the lowest "whole of life" cost, through the use of a transparent, efficient, fair, and auditable set of processes and procedures.'

196. The policy provides that any contract exceeding \$200,000 must, except in certain limited circumstances, be subject to an open tender process. Also, unless a division determines that it is not in Transpower's interests to award a contract, it must award a contract to the supplier that has been determined to be fully capable of undertaking the contract, and whose tender is determined as offering the lowest evaluated whole of life price.
197. The document also sets out a number of provisions covering the general approach to procurement, technical specifications, tendering procedures and awarding contracts. These are best-practice requirements, intended to maximise the efficiency of the procurement process. It includes a provision that Divisions may seek to establish preferred supplier arrangements.
198. In Strata's view the corporate Rules for Procurement Policy (Dec 2006) provides a tightly focused requirement on Transpower's procurement activities to ensure goods and services meet minimum performance criteria through a transparent, efficient, fair and auditable process which includes an evaluation of the lowest whole-of-life cost. Subject to effective implementation, we consider this policy contributes positively to the achievement of least-cost outcomes.

13.6. Vendor & Procurement Management

199. Following the appointment of a new GM IT in April 2007 a further restructure took place in June 2007. A key change was the establishment of a separate vendor and procurement management function whose manager reports directly to the GM. Previously this function reported to the Assurance Manager. This was changed to reporting directly to the GM and the number of permanent staff increased from 2 to 5.
200. Transpower targeted developing individual vendor management plans in the first quarter of 2008. This was to develop the strategy for each party, develop pricing arrangements (whether fixed price, open book or other), key performance measures and so on.
201. As noted in the excerpt below from Transpower's IST Vendor Management document which was prepared for Strata for the previous Review;

The top four suppliers are:

- Areva, which provides both business as usual (BAU) and project based services, involving both operating and capital expenditure;
- Alcatel-Lucent which provides BAU services contained within lifecycle management and operational management contracts;
- Fujitsu, which provides project and BAU services under an infrastructure services contract; and
- Power Systems Consulting (PSC), which provides both project and BAU services.

Transpower considers it has a strategic relationship with each of the top four suppliers, and that for these suppliers there is significant scope to improve outcomes through the initiatives currently being considered.

202. Transpower indicated in 2008 that its expectation was that the initiatives underway should achieve savings in the order of 10% of the total spend across the larger and smaller IST contracts. Transpower was uncertain as to the timing of this improvement but felt it would not be achieved within a year.

13.7. Asset Specific Policies

203. Transpower has a number of standards which set out policy in relation to capital expenditure on specific categories of IST assets. Standards are developed by working groups comprised of internal IST and business staff as well as external experts. All standards are developed taking into account industry best practice, health and safety, risk and cost.

204. In some instances, these set out condition assessment requirements which directly impact on capital expenditure requirements. However, the standards sighted primarily cover technical specifications for design, installation and testing. Any solution is required to conform to these standards.

13.8. Policy Development & Review Procedure

205. Transpower standards and policy documents are controlled documents which are subject to registration and version control. The requirements for the content and the procedure for developing such documents is set out in the Guidelines for Transpower Controlled Document Development (October 2005) and in accordance with the Corporate Policy Framework (January 2006). Policy documents are generally required to explain the reasons for the policy, identify any linkages to high-level over-arching policy documents (such as the SCI) and define the process by which the policy is to be given effect.

13.9. Condition Assessment

206. Some projects are initiated as a result of the condition assessment process which is set out in Condition Assessment for IST equipment and facilities specification April 2006. This provides (at page 4) that all operational IST equipment is uniformly condition assessed on a consistent basis. The specification sets out guidelines for assessment and the steps to be taken based on the assessment. On the basis of the data collected, IST Production Services then prioritises replacement or refurbishment.

13.10. IST Planning & Challenge Process

207. IST meets with the various business units in November / December to agree priority projects for the following year. An initial projects and work programme is developed in January 2009 and initial capital budget determined. Then in late March prioritised proposed project lists are presented to IST senior management. The proposed projects are challenged on the basis of the importance of the project, the nature of the project, the cost and proposed timing.

The projects are separated into various categories:

Category 1: "must do" initiatives

Category 2: "should do" initiatives

Category 3: initiatives that are proposed for deferral till the following financial year but which could be advanced.

208. IST Division has a system for prioritising projects which takes into account a wide range of factors:

- business criticality;
- key project dependencies;
- whether a Business Case has already been signed off (which, among other things, considers cost);
- the likelihood of completion in the current year;
- buy-in from the business (stakeholders);
- delivery risks (dependencies and complexity);
- IT resource availability;
- business resource availability; and
- risk to Transpower of non-completion.

209. These factors are given a weighting and the resultant points scored provide a ranking of projects. On the basis of this, decisions are made regarding the timing and scope of projects. This challenge process generates a wide range of questions which are dealt with progressively over the following two months. At the weekly meeting, responses to the questions are presented and the proposed project debated.

210. During April a prioritised list of projects is reviewed and subject to challenge by the entire IST senior management team. The Divisional Business Plan is then finalised and submitted to Corporate Services and the Executive. The Divisional Budget is then reviewed in accordance with Budget Guidelines and, as part of this process, the proposed capital expenditure is likely to be challenged further. The divisional plans are then consolidated into the overall Business Plan which is finally put to the Board.
211. Although Business Cases are presented throughout the year for formal approval, by the commencement of the financial year on 1 July, the majority of proposed projects for that year will ordinarily have approved Business Cases. However, as at the date of writing, the level of approved projects is historically low.
212. The process of categorising projects in broad groups according to priority, status and inter-dependencies, and then allocating points on the basis of a range of key factors, is considered to be a good one. This provides a reasonably robust challenge process to ensure that the projects are justifiable and are given appropriate priority, and that resources are available to deliver them and inter-dependencies with other projects are taken into account.
213. The emphasis on providing highly reliable services incentivises Transpower to ensure IST systems are robust. Without appropriate controls, checks and balances this could lead to over-engineered solutions as a 'better safe than sorry' approach is taken. The challenge process is a significant tool in ensuring the least-cost objective is achieved but, to be effective, it still requires that the cost inputs to that process are truly least-cost and that those running the process do so with a clear focus on achieving least-cost capital expenditure. To ensure this, the challenge process and Business Case template would need to explicitly require robust consideration of whether the least-cost objective is being achieved.

13.11. Project Review Processes

214. There is a regular process of reporting by project teams to the Programme Support Office (PSO) and Steering Committees which review progress against scope, budget and timing. Any issues are highlighted, the level of risk identified, and actions required to resolve it are set out. Larger projects are split into stages and reported on separately. Strategic projects are reported on to the ICTGB.
215. Close-out reports are done on every project at completion with the exception of straightforward projects conducted by Field Services. Close-out reports are carried out by the Project Team and consider actual performance against budget, scope and milestones and whether any lessons were learned. On large IST projects, Transpower extends the project assurance activities to include independent audits.

216. Transpower has sought to ensure best practice by implementing two internationally recognised best practice standards against which it is audited:

ITIL

217. Information Technology Infrastructure Library (ITIL) is a framework of best practice to efficiently manage software, hardware, and human resource services to ensure continued and uninterrupted business.

COBIT

218. Control Objectives for Information and related Technology (COBIT) is an IST governance framework and supporting toolset that is intended to enable managers to bridge the gap between control requirements, technical issues and business risks. COBIT enables clear policy development and good practice for IST governance throughout organisations.

219. Transpower's IST processes are subject to significant internal review and, for the larger projects, both internal and external review. The efficacy with which projects are initiated and implemented will have spin-off impacts on the achievement of the least-cost capital expenditure objective. However, to achieve a significant direct impact on meeting this objective, Transpower will need to explicitly focus these review processes on whether the least-cost objective has been achieved.

13.12. Electricity Commission Approvals

220. Transpower has to consider what expenditure is recovered from the Electricity Commission through the system operator service provider contract and what is included in the general IST expenditure that falls under the threshold.

13.13. Competitive Tendering Processes

221. A key means by which IST endeavours to ensure project costs are genuinely least-cost is through a competitive tender process. Transpower's Rules for Procurement policy governs the contracting process and prescriptively sets out in significant detail the approach to procurement, the content of tender documents, the tender process, the evaluation and award of contracts. As discussed above at 13.5 Procurement Policy, the Rules for Procurement policy sets out (at page 3) that:

"It is a requirement that Transpower's procurement activities deliver goods and services to meet specified minimum performance criteria for the lowest "whole of life" cost, through the use of a transparent, efficient, fair, and auditable set of processes and procedures."

222. Transpower has advised that service level outcomes based contracting has been an approach taken in a number of contracts, particularly in the telecommunications and network area. It has also entered into contracts on an "open-book" basis so that Transpower

can see, at the time the contract is negotiated, the cost of all project components and the return the contractor is expecting to receive. This can be a particularly useful approach in achieving least-cost capital expenditure when, due to the specialised nature of much of the work and market size limitations, there is often a small number of potential tenderers. Also, it has potential to be used in single source situations.

14. Key Issues Identified in 08/09 Study

223. In the previous Strata report two specific issues were raised; the correct categorisation of projects and the rollovers and unplanned projects.

Categorisation of Projects

224. Strata raised concerns about whether the oscillatory stability project had been correctly categorised under the threshold but concluded that it was as the majority of the expenditure was related to grid planning. Strata suggested the project categorisation process could be improved but we are not aware of any steps taken to do so.

IST Rollovers, Unplanned and Discontinued Projects

225. Strata raised concerns about the possibility of rollovers being used by Transpower to enable it to avoid breaching the Threshold but concluded that, while there were options to manage the risk, they should not be applied because of the risk of disincentivising Transpower from deferring capital expenditure where appropriate. This remains a risk however as noted above at Section 11 the forecast level of rollovers into the 2008/09 year does not appear to be unduly high. However the \$20.1m of rollovers into 2009/10 is very high. This is discussed below at 16.5 Consideration of Business Plan as IST Threshold.

14.1. General Issues

226. On a more general basis Strata noted it considered IST's performance in achieving the least-cost objective could be improved through implementing a range of measures and changes in approach including:

- generally raising the focus throughout Transpower on achieving the least-cost objective;
- taking steps to ensure the close observance of the recently introduced *Rules for Procurement* corporate policy;
- introducing provisions into process and policy documentation requiring that, throughout the process of initiating, evaluating and implementing projects, the achievement of least-cost capital expenditure objective is explicitly considered and that the steps being taken (or intended to be taken) to achieve it are set out;

- requiring that supporting and approving signatories to documentation approving capital expenditure satisfy themselves that all reasonable steps to achieve least-cost capital expenditure have been taken;
- setting capital expenditure cost reduction or containment targets;
- better monitoring and measurement of performance in managing capital expenditure on IST (including the comparison of cost estimates with actual costs and developing better KPI/Balanced Scorecard measures);
- investigating further the opportunities to utilise certain contracting practices (open-book, outcomes-based and alliancing) to deliver, not only the required project outcomes, but also least-cost capital expenditure.

15. Improvements to IST Policies & Processes

15.1. Business Planning Policies & Processes

227. IST has advised that since the previous Review, business processes have been changed to reflect a significant shift in the approach to the development of the Business Plan. Previously IST's approach had been to seek to understand the requirements of client divisions and to have them verify IST's proposed initiatives in relation to them. The emphasis has now been shifted to a process of a combined Business Plan build with client divisions, with responsibility shared between them.

228. This was (and is) being effected by:

- the three core delivery teams within Transpower (Information Services & Business Applications – ISBA, Transmission Applications – MSTA and Infrastructure Services – IS) engaging in September 2008 with senior management within each of the divisions to commence jointly building the 2009/10 and 2010/11 Business Plans from the bottom up;
- subsequent regular divisional engagement, strategic oversight and co-ordinated approach to ensure that each project has business sponsorship, broad timeline agreement, budgetary input from senior management and checks that the each project can be achieved along with other dependent projects;
- business engagement meetings have been held since October to verify key divisional strategies with detailed discussions about the requirements and justification for each activity;

- the build of the IST Business Plan has been treated as a project managed by the PSO manager with each member of the IST Senior Management Team responsible for the build of the programmes of work in their respective areas; and
- 4 challenge sessions since October 2008 to confirm priorities and verify that the FY09/10 Business Plan is achievable.

229. Strata anticipates the change in the process will be progressed further still with a direction now being given by the CEO to transfer current IST budgets, for other than core services and platforms, to the divisions which are the primary beneficiary of the spend.

Transpower noted the process involves:

- regular divisional engagement;
- strategic oversight;
- coordinated approach;
- business sponsorship;
- broad timeline agreement;
- budgetary input from respective senior management across Transpower; and
- checks that projects can be completed in the context of other planned projects.

230. We note that late March early April 2009 the Chief Executive and senior management reviewed the Business Plan. A key focus of the review was to check on the capacity to execute the projects as planned. However, as discussed above, the 'doability' of the draft plan is a key aspect of the consideration given during earlier challenge processes.

231. Concerns have been raised about the achievability of the Plan (as reflected in some of the Business Planning Challenge Session notes). Also the forecast outturn for FY08/09 is significantly under budget. Whilst the WD Scott audit may have created delays it does not appear, from the data on start dates, that this is the only reason for being under budget. In part, it appears to be a capacity issue.

232. The significance of the capacity issue was confirmed by a January 2009 memo from Dr Patrick Strange to the GMs. This said that, in respect of IT Project Budgeting, he expected the aggregate number of IST projects and the total expenditure in the coming year would reduce significantly as a result of transferring non-core IT budgets to appropriate divisions. He noted that:

'Our commitments in IT are already greater than we are capable of delivering and it is time to consolidate and take stock of which projects we absolutely must deliver and which can be deferred.'²¹

²¹ Memo Dr Patrick Strange to Transpower GM's re IT Project Budgeting 27 January 2009

233. Therefore whilst Strata agrees with the change in emphasis to the client divisions being integrally involved and responsible for the project (even to the extent of having budget ownership), the key issue is the effective implementation of the strategy. Effective implementation includes making an accurate assessment of the achievability of the Plan. This process does not appear to have been effective in the current financial year which raises questions regarding the FY09/10 Business Plan.

15.2. Cost Reduction & Cost Saving Targets

234. IST has advised that no cost reduction or savings targets have been set but notes that all projects have to be justified for expenditure and are prioritised at regular challenge sessions. Budgets are also discussed (and reduced) at these sessions.

IST advised in January 2009 that the Vendors & Commercial group:

'.....is now in place and working towards targeted savings in conjunction with the IST senior management team'.²²

235. However the establishment of this group is not a recent event. This is understood to have been established in June 2007 as part of a broader restructuring of IST. During the course of discussions for Strata's 2008 Review, IST indicated that the initiatives underway were expected to achieve savings in the order of 10% of the total spend across the larger and smaller IST contracts. It expected the benefits to start being delivered in 2009/10.

236. Strata acknowledges that benefits have already begun to flow through from the groups work e.g. a cost reduction of around 40% on copying supplies and services has been negotiated and a survey has identified that pricing on IST's Fujitsu outsourcing arrangements is 8-16% above market. IST also has supplier panels in place for various areas of the business e.g. Oracle development and support. This has meant a reduction in contracting costs and provides the opportunity to leverage contract improvements off the 'guarantee' of work. However these benefits appear to relate primarily to operational expenditure rather than capital expenditure subject to the Threshold.

237. Strata is surprised that more than a year and a half after its establishment, the Vendors & Commercial group is still at this point only 'working towards' targeted savings. The group had a broad savings estimate of 10% in 2007. In Strata's view by now this should have been split out into year by year targets for specific spend categories.

238. Also, we note that in October 2008 IST's Vendors & Commercial team introduced a Procurement Planning standard. Transpower intends that this will reinforce the least-cost approach and emphasises

²² 2008/09 Non Part F threshold: IST expenditure – p 6 Transpower IST document prepared for Strata 30 January 2009

producing quality outcomes from vendors against stated objectives. Whilst this is clearly an important document to ensure clarity, consistency and completeness in procurement it does not, in Strata's view, significantly reinforce the least-cost objective.

15.3. Cost Estimation Processes

239. In November 2008 a new Forecast End Cost Upload Tool was released as a standard vehicle across the Grid and IST for the capture of project cost forecasts. Transpower advise that this is expected to provide improved quality of all capital and investigation project financial forecasting. It allows for two financial years of monthly phased forecasts and synchronises daily with FMIS, so there is no need for manual entries as previously required.

15.4. Balanced Scorecard

240. The IST Balanced Scorecard was relaunched in May 2008 with monthly assessment against divisional and company KPI's. In the Balanced Scorecard VALUE section it states that Transpower;

'must be able to demonstrate the very best value in everything we do'.²³

241. Strata supports the setting of targets relating to the achievement of corporate objectives, including the least-cost objective. However, the metrics for the VALUE section are Departmental Spend, Capital Spend and Investigations Spend which are measured by comparing budget vs. actual and calculating dollar and percentage variances. In Strata's view, this will only measure best value if the processes for producing a Business Plan ensure a plan which truly reflects least-cost and is accurate and achievable.

242. Strata considers that measures directly focused on cost saving (or cost containment) are also required. Whilst it may be difficult to devise metrics which do measure the achievement of least-cost across all categories of spend it may be possible for some categories to set target price paths based on an analysis of how costs may be reduced (or contained). Performance could then be measured against these targets.

243. Strata considers the measures used in the Balanced Scorecard will not become relevant to achieving the least-cost objective until the Business Plan figures become reliably accurate, achievable and fully reflect least-cost.

15.5. Service Delivery Life Cycle (SDLC)

244. A difficulty had arisen in respect of the Service Delivery Life Cycle because Investigations for possible projects were proving to be unable to meet the requirement of costing accuracy to within $\pm 6\%$.

²³ Transistor November 2008 (IST's Balance Scorecard Report)

This was because the detailed design phase of IST projects occurs within the capital project. As a consequence, the estimates were unreliable, leading to inaccuracies in planning forecasts and variations during the lifecycle of the project.

245. The process has been amended so that an Initial Business Case is a deliverable of the Investigation Project with a request for funds to further refine the final business case which is then loaded into the financial management system.
246. Strata expects this change will improve forecasting accuracy.

15.6. Resource Engagement Process

247. IST has introduced and mapped a new Resource Engagement Process for BAU and Project (Investigation / Capital) related work. General Consultancy and a General Services Agreements have been set in place. Attached to these will be a Statement of Work which sets out the financial commitment between Transpower and the contractor. The rates for individual contractor engagement are negotiated by the Vendors & Commercial Group.
248. Strata expects this will improve the efficiency and completeness of the contracting process however, aside from the rate negotiations by Vendors & Commercial, it is not expected to impact significantly on the achievement of the least-cost objective.

15.7. Conclusion

249. Strata considers the changes described above will contribute to the overall efficiency with which capital expenditure is planned and conducted. However, the extent to which they will result in cost savings on threshold capital expenditure and thereby contribute to achieving the least-cost objective is less clear.
250. An exception is the Vendors & Commercial group activities which are considered by Strata still to have the capacity to deliver significant capital expenditure cost reduction / containment benefits. However, in Strata's view, cost reduction targets should have been set some time ago for appropriate capital expenditure categories and performance measured against them.
251. We wish to note at this point that, while it does not relate to the policy or process changes discussed in this section, Strata is well aware of the multi million dollar savings which have been achieved in the TNP programme as a result of negotiating cost-sharing arrangements with third parties.

16. Business Plan & Threshold 2009/10

16.1. Information Basis

252. Transpower IST provided a schedule setting out its planned Non Part F expenditure related capital expenditure plan for the financial year 2009/10. It is noted that:

- capital expenditure is currently in draft form as the 2009/10 Draft Business Plan has not yet been formally approved by the Transpower Board and numbers may therefore still change
- The expenditure falls into three key categories:
 - Telecommunications & Network Programme
 - Telecommunications Operating Leases (capitalised)
 - Grid Related IST.
- The figures contain 6% contingency provisions (but no management reserves).

16.2. Planned Threshold Expenditure 2009/10

IST NON Part F Capital Expenditure

	Bus Plan 09/10	Bus Plan 08/09	Forecast 08/09	Bus Plan 07/08	Actual 07/08
Telecommunications & Network Programme	38,248,164	57,764,047	32,467,320	24,276,436	21,487,411
Operating Leases (capitalised)	40,610,523	40,278,942	15,669,260	34,692,911	639,988
Grid Related IST Capex - Threshold	14,696,057	8,419,248	9,388,485	11,306,991	10,814,753
Total	93,554,745	106,462,236	57,525,065	70,276,338	32,942,152

253. The planned level of IST Non-Part F threshold expenditure for 2009/10 is \$93.6m, \$12.9m less than the 2008/09 Business Plan figure of \$106.5m. This reflects a reduction of \$19.5m in TNP, offset by an increase of \$6.3m in Grid Related IST capital expenditure.

254. It is important to note that, whilst the 09/10 Business Plan is a \$12.9m reduction on the Business Plan figure for 08/09, it represents a 62% increase (\$36.0m) on the forecast actual spend of \$57.6m for the 2008/09 year. Capitalised operating leases account for the greater part of this difference increasing \$24.9m from the forecast actual 'spend' of \$15.7m in 08/09 to the 09/10 Draft Business Plan figure of \$40.6m.

255. Therefore the 2009/10 level of planned capital expenditure excluding operating leases of \$52.9m is \$11.1m (26%) above the forecast actual 2008/09 expenditure level of \$41.9m.

256. The question raised by the above analysis is whether Transpower has the capability and resources to increase capital expenditure activities (excluding operating leases) by 26% above the 2008/09 levels? Strata considers that given the completion of restructuring and the full review of the IST plan undertaken at CEO and senior management levels, it is appropriate to assume that Transpower do have the capability and resources to complete the Business Plan projects.
257. As discussed above in Section 11 IST Performance Review 2008/09, a major contributor to the positive variation between planned and forecast actual spend is cost-sharing arrangements with third parties for fibre access. The 2009/10 Business Plan does not reflect similar gains even though these may be achieved. Given the cost-sharing arrangements negotiated with third parties in 2008/09, it is appropriate to consider whether such gains should be anticipated in the 2009/10 Business Plan.
258. For the reductions arising from third party access agreements to be included in the plan it is necessary to consider the probability of such agreements being concluded. As the agreements with third parties have not yet been concluded and are, at this stage, uncertain, it is difficult to assess the probability of successful cost reductions. In addition, given the current economic situation, the keenness and ability of third parties to enter into such long term arrangements may have diminished.
259. If the Business Plan figures are to be adjusted to reflect cost reductions through third party agreements there would need to be a high degree of certainty gains can be achieved. Strata considers that, whilst the gains have occurred in the past, similar gains in future are much less certain due to increased economic uncertainty. In addition, Transpower is expected to actively pursue the gains available from third party access agreements in the absence of an incentive provided by a lower threshold.
260. Strata has concluded that inclusion of the full project costs in the Business Plan should be allowed and that no adjustment should be made for cost reductions which may arise from third party access agreements.
261. While Transpower has advised the IST figures include contingencies of 6% no adjustment is proposed in relation to them as contingencies of up to 7.5% for IST projects are specifically contemplated under the Settlement Agreement.

16.3. Key Projects

262. Key projects for each of the TNP and Grid Asset Related Projects are given in the tables below.

IST - TNP Projects 09/10	
Project Description	\$
OTC02 Lower SI Radio LCM Works	3,892,798
VOC01 Voice Solutions Replacement	3,543,228
OTC15 Waikato-MRP LCM Works	2,448,047
OTC02 Lower SI Radio SMR Works	2,036,969
OTC05 Auckland West LCM Works	2,023,779
INC05 BPE-HAY LCM Works	1,988,773
OTC01 Lower SI Fibre SMR Works	1,500,213
OTC03 ISL-BLN LCM Works	1,434,232
OTC04 OAM-WTK SMR Works	1,407,590
INC05 BPE-HAY SMR Works	1,334,250
OTC11 ChCh Area LCM Works	1,296,297
SEC01 Inner & Outer Security	1,258,879
INC04 ATI-WDV LCM Works	1,172,545
INC11 Blenheim to FTB	1,170,091
OTC11 ChCh Area SMR Works	1,121,504
Other	10,618,968
Total	38,248,164

263. The Telecommunications & Network Transformation Programme (TNP) is a 5 year programme due for completion in 2012, it includes the provision of a fault tolerant and secure national terrestrial fibre network intended to have the capacity and speed to meet Transpower's current and future requirements. TNP will also see the replacement of all legacy equipment, of which Transpower presently has 100 different types of equipment provided by 28 different manufacturers. TNP also establishes a sourcing model for implementation, operation and maintenance activities and includes establishing Alcatel Lucent as the Lifecycle and Operations Management partner. Alcatel provides these services for a fixed fee and also provides Transpower with discounts for bulk purchases.

264. In the 2008 Review, we reported IST as describing the present telecommunications systems as having no coherent architecture or technological consistency and noting that changing business needs combined with underinvestment in telecommunications had led to high risk and costs to the business. Network visibility and capacity is currently constrained and does not provide an adequate standard of reliability. Also the majority of assets are at or within 5 years of the end of their economic life. TNP is intended to:

- underpin a step change in grid investment;

- act as an enabler for Transpower to maintain prudent and efficient control of the power system;
- maximise Grid utilisation; and
- protect against increasing threat of cyber security attacks.

IST - Grid Asset Related Projects 09/10	
Category	\$
Development	8,077,452
Enhancement	1,351,755
Investigations	159,945
Refurbishment	95,355
Replacement	5,946,866
Total	15,631,373

265. In addition to TNP and Grid Asset Related Projects a third key capital expenditure category is the capitalised Telecommunications Operating Leases which total \$40.6m in the Draft 2009/10 Business Plan.

16.4. Project Documentation Review

266. Strata has reviewed a sample of the documentation for the top ten major projects. The key areas of focus have been:

- compliance with relevant policies, processes and procedures;
- quality and completeness of analysis (including cost considerations) set out in approval documents;
- challenge processes;
- monitoring and control systems and documentation;
- price estimating procedures and outcomes;
- contractor management and selection;
- project management;
- delegation and approvals management; and
- project review and close out process and documentation.

VOC01 Voice Solutions Replacement - \$3,543,228 in 2009/10

267. The Initial Business Case Document was prepared to seek Board Approval for the design phase of the upgrade of the Transpower corporate and operational voice services. The Initial Business Case clearly set out the case for replacement and considered options and took into account cost as well as technical considerations. Strata notes the reference to an assessment by the Vendors and

Procurement Group which commented that due to the "critical nature" of the solution the final decision should be driven by technical and not cost related considerations (Transpower internal memo, "VOC01 CDR Commercial Review", Mike Blanchard, 12 November 2008).

268. A summary spreadsheet of the design phase costs and the full project costs has been completed and stored on Transpower's computer system. A full analysis using the IST Investment Analysis Model spreadsheet has not been completed, however this would not be expected at that stage. The Initial Business Case appears to deal fully with the issues relevant to achieving least-cost.

Substation Automation Solution - \$2,549,119 in 2009/10

269. The purpose of this project is to create standard IT designs for the LAN, WAN Security relating to implementation of an IEC 61850 Substation Automation Solution for new and existing installations. The project will also deliver management and support processes. This project, as part of the Substation Information Programme, is intended to enable Transpower to move to a modern Substation design which allows full integration with new equipment and systems.

270. At the time the Initial Business Case was prepared (Dec 2008) the estimated cost of delivering the project was \$4.75M including 25% contingency. Approval was requested for \$1.84M to fund the discovery phase. However it appears this could not go to the Board for approval until the February 2009 meeting and interim funding of \$0.5m was approved by the CEO. The 2009/10 Draft Business Plan now indicates a spend of \$2.55m in the year and a total project cost of \$3.72m which is close to the initial budget, net of the contingency.

271. The documentation indicates Transpower considered that among the benefits from the project would be reduced capital and lifecycle costs would arise through:

- integrated control & protection;
- reduced cabling, equipment;
- common platforms;
- unified designs;
- standard designs;
- reduce design, installation & commissioning costs; and
- open standards.

272. The analysis of costs was broken into component parts and appeared adequate given the project was in the discovery phase.

273. Strata notes the project was unplanned in 08/09 because the directive for the project was given by Executive in Feb 08 and was not scoped in time for inclusion in the 08/09 budget. Strata questions whether the requirement for the project and the need for interim funding could have been anticipated earlier given current RTU and IT technology at Transpower substations is at end of life and

does not have the performance to provide the necessary data throughput.

OTC05 Auckland West LCM Works - \$2,023,779 in 2009/10

274. Project OTC 05 is intended to work in conjunction with the overall LCM programme of works to achieve the following objectives:

- to build OTA to NCC IP Core;
- to build part of the IP connectivity to Maungatapere (MPE) and Albany (ALB) Regional Access Routers; and
- provide connectivity for five substation sites to the IP network and provide TDM connectivity for SCADA and Teleprotection.

275. The Concept Design Report (November 2008) includes a consideration of a range and combination of options and clearly indicates the criteria used in making a selection. This included taking into account the capital costs.

INC05 BPE-HAY LCM Works - \$1,988,773 in 2009/10

276. This project provides an integral part of the Inner and Outer IP cores and implements Alcatel-Lucent provided telecommunications infrastructure at five sites in the Manawatu / Wairarapa region. The Final Business Case (Sept 08) appears to fully consider the range of solutions available and the cost / benefits of each. Each option was modelled using the IST Investment Analysis Model. The outcomes of this analysis were described but not appended to the document, however details of the spreadsheet location were given so Transpower staff could access them electronically. The budgeted cost increased from an initial \$1.7m to \$3.3m, however nearly two thirds of this was due to a change scope with Linton being included.

277. In summary there were no major issues identified with the analysis and criteria contained in project documentation for the projects sampled.

16.5. Consideration of the Business Plan as an IST threshold

278. Strata has considered the appropriateness of the 2009/10 Business Plan for use as a basis for establishing a threshold for IST capital expenditure. There are two key areas of concern where an adjustment to the Business Plan figures may be justified when setting a threshold:

- the extent of rollovers from the previous year; and
- the accuracy of the Business Plan.

These are discussed below.

Extent of rollovers from the previous year

279. The impact of rollovers and unplanned projects on achieving the Business Plan can be considerable. For example, compliance with the Threshold could be ensured by introducing non-essential projects into the Business Plan. This would increase the Threshold to a level higher than required. These projects would not be started and just rolled over into the following year.

280. Strata therefore examines rollovers closely as part of its review process. Strata does not consider Transpower has taken this approach and in previous years rollovers have been at an acceptable level and more than offset by the level of unplanned projects. Transpower has had to incur the additional capital expenditure on unplanned projects without the benefit of any increase in the Threshold. On this basis, Strata has previously concluded that no discount should be applied to Business Plan figures in relation to rollovers and Transpower should be allowed the flexibility to manage the dynamics of its work programmes.

Expenditure Type Total (\$ millions)	2009/10
Planned	\$32.8
Rollover	\$20.1
Unplanned	
Total	\$52.9

281. However, the level of planned rollover from 2008/09 into the 2009/10 Business Plan is \$20.1m which is:

- 38% of the Draft IST Business Plan budget excluding capitalised leases of \$52.9m; and
- 21% of the entire \$93.6m Draft IST Business Plan capital expenditure budget.

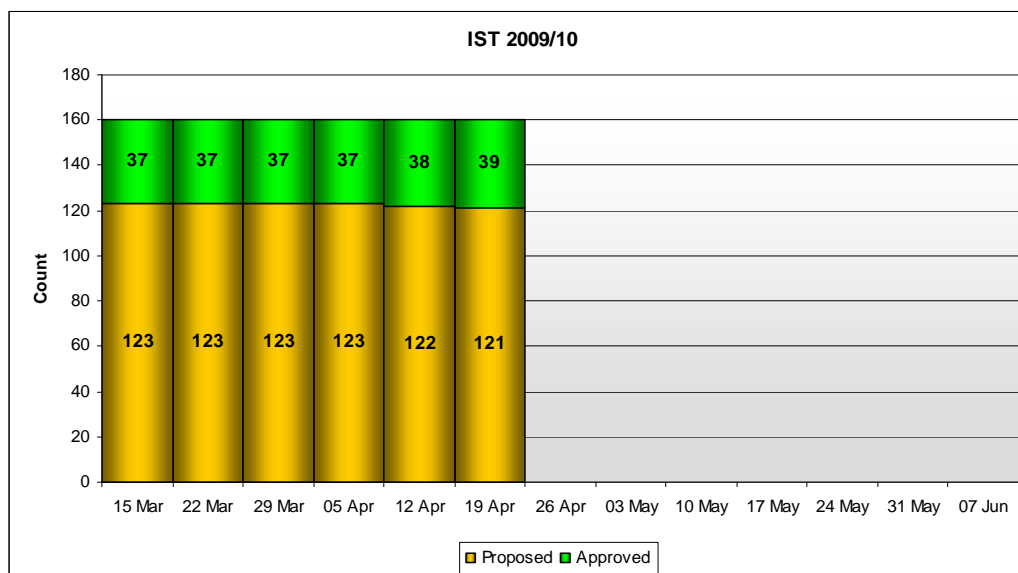
This raises concerns because it could indicate a significant degree of inaccuracy in the Business Plan which would mean it was likely to be inappropriate as a basis on which to calculate a threshold.

282. Because of its concerns, Strata has examined the background to the rollovers in some detail. Delays to TNP projects are the principal cause (by dollar value) with 9 of the Top 15 TNP projects rolling into 2009/10. IST has had to re-phase the projects as a result of:
- delays in third party installation work;
 - taking advantage of opportunities to enter into sharing arrangements; and
 - deferring a cost which would provide no benefit until another project had been completed.
283. Consistent with our view regarding the RRE component of the Business Plan, due to the recent trend in rollovers for IST, it is considered that for 2009/10 a 6% adjustment should be made to the threshold to reflect the anticipated rollovers from the Business Plan into the following year.

Accuracy of the Business Plan

284. Strata considers variations between actual and plan expenditure can be reduced to five key reasons:
- planning accuracy;
 - efficiency gains;
 - resources and/or capability;
 - performance; and
 - other external factors.
285. Planning accuracy can be improved by ensuring that projects included in the Business Plans have progressed through a rigorous validation and approvals process. These processes should also include components that enable efficiency gains to be identified and captured.
286. As shown in the graph below, only 29% by dollar value of the projects in the 2009/10 Draft Business Plan have been approved. This raises the question of the accuracy and reliability of project costs incorporated into the Business Plan because the rigour of the approval process has not been applied. Also, as more than two thirds of the Business Plan projects (by dollar value) have not yet been approved, some are likely not to proceed, at least not in the form proposed.

Business Plan – IST Project Approvals



Source: Transpower

287. Looking forward to 2010/11 only 2% of projects (by dollar value) had reached approved status by 26 April 2009. It is accepted that projects included in longer term planning will have much lower levels of completed approvals. Substantial changes do occur between the long term plan and the structure and timing projects that are eventually completed. However, basing a threshold on such plans is problematical.
288. IST has achieved significant efficiency gains in the TNP programme where, as a result of sharing arrangements, capital expenditure has been significantly reduced. However, across the Grid Related IST capital expenditure, the extent of efficiency gains is not clear. We would have expected a more visible impact of the Vendors & Procurement Group. If significant gains have been made, Strata is not aware of it. Setting cost reduction (or containment) targets and measuring performance against them would have made this more visible. In Strata's view, there is still some capacity for reduced capital expenditure through efficiency gains and a discount to reflect that is considered warranted.
289. The IST resourcing and capability issues are clearly a significant concern to the Chief Executive and are understood to have been taken account of in the challenge process the CEO and senior management applied to each project in the Business Plan. As a result of the review threshold capital expenditure in the Business Plan for 2009/10 was reduced by \$12.4m (19%). In Strata's view it is appropriate to assume that, as a result of the CEO's review that the Business Plan reflects a capital expenditure programme which is not only economically efficient and operationally necessary, but also is achievable.

290. Consistent with Strata's view on RRE it is considered that the Business Plan does not reflect the efficiency gains that can be realised in some areas. Due to the lack of measurement and assessment of potential efficiency gains it is difficult to assess the level of the gains that could be realised. However, Strata is of the view that gains of 2.5% should be possible. An adjustment of 2.5% is recommended to the Business Plan to reflect the potential efficiency gains.
291. Having reviewed Transpower's capital works, project validation and approval processes Strata estimates that gains of at least 5% are made through the detailed design, cost/benefit and options analysis and the procurement review components of the validation and approval process.
292. However 29% of projects in the Business Plan have completed approvals and established contractual relationships which in some instances may limit the capacity to drive down some costs. Strata considers that a reduction of approximately 5% should generally be achievable as a result of this process. However it is acknowledged this is a subjective view and it is necessary to take a conservative position on the gains available. In the light of these factors, Strata considers an additional downwards adjustment of 2.5% to the unapproved projects included in the Business Plan would be reasonable to take into account likely cost reductions derived through the validation and approvals process.

17. Conclusions & Recommendations

17.1. Have Transpower targeted least-cost, efficient, interventions?

293. IST's perspective is that it achieves the least-cost objective through the following measures.
294. **Cost Estimation Accuracy**
The addition of the two stage business case process and addition of the Forecast End Cost Upload tool have contributed to further refining cost estimation processes.
295. **Business Plan Build Process**
IST changed the emphasis in preparing the 2009/10 Business Plan from verifying components to joint build and shared responsibility with client divisions.
296. **Fibre Leasing**
Cost sharing arrangements for fibre have contributed strongly achieving significant savings and reducing capital expenditure.

297. **Procurement Processes**

The advice given by IST to Strata and the limited project documentation sighted indicates that procurement activities during 2008/09 have been compliant with the Rules for Procurement.

298. **IST Balanced Scorecard**

The IST Balanced Scorecard was relaunched in May 2008 and monitor actual vs. budgeted spend.

299. **Resource Engagement Process**

IST has introduced standard contractor agreements with documentation which helps to ensure that the services to be provided are clearly defined.

300. **Vendor & Procurement Management Focus**

This Group has targeted supplier relationships and developed a new Procurement Planning standard. IST's initial aspiration was for savings of around 10% across all its contracts.

17.2. **Strata's View**

301. As Strata noted in previous reviews, a number of factors combine to provide an environment favourable to Transpower achieving the objective of least-cost capital expenditure on IST:

- a strong strategic and governance framework;
- a focused and well integrated approach to initiating and evaluating projects;
- a disciplined, standardised project management processes;
- relatively strong internal challenge processes;
- the requirement to obtain a firm price before a Business Case can be submitted for approval; and
- the *Rules for Procurement* policy.

302. As discussed, Strata had anticipated that the separate establishment late in calendar 2007 of the Vendor & Procurement Management group, which reports directly to the GM IST, would make significant gains and possibly achieve the 10% reduction IST signalled as potentially achievable. Whilst this does not appear to have resulted, we consider the Vendor group to be an appropriate strategy because:

- there is an explicit and direct focus on reducing or minimising costs;
- this focus is not obscured by completely unrelated functions;
- the approach is proactive e.g. it has targeted a prioritised review of all supplier relationships;
- establishing a specialised function at a senior level sends appropriate signals both to suppliers and within Transpower; and

- a specialised function involved in all procurement encourages consistency of approach, better capture of learning and the development of staff skills.

303. Overall, Strata considers IST is applying a least-cost focus, however, some further steps could be taken to continue to improve Transpower's performance. We note that these are essentially the same steps suggested by Strata last year:

- setting and measuring performance against capital expenditure cost reduction / containment targets, particularly for the Vendor group. Strata anticipates this would include KPI / Balanced Scorecard measures explicitly aimed at capital expenditure;
- introducing provisions into process and policy documentation requiring that, throughout the process of initiating, evaluating and implementing projects, the achievement of least-cost capital expenditure objective is explicitly considered and that the steps being taken (or intended to be taken) to achieve it are set out;
- requiring that supporting and approving signatories to documentation approving capital expenditure satisfy themselves that all reasonable steps to achieve least-cost capital expenditure have been taken; and
- continuing to explicitly raise the focus throughout Transpower on achieving the least-cost objective.

17.3. Reasonableness of Draft Business Plan Costs

304. A key function of Strata's Review is to form a view and make a recommendation to the Commerce Commission regarding whether the Draft Business Plan figures for IST should be accepted as an appropriate base on which to calculate a threshold and to consider what discount (if any) should be applied in calculating it. Key factors Strata has taken into account are:

- the recent rigorous project by project review of the draft Business Plan by the CEO and senior management which reduced the previous Plan figure for IST Threshold capital expenditure by \$12.4m (19%). Given that this was in addition to the processes already applied, and achieved such a significant reduction, Strata considers it is reasonable to now assume the planned projects:
 - are essential to making the contribution required of IST in order for Transpower to maintain the performance of the Grid
 - reflect an economically justifiable and efficient package
 - are achievable in the context of the skills and resources available to Transpower

- however, Strata is of the view that efficiency gains of 2.5% should be possible. An adjustment of 2.5% is recommended to the Business Plan to reflect the potential efficiency gains;
- also, as just 29% of the projects in the Business Plan have been approved, an opportunity remains for further savings to be made as the rigour of the approval process is applied. Strata's view is that 5% reduction should be possible on projects which have not gone through this process, however it is acknowledged this is a subjective view. Given that: 29% have been already approved; there is potential for existing contractual relationships to constrain some reductions; and, the subjective nature of the 5% reduction estimate justifies a conservative approach, the application of a 2.5% discount on unapproved projects is considered appropriate;
- Strata has also considered whether to adjust the Business Plan figure downwards based on previous underperformance against budget given the actual outturn for 08/09 is expected to be just 54% of budget. The logic for such an adjustment is that, if Transpower has demonstrated a consistent and significant underperformance against budget, then a threshold calculated without any adjustment would arguably place no pressure on Transpower to achieve the least-cost objective. Indeed, IST is forecast to underperform by 46% in 08/09 and underperformed by 53% in 07/08. However, despite this, Strata is not recommending a downwards adjustment because, as discussed immediately above, the Business Plan review by the CEO and senior management means that the projects in the Business Plan should be regarded as essential, justifiable and achievable. However, a level of rollovers is inevitable and therefore Strata considers an adjustment to take into account expected rollovers into the 2010/11 financial year is reasonable;
- as noted last year little (if any) assumption of benefit from Vendor & Procurement Management function appears in the Draft Business Plan whereas it should now be beginning to have an impact. This is still our view for 2009/10; and
- Strata understands that Transpower conservatively calculates project costs on the basis that it may have to meet the entire costs itself, even where there is potential for costs to be shared. Strata has considered whether the potential for cost sharing arrangements with third parties should be reflected in a discount being applied. Strata considers that whilst very significant gains have been made in the past, the level economic uncertainty may constrain these opportunities as businesses defer major capital expenditure. Strata therefore does not recommend a discount is applied in anticipation of third party cost-sharing. We note that in the absence of a discount in previous years that IST has, nevertheless, put significant effort into achieving significant cost- savings.

305. On this basis, we therefore consider it would be appropriate, if using Transpower's Draft Business Plan figure of \$93.6m as a basis to establish a threshold for IST capital expenditure, the following adjustments are made:

- non-approved projects subject to an adjustment of 2.5%;
- all projects subject to an efficiency factor adjustment of 2.5%;and
- An adjustment to reflect rollovers into 2010/11 of 6%

The adjustment to non-approved projects is applied first as this has the effect of bringing these projects to an expected post approval level. The efficiency adjustment is then applied to all projects as this reflects the gains that can be made across all if process efficiencies are achieved. The rollover adjustment is then applied to the adjusted business plan figure.

Adjustment calculations

IST threshold calculation		
operating leases	\$40,610,523	
Approved projects	\$13,704,556	
Proposed projects	\$39,239,666	
Total business plan IST	\$93,554,745	
Unapproved adjustment	Less 2.5%	\$980,992
Efficiency improvement	Less 2.5%	\$2,314,344
Rollover adjustment	Less 6%	\$5,415,565
Total adjustment		\$8,710,900
IST Threshold	\$84,843,844	

Adjusting the Draft Business Plan figure on this basis would result in an IST threshold of \$84.8m.

17.4. Combined threshold

306. It is therefore considered appropriate to use Transpower's Draft Business Plan figure for the combined Refurbishment Replacement and Enhancement and IST capital expenditure of \$209.6m as a basis to establish a cap on capital expenditure, and for that amount to be reduced to a threshold of \$189.6m.

307. **Strata considers that an appropriate combined threshold for the 2009/10 financial year would be \$189.6 million.**

17.5. Assurances Required by the Commerce Commission

308. Under the Settlement Agreement Strata's review is required to assure the Commission in respect of a number of matters.

RRE & IST Capital Expenditure

Compliance requirement	<i>Strata's comment</i>
<p>1. The levels of contingency included in the project budgets have been established so that they are no more than 7.5% for IT and 0% for replacement, refurbishment, minor development and enhancement expenditure.</p>	<p><i>Transpower has advised that Draft Business Plan capital expenditure for RRE contains no contingency sums. Transpower has advised that Draft Business Plan capital expenditure for IST include a 6% contingency.</i></p> <p>Strata confirms that Transpower have complied with this requirement</p>
<p>2. The expenditure forecasts have been prepared in accordance with Transpower's capital works and IT planning processes and policies.</p>	<p><i>No breaches in RRE or IST planning processes and policies have been identified in the material considered.</i></p> <p>Strata confirms that Transpower have complied with this requirement in respect of the projects approved. However, given 71% of IST and 54% (by value) of RRE projects have not yet been approved Strata cannot confirm that Transpower has met this requirement for the overall 2009/10 Business Plan. Whilst the capital works and IT planning processes do not require that all projects have achieved full approval at the business planning stage, the level that have not been approved indicates that many have not completed stages of the processes.</p>

Compliance requirement	<i>Strata’s comment</i>
<p>3. Transpower’s processes have considered and targeted appropriate least-cost, efficient, interventions.</p>	<p><i>Since the 2008/09 Review Transpower has taken a number of steps forwards in targeting appropriate least-cost, efficient, interventions. A key step by RRE is the strengthening of project planning and management capabilities. The change in the IST Business Planning Process is expected to improve the management and planning of capital expenditure. However it is not entirely clear whether this and other interventions made will result in capital expenditure savings. A key aspect, which in Strata’s view remains missing, is the setting and monitoring of specific capital expenditure reduction and containment targets.</i></p>
<p>4. Transpower has proactively pursued and implemented process improvements and delivered on commitments made to review the scope for improvement to its non-Part F capital works processes around (a) procurement audit, (b) review of open book tendering for R&R, and (c) PAD templates.</p>	<p><i>Transpower has reviewed the applicability of open-book tendering for RRE capital expenditure. IST has confirmed the projects undertaken have been compliant with Rules for Procurement Policy. We understand that in respect of RRE capital expenditure, Transpower has continued to rely on the WD Scott 3 yearly audit cycle to establish compliance, which Strata considers to be inadequate. Also Strata is not aware of improvements made specifically to PAD templates.</i></p>

18. Final Comments

309. Strata would like to acknowledge the effort, assistance and cooperation provided by Transpower’s management and staff and the assistance provided by the Commerce Commission in completing this review.

Appendix I Glossary of Terms

AMP	Asset Management Plan
AWP	Asset Works Plan
CES	Cost Estimating System
COBIT	Control Objectives for Information and related Technology
EA	Enterprise Architecture
EGR	Electricity Governance Rules
GPS	Government Policy Statement
ICTGB	Information & Communications Technology Governance Board
IST	Information Services & Technology
ISSP	Information Systems Strategic Plan
ITIL	Information Technology Infrastructure Library
KPI	Key Performance Indicator
LCM	Life Cycle Management
MSP	Market Systems Programme
NPV	Net Present Value
ODV	Optimised Deprival Value
PAD	Project Approval Document
PMO	Project Management Office
RRE	Replacement, Refurbishment, Enhancement and Development
RTU	Remote Terminal Unit
SCI	Statement of Corporate Intent
SDLC	Service Delivery Life Cycle
TNSP	Transmission Network Service Provider
TPSLC	Transpower Solution Life Cycle
SCADA EMS.	System Supervisory Control & Data Acquisition - Energy Management Systems

Appendix II Capital Expenditure Definitions

Transpower defines capital expenditure in the following areas:

Refurbishment: expenditure on an asset, or sub-component that *materially* extends its original economic life but does not improve its original service potential

Replacement: replacement expenditure which is primarily due to the condition or performance of an asset but where replacement does not *materially* improve its original service potential.

Enhancement (non Part F):

enhancement and development projects involving existing or new assets which are intended to:

- bring performance to a level of good industry practice;
- ensure compliance with statutory or Electricity Governance Rules requirements;
- correct historical design or construction issues; or,
- provide physical protection of assets.

Practical financial limits are applied by Transpower so that assets below \$1.0 - \$1.5m and programmes of work below \$5.0m are not submitted to the Electricity Commission for approval under Part F.

Telecommunications: capital expenditure relating to the upgrade and replacement of the telecommunications network used for operating the grid

SCADA EMS: capital expenditure relating to the upgrade and replacement of the application System Control & Data Acquisition / Energy Management Systems (SCADA EMS) used for operating the grid

SCAD RTU Protocol: capital expenditure relating to the upgrade and replacement of the Remote Terminal Units (RTU) and other station devices used for providing data to SCADA and other grid-operating applications

Network Systems R&R: capital expenditure relating to the maintenance of components such as RTU's, and the replacement and refurbishment of systems used in support of operating the grid, such as asset management systems.

Appendix III Definition of Asset Replacement, Refurbishment & Enhancement Capital Expenditure

1. In order to meet its obligations to transmission customers and to comply with the relevant legislation, standards and EGR, Transpower undertakes capital investments in and maintenance of its assets and systems. A major proportion of this expenditure is subject to approval from the Electricity Commission under Part F of the EGR.
2. However, in addition to capital expenditure subject to testing under Part F, Transpower undertakes smaller and more routine investment and maintenance under its capital replacement, refurbishment and enhancement and development programmes. Such expenditure is not scrutinised and approved by the Electricity Commission. Whilst still meeting its service obligations, Transpower is required to manage these programmes in a manner that ensures the services grid users and consumers want delivered at least cost. Strata regard the 'least-cost objective' and 'minimising the whole of life costs' as synonymous. The quantum and timing of capital expenditure is directly relevant to achieving least cost. It is considered that this view is consistent with the Government Policy Statement.
3. Transpower has defined replacement, refurbishment and enhancement capital expenditure as follows:
 - refurbishment:** expenditure on an asset, or sub-component, that *materially* extends its original economic life but does not improve its original service potential
 - replacement:** replacement which is primarily due to the condition or performance of an asset but where replacement does not *materially* improve its original service potential.
 - enhancement (non Part F):** enhancement and development projects involving existing or new assets which are intended to:
 - bring performance to a level of good industry practice;
 - ensure compliance with statutory or Electricity Governance Rules requirements;
 - correct historical design or construction issues; or,
 - provide physical protection of assets.
4. Practical financial limits are applied by Transpower so that assets below \$1.0 - \$1.5m and programmes of work below \$5.0m are not submitted to the Electricity Commission for approval under Part F.