



**strata**

**Review of Transpower's  
2010/11 Non Part F  
Capital Expenditure  
Plans (Asset Replacement,  
Refurbishment & Enhancement and  
Information Services & Technology)**

**For: The Commerce Commission**

**April 2010**



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# REVIEW OF TRANSPOWER NON PART F CAPEX 2010/11

## Executive Summary

### Purpose

The purpose of this Review is to advise the Commerce Commission ("Commission") regarding:

- Transpower's compliance with the terms of the May 2008 Settlement Agreement ("Settlement Agreement") relating to capital expenditure on Replacement, Refurbishment, Enhancement and Development ("RRE"), and Information Services and Technology ("IST").
- the appropriateness of Transpower's draft 2010/11 Business Plan ("Business Plan") as a basis for setting a Threshold for that period and to also advise of any adjustments considered necessary.

Expenditure requiring approval under Part F of the Electricity Governance Rules (EGR) or capital expenditure required for Transpower to perform its obligations under the System Operator Service Provider Agreement with the Electricity Commission is excluded from consideration. Also excluded is capital expenditure undertaken under bilateral agreements (Customer Contracts) between Transpower and its customers.

### Transpower's Draft Business Plan

Transpower has provided data extracted from its Business Plan which, at the time provided, had not been approved by the Transpower Board. The table below provides data on all planned Transpower capex in 2010/11.

<b>Transpower Draft Plan Capex 2010/11</b>		
<b>Total (\$ millions)</b>	<b>2010/11</b>	<b>2009/10</b>
<b>Total Part F</b>	498	351
<b>Total Contract</b>	41	33
<b>Commerce Commission Threshold</b>		
- RRE	176	104
- IST	42	48
- IST Operating Leases	28	37
<b>Total Threshold</b>	<b>246</b>	<b>189</b>
<b>Total Non Threshold Non Part F</b>	6	0
<b>Total Capital Expenditure</b>	<b>791</b>	<b>593</b>

Transpower has proposed total Threshold capex of \$246m, comprised of \$176m of RRE and \$70m of IST expenditure, including \$28m of capitalised IST telecommunication leases. This reflects a year-on-year increase of 30% over 2009/10.

### **Summary of Concerns**

Strata has completed its review of the data and documentation provided by Transpower. Strata's key concerns relate to Transpower's capacity to implement both the RRE and IST 2010/11 Budgets. The performance against the 2009/10 Budget suggests possible failings in a range of areas including:

- project challenge and planning processes, which should ensure that:
  - budgets are achievable;
  - the necessary resources will be available; and
  - adequate steps are taken to minimise delays due to contractors and internal processes; and
- project management functions, which should perform in delivering projects to budget and on time.

Transpower is forecasting it will exceed the Threshold however we note the capex programme being implemented is substantially different to that budgeted because of unplanned projects and budgeted projects not being progressed as planned. In addition, Transpower has a poor historical record in delivering against budget and the capex planned for 2010/11 is a significant overall increase in the level of capex.

Strata considers Transpower's IST and RRE budgets should therefore be discounted when setting the Threshold for 2010/11. This is despite the range of significant policy and process improvements made by Transpower during the period since Strata's last review.

Strata's concerns, and the conclusions it has reached on an appropriate threshold, are based on the findings from its analysis:

### **Performance Review**

Transpower's performance has been reviewed using half-year data and forecast year-end data for 2009/10. This review has identified some areas of concern:

- large numbers of budgeted projects have not been progressed as planned. No spend is forecast on projects making up 32% of RRE's Budget and 35% of IST's Budget (excluding TNP leases);
- a very high level of unplanned projects is evident. RRE has 431 unplanned projects in addition to the 530 initially budgeted. IST has 82 unplanned projects in addition to the 99 in the Budget; and
- the failure to update RRE's project data records, and the mis-categorisation of the Marsden Redevelopment Stage I project (as requiring EC approval), has resulted in \$21m being omitted from the 2009/10 year Business Plan.

Historical performance against Threshold is set out below. Business Plan capex for 2010/11 and 2011/12 are provided for comparison purposes.

<b>Performance Against Threshold - IST &amp; RRE</b>					
<b>\$ millions</b>	<b>2007/08 actual</b>	<b>2008/09 actual</b>	<b>2009/10 forecast</b>	<b>2010/11 business plan</b>	<b>2011/12 business plan</b>
<b>Transpower's Proposal</b>	127	210	210	246	243
<b>Threshold</b>	121	203	189	n/a	n/a
<b>Actual / Forecast / Business Plan</b>	81	109	223	n/a	n/a
<b>Variance from Transpower's Proposal</b>	36.2%	48.1%	-6.2%	n/a	n/a
<b>Variance from Threshold</b>	33.1%	46.3%	-18.0%	n/a	n/a

Forecast performance against the Threshold for 2009/10 is set out below:

<b>Forecast Performance Against Threshold - 2009/10</b>				
<b>\$ millions</b>	<b>FY Forecast</b>	<b>Threshold</b>	<b>Variance (\$)</b>	<b>Forecast as % of Threshold</b>
<b>IST</b>	80.4	84.8	-4.4	94.8%
<b>RRE</b>	142.3	104.3	38.0	136.4%
<b>Total</b>	<b>222.7</b>	<b>189.1</b>	<b>33.6</b>	<b>117.8%</b>

The table shows IST being 5% under the Threshold and RRE exceeding the Threshold by 36%. RRE's performance has been significantly impacted by \$57m of unplanned projects.

## **Policy and Process Review**

Transpower has made significant progress since the last Review in developing policies, processes and supporting organisational structures which contribute positively to ensuring least-cost capex. In addition to a clear increase in the general level of focus within Transpower on achieving least-cost capex, there have been a number of specific improvements including:

- new project initiation and approval documentation;
- the development by RRE of asset strategy documents;
- the amalgamation of the procurement functions of IST and RRE;
- a broad cost containment and reduction target of 10% set by IST; and

- an increase in programme management resources and the bringing in-house by IST of the Telecommunications and Networking Programme (“TNP”) programme management functions.

However, the rollout of the US-Cost costing system appears to have been delayed in respect of non-Part F expenditure, while the anticipated benefits of US-Cost have not been delivered in respect of Part F expenditure (for which US-Cost has been rolled out). In addition, RRE does not yet have cost containment and reduction targets set.

### **Proposed Project List**

Detailed project data and documentation relating to the proposed list of projects in the Business Plan has been reviewed. Key issues identified were

- the high number of projects in the IST Project List which have not yet been approved
- the level of rollovers from the 2009/10 financial year into 2010/11
- deficiencies in the checking process undertaken by Transpower to ensure that the improved processes contained in new documentation had been applied to earlier approvals.

### **May 2008 Settlement Agreement Compliance**

Strata has completed a review of the information provided by Transpower that is relevant to assessing Transpower’s compliance with its May 2008 Settlement Agreement with the Commission. In Strata’s view Transpower is broadly compliant with the Settlement.

### **Threshold Calculation**

Strata has applied a range of discounts for the key factors identified in its review and calculated a Threshold for each of RRE and IST.

The calculation of the Threshold relating to RRE for 2010/11 is set out below:

<b>Threshold Calculation for RRE 2010/11</b>	
<b>\$ millions</b>	<b>Amount</b>
Approved Projects	126.7
Non Approved Projects	49.6
<b>Total Project List</b>	<b>176.3</b>
<b>Discount for:</b>	
<b>1. Non Approved</b>	
Discount (%)	5.0%
Discount Amount	2.5
<b>Project List net of Discount</b>	<b>173.8</b>
<b>2. Capacity, Rollovers, Delays, Cost Containment</b>	
Discount (%)	14.0%
Discount Amount	24.3
<b>Project List net of Discount</b>	<b>149.5</b>
<b>Proposed Threshold</b>	<b>149.5</b>

The calculation of the Threshold relating to IST for 2010/11 is set out below:

<b>Threshold Calculation for IST 2010/11</b>	
<b>\$ millions</b>	<b>Amount</b>
Approved Projects	19.4
Non Approved Projects	22.3
TNP Operating Leases	27.7
<b>Total Project List</b>	<b>69.4</b>
<b>Discount for:</b>	
<b>1. Non Approved</b>	
Discount (%)	5.0%
Discount Amount	1.1
<b>Project List net of Discount</b>	<b>68.3</b>
<b>2. Capacity, Rollovers, Delays, Cost Containment</b>	
Discount	11.0%
Discount Amount	7.5
<b>Project List net of Discount</b>	<b>60.8</b>
<b>Proposed Threshold</b>	<b>60.8</b>

**Based on these calculations the proposed combined RRE and IST Threshold for 2010/11 is \$210.3m**

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# Glossary of Terms

AMDB	Asset Management Database
AWP	Asset Works Plan
CES	Cost Estimating System
COBIT	Control Objectives for Information and related Technology
DIB	Draft Investment Brief
EA	Enterprise Architecture
EGR	Electricity Governance Rules
FMIS	Financial Management Information System
GPS	Government Policy Statement
IB	Investment Brief
ICTGB	Information & Communications Technology Governance Board
IST	Information Services and 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
TNP	Telecommunications and Networking Programme
TPSLC	Transpower Solution Life Cycle
SCADA EMS	System Supervisory Control & Data Acquisition - Energy Management Systems

# 1. Introduction and Scope

## 1.1 Report Purpose

The purpose of this Report is to provide advice to the Commerce Commission (the Commission) regarding whether Transpower's proposed capex provides a reasonable threshold to be used for the 2010/11 year. In particular this Report seeks to advise the Commission on the following:

- whether Transpower has conformed to the terms of the 12 May 2008 Settlement Agreement regarding the:
  - 2009/10 year in respect of implementing the non-Part F capex plan within the Threshold; and
  - 2010/11 year in respect of properly applying appropriate policies and processes leading to the preparation of the draft Business Plan ("Project List");
- the appropriateness of the use of Transpower's Project List as a Threshold for capital expenditure;
- whether:
  - the levels of contingency included in the project budgets have been established so that they are no more than 7.5% for Information Services and Technology ("IST") and 0% for replacement, refurbishment, minor development and enhancement ("RRE") expenditure;
  - the expenditure forecasts have been prepared in accordance with Transpower's capital works and IST 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; and

- the implications of any variations between actual expenditure to 31 December 2009 and both the Draft Project List and Threshold for the 2010/11 financial year.

## 1.2 Background

Strata has performed this Review over the past three years and provided a Report to the Commission each year. This Review considers non-Part F capital expenditure under two general categories, broadly defined as:

**RRE** Capital expenditure which replaces or refurbishes National Grid ("Grid") assets, or enhances them, provided the individual project costs or programme costs do not exceed \$1.5m and \$5.0m respectively.

**IST** Capital expenditure on the upgrade or replacement of:

- telecommunications network;
- SCADA EMS (including devices which provide data to SCADA); and
- network systems;

where these are used in operating or supporting the operation of the Grid. Also included are capitalised TNP operating leases.

These capex categories are defined more fully at Appendices I and II, attached at the end of this Report.

The Project List of non-Part F capex submitted by Transpower for 2010/11 is comprised of projects totalling \$246m. To provide the context for this, the table below sets out Transpower's draft planned capex for all categories. This shows that both Threshold and Part F capex are forecast to increase significantly in 2010/11.

<b>Transpower Draft Plan Capex 2010/11</b>		
<b>Total (\$ millions)</b>	<b>2010/11</b>	<b>2009/10</b>
<b>Total Part F</b>	498	351
<b>Total Contract</b>	41	33
<b>Commerce Commission Threshold</b>		
- RRE	176	104
- IST	42	48
- IST Operating Leases	28	37
<b>Total Threshold</b>	<b>246</b>	<b>189</b>
<b>Total Non Threshold Non Part F</b>	6	0
<b>Total Capital Expenditure</b>	<b>791</b>	<b>593</b>

The table below provides a summary of Transpower's recent performance against Threshold and the non Part F capex components of the Business Plans for 2010/11 and 2011/12.

<b>Performance Against Threshold - IST &amp; RRE</b>					
<b>\$ millions</b>	<b>2007/08 actual</b>	<b>2008/09 actual</b>	<b>2009/10 forecast</b>	<b>2010/11 business plan</b>	<b>2011/12 business plan</b>
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<b>Variance from Threshold</b>	33.1%	46.3%	-18.0%	n/a	n/a

## **2. Review Approach**

### **2.1 'Top Down' Approach**

Consistent with Strata's approach in previous Reviews, a 'top down' approach has been adopted. This approach assumes that if:

- Transpower's policies and processes are effective in delivering technically appropriate capital expenditure projects at least cost;
- these processes are properly applied; and
- Transpower has the capability to implement the capex programme;

then the output draft Project List will provide a sound basis for establishing a Threshold for the year under consideration.

The alternative approach would be to conduct a detailed technical examination of a sample of individual projects to establish whether, in those particular instances, the capital expenditure was reasonable or not. These findings would then be extrapolated to provide a view on the reasonableness of the draft Project List. The advantage of the top-down approach is that it avoids the need to undertake highly detailed technical and economic reviews of a large number of individual projects.

### **2.2 Least Cost Objective**

#### **2.2.1 Government Policy Statement**

A key focus of this Review is to assess the extent to which Transpower is currently achieving (or could achieve) least-cost capex. The term 'least-cost' is derived from a succession of Government Policy Statements, including the May 2009 Government Policy Statement on Electricity Governance (GPS). This provides (at paragraph 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".

## 2.2.2 Transpower Statement of Corporate Intent

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

Transpower's 2009/10 Statement of Corporate Intent (SCI), which sets out Transpower's overall intentions for the 2009/10 year and succeeding financial years, includes objectives to:

- promote efficient investment in the Grid to provide the platform for a competitive wholesale market, thus enabling options for investment in generation and demand-side management;
- seek to efficiently recover 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 Grid users or required by regulatory agencies.

Together the GPS and Transpower's SCI provide clear direction for Transpower management to provide transmission services at least cost.

Least-cost is used in a broad sense, taking into consideration the whole-of-life costs and the other objectives set out in the GPS. These objectives include grid reliability, security, diversity of supply to larger load centres and the facilitation of competition.

## 2.2.3 Achieving Least-Cost Capex

Key factors in achieving least-cost capex are considered to be:

- accurate and complete asset condition monitoring and assessment processes;
- effective options analysis, a key facet of which is the cost-benefit analysis;
- accurate costing methodologies;
- effective challenge processes;
- effective procurement processes; and
- targeted capex cost reduction / containment.

The Review process has focussed on:

- the adequacy of Transpower's policies and processes in achieving least-cost capex;
- improvements made by Transpower since the previous Review to policies and procedures impacting on capital expenditure management;
- the extent to which issues identified in the previous Review have been addressed;
- the extent to which efficiency gains arising from changes to policies and processes have been reflected in the Project Lists (and therefore are factored into the calculation of Thresholds);
- determining whether the policies and processes have been appropriately and effectively applied to the projects. This includes sample testing of adherence to these policies and processes through examining business cases and other project documentation for:
  - all Major Projects (\$1.0m and above)
  - a sample selection of Minor Projects (less than \$1.0m);
- the relevant requirements of the Settlement Agreement;
- historical and future non-Part F capex trends;
- the reasonableness of the underlying assumptions behind the draft Project List; and
- any areas in which Transpower is considered to be non-compliant with the terms of the Settlement Agreement.

## 2.3 Information Basis

Strata's analysis is based on data and documentation provided by Transpower and on discussions with Transpower management and staff. This includes provision by Transpower of detailed updates of the policies and processes in effect, and a description of the changes made since the previous Review.

## 2.4 Report Structure

RRE and IST non-Part F capex are separately considered in detail in the sections immediately below. This analysis focuses on three key areas:

- **Current year performance** - year-to-date (YTD) and forecast full year (FY) capex in the current 2009/10 financial year. The key focus is on how well Transpower is currently managing its capex and achieving least-cost capex;

- **Policy and processes** - current policies and processes which impact on non-Part F capex are reviewed. This section assesses the appropriateness of Transpower's policy and process framework, particularly in achieving least-cost capex; and
- **Project List review** - Transpower's proposed project list in the Business Plan for 2010/11 non-Part F capex is reviewed. The key focus is on whether the policies and processes have been fully applied to the projects in the Project List.

Where deficiencies are identified, adjustments are proposed to the level of capex in Transpower's non-Part F Project List for the 2010/11 financial year.

Subsequent sections then set out:

- an assessment of compliance with the May 2008 Settlement Agreement;
- overall conclusions reached; and
- a recommended non-Part F Threshold for the 2010/11 year.

### **3. Replacement, Refurbishment and Enhancement Capital Expenditure**

#### **3.1 RRE 2009/10 Performance Review**

The purpose of undertaking this review of the progress that Transpower has made in completing capital works during the 2009/10 regulatory period is to provide information relevant to setting the Threshold for the following regulatory period(s). This review is not intended to provide a detailed compliance assessment.

To assist Strata's assessment, Transpower has provided the following:

- a full project-by-project extract for RRE capex including YTD actuals to 31 December 2009 and Forecast FY 30 June 2010 outturn;
- summary capex data extracted from FMIS (which is reconciled to AMDB each night); and
- project initiation and approval documentation for specific current year projects, as requested by Strata.

### 3.1.1 Top 15 Projects

#### GRID - Top 15 Projects (Forecast FY2010 Spend)

Description	Approved	Asset Category	Activity	Process	Programme	Year to Date - 31 Dec 2009		Full Year - 30 June 2010				Total Project			
						Actual	Budget	Forecast	Budget	Variance \$	Variance (%) / Unplanned	Total Project Forecast	Total Project SFE + BCA	Total Project Variance	Variance %
MDN Subs Redevelop Phase One	Yes	AC Substations	Replacement	Network Development	Marsden Substation Redevelopment -	1,188,127	0	9,651,570	0	(9,651,570)	Unplanned	9,822,340	10,658,000	835,660	7.8%
National Spare TX 220/33kV	Yes	AC Substations	Replacement	Policy/Development	Spare Transformers Stage 1	579,311	105,976	6,935,231	6,575,237	(359,994)	-5.5%	7,319,275	7,674,276	355,001	4.6%
NatSpare 250MVA Tfr 09/10	Yes	AC Substations	Enhancement	Policy	Spare Transformers Stage 2	0	0	6,123,691	0	(6,123,691)	Unplanned	6,123,691	7,300,000	1,176,309	16.1%
National Spare TX 110/33kV	Yes	AC Substations	Replacement	Policy/Development	Spare Transformers Stage 1	4,007,612	113,868	5,571,697	5,267,248	(304,449)	-5.8%	6,151,645	6,206,450	54,805	0.9%
BPE-WGN B Reconductor	Yes	AC Transmission	Replacement	Policy/Development	BPE-WGN B Reconductor	298,006	1,999,998	5,112,305	3,999,996	(1,112,309)	-27.8%	11,955,803	13,900,000	1,944,197	14.0%
NatSpare 150MVA Tfr 09/10	Yes	AC Substations	Enhancement	Policy	Spare Transformers Stage 2	0	0	4,797,908	0	(4,797,908)	Unplanned	4,797,908	5,700,000	902,092	15.8%
HAM T4 Supply Transformer Repl	Yes	AC Substations	Replacement	Policy/Development	HAM T4 Supply Transformer	802,126	0	4,722,815	3,444,442	(1,278,373)	-37.1%	5,000,233	6,550,000	1,549,767	23.7%
VAR Revenue Metering Replacement	Yes	AC Substations	Replacement	Policy	Metering Replacement Project	637,140	1,837,062	2,793,725	4,149,976	1,356,251	32.7%	3,082,342	3,287,623	205,281	6.2%
MDN T1 220/110kV Replacement	Yes	AC Substations	Replacement	Policy	Marsden Substation Redevelopment -	2,480,235	75,833	2,715,645	75,833	(2,639,812)	-3481.1%	2,730,812	2,997,000	266,188	8.9%
KWA T2 Rebuild 09-10	Yes	AC Substations	Enhancement	Policy	KWA T2 Rebuild 09-10	1,353	0	2,500,749	0	(2,500,749)	Unplanned	2,500,749	2,492,936	(7,813)	-0.3%
Aerial Laser Surveying VI	Yes	AC Substations	Replacement	Network Development	Aerial Laser Surveying	66,652	998,520	2,308,922	1,997,040	(311,882)	-15.6%	2,683,083	2,619,300	(63,783)	-2.4%
ROX-ISL A Grillage Refurbish	Yes	AC Transmission	Refurbishment	Policy	Accelerated Works	933,215	468,300	1,867,510	936,600	(930,910)	-99.4%	2,801,991	3,000,000	198,009	6.6%
NatSpare Tfr Stage 3 2009-11	Yes	AC Substations	Development	Policy	Spare Transformers Stage 3	0	0	1,710,838	0	(1,710,838)	Unplanned	17,202,446	18,900,000	1,697,554	9.0%
VAR ODS Key Mgmt Elec Keysafes	Yes	AC Substations	Replacement	Policy	Accelerated Works	901,722	902,878	1,514,426	902,878	(611,548)	-67.7%	1,897,275	1,688,000	(209,275)	-12.4%
TNG Bus Struct Fence Refurb	Yes	AC Substations	Refurbishment	Policy	Other Substation Projects	94,427	735,572	1,325,212	1,549,867	224,655	14.5%	1,325,862	1,552,155	226,293	14.6%

The table above sets out the top 15 projects based on the year-end spend forecast by Transpower in January 2010. This shows:

- five of the 15 were unplanned (including Marsden Redevelopment Stage I and National Spare Transformers Stages II and III);
- Transpower's FY forecast for the top 15 projects is for a total of \$59.7m, compared with a budget for these projects of \$28.9m, a net overspend of \$30.7m (including unplanned projects); and
- only two of the top 15 projects are forecast to be underspent in the 2009/10 year whereas only 12 are forecast to be underspent over the life of the project.

### 3.1.2 Performance against Threshold

The table below sets out Transpower's forecast performance for the financial year against the Threshold for 2009/10 for RRE. The figures are also provided for IST to show the forecast overall position.

<b>Forecast Performance Against Threshold - 2009/10</b>				
<b>\$ millions</b>	<b>FY Forecast</b>	<b>Threshold</b>	<b>Variance (\$)</b>	<b>Forecast as % of Threshold</b>
<b>IST</b>	80.4	84.8	-4.4	94.8%
<b>RRE</b>	142.3	104.3	38.0	136.4%
<b>Total</b>	<b>222.7</b>	<b>189.1</b>	<b>33.6</b>	<b>117.8%</b>

This analysis shows that, for 2009/10:

- RRE capex is forecast by Transpower to be 36% over the Threshold; and
- Transpower's combined forecast is for the Threshold to be exceeded by 18% (\$33.6m).

RRE expenditure exceeds the Threshold primarily because of the additional \$57.0m of unplanned RRE projects. Included in these additional projects is the Marsden Redevelopment Stage I (\$9.9m) and National Spare Transformers Stages II and III (\$12.6m). In addition, planned works are forecast to exceed Budget on 155 projects at an average of 40% over budget, adding \$16.6m of overspend.

### 3.1.3 Unplanned and 'No Spend' Projects

The table below sets out for Grid (RRE) projects:

- Transpower's FY forecast for projects which were unplanned; and
- the FY budget for planned projects on which Transpower forecasts no spend during the Financial Year.

<b>Grid - Unplanned &amp; No Spend Projects by Key Asset Categories</b>		
<b>\$ millions</b>	<b>Unplanned FY Forecast</b>	<b>No Spend FY Budget</b>
AC Substations	42.3	15.7
AC Transmission Lines	12.9	17.9
Other	1.8	0.2
<b>Total</b>	<b>57.0</b>	<b>33.8</b>
AC Substations adjustment *	25.0	-
<b>Adjusted Total</b>	<b>32.0</b>	<b>33.8</b>
<b>Number of Projects</b>	<b>431</b>	<b>212</b>

Strata notes that:

- Unplanned projects are large in total value (approximately \$32m) even if the two large projects, the Marsden Substation Redevelopment project and the National Transformer Spares project which are forecast to total \$25.0m in 2009/10, are not included; and
- there are 431 unplanned (not budgeted) and 212 'no spend' projects. Note that only 530 projects were budgeted in the FY Budget.

The table below compares planned and unplanned projects in relation to the forecast year-end capex spend.

<b>Grid - Planned &amp; Unplanned Projects</b>				
	<b>Number</b>	<b>% Total</b>	<b>Forecast Y/end</b>	<b>% Total</b>
<b>Planned (budgeted)</b>	530	55.2%	85,284,572	59.9%
<b>Unplanned (unbudgeted)</b>	431	44.8%	57,027,475	40.1%
<b>Total projects</b>	<b>961</b>		<b>142,312,047</b>	

Unplanned projects represent:

- 40% of forecast year-end spend of \$142.3m; and
- 81% (by project numbers) of the initial Budget of 530 projects.

### 3.1.4 Year to Date Spend

<b>Grid - Spend on Budgeted Projects vs Forecast &amp; Budget \$ millions</b>	
YTD Spend on Budgeted Projects	31.1
FY Forecast Spend on Budgeted Projects	85.3
FY Budget	104.3
FY Forecast Spend as % of FY Budget	81.8%
YTD Spend as % of Forecast FY	36.5%
YTD Spend as % of FY Budget	29.8%

Strata notes that:

- Transpower is forecasting budgeted projects to reach 82% of FY Budget, however at 31 December 2009 these were only 30% of FY Budget;
- at the half-year point, YTD spend on budgeted projects is only 36% of Transpower's FY Forecast; and
- Transpower's FY Forecast for budgeted projects is \$19.0m below FY Budget.

The table below sets out a closer examination of YTD spend (as at 31 December 2009) compared with the YTD Budget at that point:

<b>Grid - Project Progress vs YTD Budget as at 31 Dec 2009</b>				
<b>Total Budgeted Projects</b>	<b>530</b>		<b>115,502,370</b>	
<b>YTD Spend vs YTD Budget</b>	<b>No of Projects</b>	<b>% Total</b>	<b>FY Budget</b>	<b>% Total</b>
- YTD Spend is less than 10% of YTD Budget	225	42.5%	40,359,678	34.9%
- YTD Spend is less than 25% of YTD Budget	242	45.7%	47,608,405	41.2%
- YTD Spend is less than 50% of YTD Budget	270	50.9%	58,679,286	50.8%
- YTD Spend is less than 100% of YTD	315	59.4%	65,936,724	57.1%

This shows that, as at 31 December 2009 (i.e. at the half year point):

- the spend on 42% of the budgeted projects (by number) was less than 10% of the YTD Budget. These projects represent 35% of the FY Budget (by value);
- 51% (270) of budgeted projects were less than 50% through YTD Budget; and

At the half-year YTD Actual of \$47.2m was just 33.2% of FY Forecast of \$142.3m however this did exceed the half year Budget of \$39.4m by 19.8%.

### 3.1.5 Project Variances

The table below illustrates the impact of variances against budget for the forecast FY 2009/10 year and the preceding three years. Key points to note include:

- FY 2009/10 half-year Actual is above the Budget for the period. This is due primarily to a significant level of unplanned projects;
- FY 2009/10 Full Year is forecast to be \$142.3 compared to the Threshold of \$104.3m; and
- In FY2007/08 and FY2008/09 the Actual Full Year expenditure was at least 10% below the reforecast at the half year.

<b>GRID - Historical Half Year and Full Year Comparative Data</b>					
<b>\$ millions</b>	<b>Half Year</b>		<b>Full Year</b>		
<b>Financial Year ended</b>	<b>Actual</b>	<b>Business Plan</b>	<b>FY Forecast at Half Year</b>	<b>Business Plan</b>	<b>Actual</b>
<b>June 2007</b>	n/a	n/a	n/a	57.4	50.7
<b>June 2008</b>	13.3	14.8	56.3	56.3	50.1
<b>June 2009</b>	17.1	33.5	74.8	97.7	67.0
<b>June 2010</b>	47.2	39.4	142.3	104.3	n/a

The table below sets out the forecast year-end position for budgeted projects:

- For projects forecast to be more than 10% under-budget, the underspend is 74% of the original budget for those projects; and
- For projects forecast to be over-budget by more than 10%, the overspend is 66% of the total budget for those projects.

<b>GRID - Over / Underspend &gt; 10% of Budget</b>			
<b>Forecast 2009/10</b>	<b>(Over) / Under Spend</b>	<b>Number of Projects</b>	<b>Budget for Projects</b>
<b>Underspend on Budgeted Projects</b>	46.5	311	62.8
<b>Overspend on Budgeted Projects</b>	15.7	108	23.9

The table below sets out the forecast 15 largest variations for FY09/10 projects:

### GRID - 15 Largest Forecast FY2010 Project Variances

Description	Status	Asset Category	Activity	Process	Programme	Business Owner	Year to Date - 31 Dec 2009		Full Year - 30 June 2010				Total Project			
							Actual	Budget	Forecast	Budget	Variance \$	Variance (%) / Unplanned	Total Project Forecast	Total Project SFE + BCA	Total Project Variance	Variance %
MDN Subs Redevelop Phase One	Approved	AC Substations	Replacement	Network Development	Marsden Substation Redevelopment - Stage 1	Grid Projects	1,188,127	0	9,651,570	0	(9,651,570)	Unplanned	9,822,340	10,658,000	835,660	7.8%
NatSpare 250MVA Tfr 09/10	Approved	AC Substations	Enhancement	Policy	Spare Transformers Stage 2	Grid Performance	0	0	6,123,691	0	(6,123,691)	Unplanned	6,123,691	7,300,000	1,176,309	16.1%
NatSpare 150MVA Tfr 09/10	Approved	AC Substations	Enhancement	Policy	Spare Transformers Stage 2	Grid Performance	0	0	4,797,908	0	(4,797,908)	Unplanned	4,797,908	5,700,000	902,092	15.8%
MDN T1 220/110kV Replacement	Approved	AC Substations	Replacement	Policy	Marsden Substation Redevelopment - Stage 1	Grid Projects	2,480,235	75,833	2,715,645	75,833	(2,639,812)	-3481.1%	2,730,812	2,997,000	266,188	8.9%
KWA T2 Rebuild 09-10	Approved	AC Substations	Enhancement	Policy	KWA T2 Rebuild 09-10	Grid Performance	1,353	0	2,500,749	0	(2,500,749)	Unplanned	2,500,749	2,492,936	(7,813)	-0.3%
NatSpare Tfr Stage 3 2009-11	Approved	AC Substations	Development	Policy	Spare Transformers Stage 3	Grid Performance	0	0	1,710,838	0	(1,710,838)	Unplanned	17,202,446	18,900,000	1,697,554	9.0%
VAR Revenue Metering Replacemnt	Approved	AC Substations	Replacement	Policy	Metering Replacement Project	Grid Projects	637,140	1,837,062	2,793,725	4,149,976	1,356,251	32.7%	3,082,342	3,287,623	205,281	6.2%
HAM T4 Supply Transformer Repl	Approved	AC Substations	Replacement	Policy/Development	HAM T4 Supply Transformer Replacement	Grid Projects	802,126	0	4,722,815	3,444,442	(1,278,373)	-37.1%	5,000,233	6,550,000	1,549,767	23.7%
ARI-HAM B Urban Copper Rplmt	Proposed	AC Transmission Lines	Enhancement	Policy	Accelerated Works	Grid Projects	0	624,396	0	1,248,792	1,248,792	100.0%	0	0	0	N/A
Slyrd security upgrade	Approved	AC Substations	Enhancement	Policy	Accelerated Works	Grid Projects	119,119	0	1,219,965	0	(1,219,965)	Unplanned	1,219,965	1,250,000	30,035	2.4%
OHK-EDG A Grillage Refurbish	Approved	AC Transmission Lines	Refurbishment	Policy	Grillage Works	Grid Projects	553,398	0	1,190,112	0	(1,190,112)	Unplanned	1,207,937	608,000	(599,937)	-98.7%
WDV T1 & 11 kv Switchgear Repl	Approved	AC Substations	Replacement	Policy/Development	Other Substation Projects	Grid Projects	10,823	8,144	403,509	1,590,691	1,187,182	74.6%	3,454,063	3,944,230	490,167	12.4%
BPE-WGN B Reconductor	Approved	AC Transmission Lines	Replacement	Policy/Development	BPE-WGN B Reconductor	Grid Projects	298,006	1,999,998	5,112,305	3,999,996	(1,112,309)	-27.8%	11,955,803	13,900,000	1,944,197	14.0%
HLY 220KV DRY Connect 09-10	Approved	AC Substations	Development	Network Development	Other Substation Projects	Grid Projects	305,860	0	1,060,769	0	(1,060,769)	Unplanned	1,060,769	1,463,170	402,401	27.5%
TUI 110 kV Bus Zone Protection	Approved	AC Substations	Development	Policy	TUI 110 kV Bus Zone Protection	Grid Projects	165,188	160,098	901,902	1,923,303	1,021,401	53.1%	1,593,083	2,300,000	706,917	30.7%

Strata has reviewed the background information and documentation supplied by Transpower. Detailed comments are provided in Appendix III. Key concerns arising are discussed below.

Key areas of concern arising from the review of documentation for the forecast top 15 largest variances for FY09/10 are:

### **Project Data Accuracy**

The review of documentation raises concerns about the maintenance of accurate and up-to-date project records. At a minimum, an additional \$21.6m (regarding the Stage II National Spare Transformers and the Marsden Redevelopment Project Stage 1), and possibly as much as \$27.9m, could have been budgeted, and in Strata's opinion should have been budgeted.

### **OHK-EDG Grillage project**

There are several issues in relation to this project:

- Transpower may have been expending funds without proper approval;
- The Business Case Adjustment document only had two lines explaining the fact that the project size had doubled, with nothing to justify the additional works;
- Transpower's advice appeared to indicate the Business Case document related entirely to this project when this is not the case; and
- Transpower advised that this project was not able to be put in the 2009/10 Budget because the Business Case was only signed off in April 2009. However, 4 of the 5 other projects in the Business Case appeared in the Budget at the values approved (the other is in the 2010/11 Year Budget).

### **Project Deferral**

Strata was provided an explanatory memo but no other documentation in relation to the deferral of the ARI-HAM B Urban Copper Replacement. This suggests there was no formal approval for deferral. This is at odds with Transpower's stated policy regarding the deferral of projects.

### **3.1.6 Key Implications for Setting the Next Threshold**

The review has raised significant concerns regarding:

#### **Accuracy of Transpower's Business Plan**

A number of factors raise significant concerns regarding the use of the draft Business Plan data as a basis for formulating a Threshold:

- project data records were not accurately maintained. As a result a minimum of \$21.6m of additional projects should have been included in the Project List for 2009/10;
- there are 431 unplanned (unbudgeted) projects, when only 530 projects were originally budgeted;
- for a total of 270 budgeted projects, actual capex at the half year point was less than 50% of the YTD budget;
- by project value 59% of projects were below the YTD Budget spend; and
- of 374 projects, totalling \$73.9m, Transpower is forecasting to spend just \$27.1m by financial year end.

#### **Transpower's capacity to implement project plans**

Transpower is forecasting to significantly exceed the Threshold of \$104m with capex of \$142m. While Transpower may achieve its forecast its capacity to implement a Business Plan substantially as planned remains in doubt. A certain level of project deferral and substitution is to be expected, however the level of unplanned new projects and projects deferrals and delays is well above expectations.

#### **Transpower's planning and challenge processes**

The scale of the project deferrals and delays and unplanned projects also raises questions regarding Transpower's planning and challenge processes in identifying what resources were required and/or whether sufficient resources were available. Transpower has previously advised Strata of concerns about its capacity to implement the Business Plan and historically it has not achieved it by a significant margin e.g. the Actual was 31% below Budget for the 2008/09 financial year.

Transpower has also advised that, particularly in the latter stages of developing the Business Plan, the focus on the achievability of the draft Business Plan increases significantly. In 2009, Transpower's CEO conducted a review, which Transpower advised Strata was heavily focussed on this aspect. Despite this attention, Transpower forecasts that, of 374 projects totalling \$73.9m, it will have only spent \$27.1m

(36.6%) by year end. This level of change is concerning given it occurred within just nine months of the Business Plan gaining Transpower Board approval.

The level of change also raises the issue of the process applying to the deferral or delay of projects and, in particular the extent to which field staff are able to make changes when projects are progressed to implementation. Strata would expect Transpower to have adequate procedures that govern and manage project terminations, deferrals and material changes. Such procedures should be at least be as rigorous as the original project approval processes and include assessment of the implications and impact on the overall asset management programme. Delegated sign-off of project terminations, deferrals and material changes should be one level higher than that for the original project approval.

Strata has requested documentation on the procedures used by Transpower for managing changes to Business Plan components. In Strata's view the documentation provided by Transpower does not establish that the procedures for governance and management of material project or programme changes are adequate.

In Strata's opinion, the significant variations that have occurred to the RRE Business Plan components within only nine months of being provided to Strata raises serious concerns regarding the suitability of the Business Plan, as currently developed and implemented, for use as a Threshold.

The Threshold provides Transpower with the ability to substitute projects and programmes that are contained within the Business Plan in order to manage situations that emerge during the year. Given the fixed nature of the assets and the level of knowledge that should be available on the asset performance, age, condition and environment, it would be expected that the variations seen would fall within 10% of the overall RRE Business Plan levels. In previous Reviews Strata has undertaken, the level of unplanned project substitutions have been below 10% of the total RRE Business Plan.

The implications of the above for the 2010/11 Business Plan are that, in the absence of evidence to the contrary, the 2010/11 Business Plan will also be inaccurate and subject to significant variation in its implementation. It is also uncertain that the reasons for significant levels of underspend on planned projects will not be seen again in 2010/11.

## **3.2 RRE Policy & Process Review**

### **3.2.1 Policy & Process Changes**

During the course of 2009 and 2010 Transpower made a number of changes to RRE capital works planning and implementation processes and documentation.

Key changes included:

#### **Procurement**

In October 2009 a decision was made to amalgamate the procurement functions of Grid and IST (Project Support and Vendors and Commercial respectively) into the Sourcing Supply & Contracts Group which now forms part of the Grid Projects.

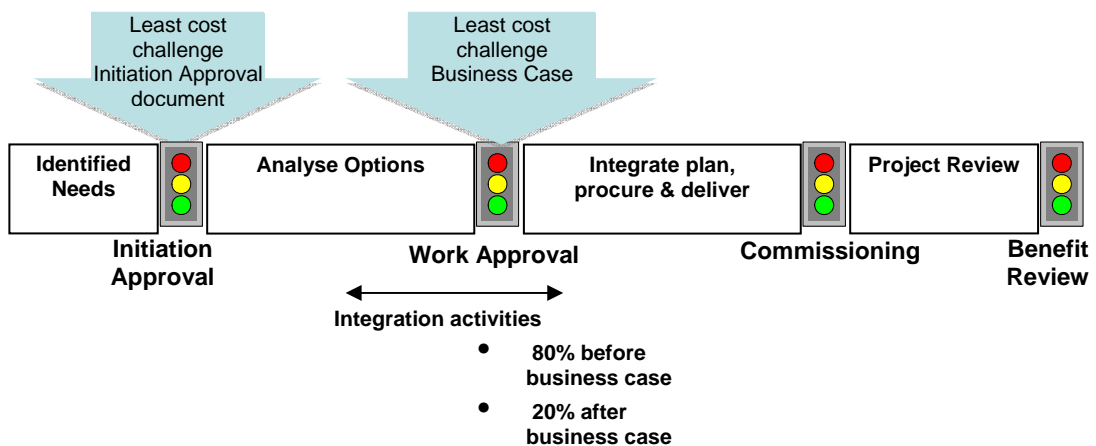
The main objectives for combining the two groups were to:

- develop and implement a simple single procurement process across Transpower;
- introduce vendor management across Grid;
- enhance procurement competencies;
- progressively improve the maturity of Transpower sourcing practices, policies and standards to achieve more effective sourcing at least cost;
- standardise commercial terms and reduce the number of different contract types;
- ensure consistent responses to the same vendors from different parts of the business; and
- provide feedback to the US-COST forecasting process.

Following the decision to amalgamate in October 2009 a Capability Review was undertaken by PMMS Consultancy, a specialist in Procurement and aligned to the Chartered Institute of Purchasing and Supply. The Sourcing Supply & Contracts Group is expected to be fully established and to have developed a single procurement process and standardised contracts by July 2010.

#### **Approval Process Documentation**

Transpower has implemented a new process for identifying, approving and delivering projects. This is set out in the figure below.



The Initiation Approval Document and the Business Case have (respectively) replaced the Investigation Approval Form and Project Approval Document. The new documents have mandatory fields, which will avoid the risk with the old documentation of key areas being left out.

The standard formats for both new documents explicitly require project proposer and approving authority to:

- provide a clear description of the options considered;
- consider whether adequate steps have been taken to ensure least cost; and
- ensure a procurement plan is developed and used.

Because the changes to the process and new templates were effective from January 2010, there were a number of projects approved using the previous approval documents. To close the gap between the old and new documents, a review of all (old format) PAD documents was undertaken in early 2010 using a standard compliance checklist. Transpower has advised that the deficiencies were dealt with so that all approved capital projects in the 2010/11 and 2011/12 RRE plan have been challenged from a least cost perspective by the approving authority. However in checking these Strata has identified that although 272 PAD's have been reviewed there are a further 213 which have not.

### **Strategy Documents**

Transpower has developed strategy documents for key asset categories such as transformers, transmission lines and tower painting. These documents set out the optimal approach to refurbishment and replacement for key asset categories and provide a platform from which assessing specific projects can be progressed. In some instances (e.g. tower painting) the effect is an increase in capex in the short- to medium-term, despite the focus being on achieving grid

performance objectives on a least-cost basis. This is because tower painting requires a very significant short to medium term increase in capex to move from the previous strategy of painting towers only at a point when expensive rust treatment is required, to painting before this point is reached.

### **Capture of Learning**

Transpower has acknowledged that historically the learning from experience has been captured inconsistently and at times not communicated to relevant parties. IST has developed a tool to capture lessons throughout projects and not just at close-out. This sits within the MS Project Server System that is used for Grid Projects and Grid Development projects. It is intended that for larger pieces of work, such as tower painting or circuit breaker replacement programmes, the 'lessons learned' process can be applied.

In the longer term, more effective project delivery and a reduction in costs through less re-work is expected. Transpower intends to estimate the quantum and/or timing of benefits through an analysis of current projects and input this into the US Cost system. Transpower has not mentioned whether it will set targets in relation to the capture of these benefits.

## **3.2.2 Review Findings**

For a detailed list of the questions addressed in the review of policy and process, and Strata's findings in relation to them, please refer to Appendix IV - Policy & Process Assessment.

The key issues identified by Strata are set out below.

- **Project Deferral & Termination Policy**

Strata expects that, given the extent of project deferrals and terminations in the current financial year Transpower would have policies and processes governing these circumstances. Transpower's Chief Executive advised at the March 2010 Electricity Transmission Workshop that it is necessary for Transpower to have in place such policies and processes.

Following Strata's request for further details, Transpower has now advised that the Business Case Adjustment (BCA) Process is applied where projects with financial approval are delayed, deferred or cancelled. However:

- the list of the circumstances in which a BCA would be prepared did not include deferral of a project;

- no consideration of the impacts of deferral appears to be required, despite all projects in the Budget being regarded as entirely essential to the ongoing performance of the Grid as a result of an extensive challenge process. A small number of deferrals is to be expected and the impact may well be negligible, however where it is on a large scale then a greater level of risk to Grid performance would be expected;
- the project manager and the manager with the DFA who prepare and sign off the BCA appear to be the same as those who originally proposed and approved the project. This will potentially diminish the opportunity for any learning from the situation. In Strata's opinion, project termination or deferral should be approved one level higher than the delegated level of the original project approval.

Strata considers that these issues should be addressed at least where the projects are (either individually or as part of a programme) of a significant value. We note Transpower has acknowledged further work is necessary and noted that one of the objectives of the current 'Integrated Works Planning' initiative is to review current processes and make improvements to ensure consistent and rigorous application.

We would also expect a process governing the substitution of projects in place of deferred projects. Projects being substituted into the current financial year have previously been determined not to be essential and excluded from the Budget. We expect that the process would ensure that bringing projects forward would be formally justified.

- **US Cost Costing System**

Strata noted in its 2008 Review that Transpower had adopted the US-Cost system and was progressively rolling out pricing modules from April 2008. However Transpower has indicated in its February 2010 update that the Stage II and III rollout to Grid Performance Engineering Services and Grid Projects respectively has been delayed due to software difficulties. Strata understands that at present it is not possible to create the tender pricing schedules and group activities together, for reporting purposes, or to allocate costs to the relevant areas on completion of the project.

As a result of requests from users (including Transpower) US-Cost has introduced enhancements to the software which now requires Internet Explorer (IE) 7 or greater to operate. Transpower is currently running IE6 and an upgrade to IE7/8 involves the testing of other Transpower software (approximately 70

programmes). Also, Transpower desktop security has caused issues with the transfer of project data from the system to the printed reports. A business case is being prepared to set up a new server dedicated to running IE8, which should be in service by July 2010 and will enable a further rollout within Transpower.

Strata requested (among other things) for details of the benefits arising from the application of US-Cost, particularly those which are considered to have contributed to reducing or containing growth in capex. While the update set out the benefits expected it is assumed that as yet none have been captured because none were mentioned.

In December 2009 Transpower advised that, to date, US-Cost had primarily been used in connection with Part F projects. Transpower was expecting to apply it to Non Part F but had not yet determined a date for implementation.

### **3.2.3 Conclusions**

Strata considers that Transpower's policies and processes have covered most of the remaining gaps identified in previous reviews in best ensuring the achievement of the least-cost objective. However, Strata considers that there are three key remaining policy and process areas which have not yet been fully addressed:

#### **Policy and Process Framework**

While the policies and processes have individually been progressed significantly, there is still scope to improve the overall framework in which these operate. One such framework is PAS 55, a Publicly Available Specification for the optimised management of physical assets, which has been developed over a number of years by the British Standards Institution. This provides a framework for managing policies and processes in asset intensive businesses.

The particular aspects of PAS 55 which Strata considers to be of particular value are the close linkages between corporate objectives / policy and strategy documents / project management / planning / analysis and approvals for specific projects. A PAS 55 (or similar) approach would apply additional rigour to ensuring that project approval and implementation is fully compliant with objectives, policies and processes and also to ensuring that continuous learning is applied.

#### **Cost Containment Targeting and Monitoring**

Strata does not consider that Transpower has fully established policies and processes governing the setting of capex cost containment targets

and the development of methods to measure performance against these. It is acknowledged some progress towards this has been made during the current financial year and further developments have been signalled. However further work is required to develop specific targeted strategies to reduce and contain costs.

### **Project Deferral**

Strata would expect to see a more clearly defined and rigorous process for deferring projects, particularly larger projects.

## **3.3 RRE 2010/11 Proposed Project List**

### **3.3.1 Information Basis**

Transpower has provided a Project List for the 2010/11 financial year as at 26 March 2010. This has not been signed off by the Transpower Board and not all projects have been given formal approval. However all projects have been subject to review and challenge to some extent, including the detailed CEO Review.

### 3.3.2 Project List Analysis

<b>RRE Threshold Projects 2010/11 Asset Category Split</b>		
<b>Asset Category</b>	<b>Project Value</b>	<b>Number</b>
<b>Substation</b>		
Transformers	28,497,680	34
ACS Outdoor to Indoor Conversion Protection	12,712,688	9
	14,238,048	109
ACS Circuit Breakers	7,380,474	16
SA Metering	7,065,989	2
Other	20,277,953	181
<b>Total Substation</b>	<b>90,172,832</b>	<b>351</b>
<b>Transmission</b>		
Tower Painting	19,601,368	42
Grillage & Foundations	14,814,888	42
TL Insulators	9,177,955	65
TL Structures	9,168,817	60
TL Conductors	8,302,079	25
Other	980,654	4
<b>Total Transmission</b>	<b>62,045,760</b>	<b>238</b>
<b>HVDC</b>		
<b>HVDC</b>	<b>23,984,680</b>	<b>32</b>
<b>Buildings</b>		
<b>Buildings</b>	<b>57,069</b>	<b>2</b>
<b>Total 2010/11 RRE Capex</b>	<b>176,260,342</b>	<b>623</b>

Transpower's proposed RRE Project List is summarised above. The list is made up of 623 projects with a total spend in 2010/11 of \$176.3m. The table below shows the split by key asset categories and includes: Transformers (\$28.5m), HVDC (\$24.0m), Tower Painting (\$19.6m), Grillage & Foundations (\$14.8m) and Protection (\$14.2m).

## Top 20 Projects

The figure below shows greater detail for the top 20 RRE projects for 2010/11.

<b>RRE - 2010/11 Top Twenty</b>								
Description	Approved	Asset Cat	Activity	Programme / Project	2010/11	2011/12	Total Project	Sanction for Expenditure (excl contingencies)
HAY Sync Cord Refrb 2009-13	No	HVDC	Replacement	HVDC Policy works	11,551,744	15,164,684	38,652,385	-
VAR Spare 250MVA TXs Stage 3	Yes	Substation	Development	ACS Power Transformers National Spares	8,065,379	3,621,834	12,646,214	17,208,000
VAR Revenue Metering Replacement 2010-	No	Substation	Replacement	SA metering	6,775,741	9,032,647	27,060,913	-
PAKnew 33kV Indoor Switchboard	Yes	Substation	Development	ACS Outdoor to Indoor Conversion	5,565,418	345,000	6,033,587	6,179,413
BPE-WGN B Reconductor	Yes	Transmission	Replacement	TL Conductors	5,119,503	-	11,631,564	13,900,000
HAM 33kV Indoor switchbd conv	Yes	Substation	Development	ACS Outdoor to Indoor Conversion	4,949,095	500,000	5,956,068	5,996,866
WDV T1 & 11 kV Switchgear Repl	Yes	Substation	Replacement	ACS Power Transformers Replacement	2,987,468	200,000	3,384,013	3,395,810
PEN T12 220/33kV Replacement	Yes	Substation	Enhancement	ACS Power Transformers Replacement	2,811,488	566,367	3,680,856	3,527,870
KPO Switchyard Upgrade Prog	Yes	Substation	Replacement	ACS Structures & Buswork	2,561,224	-	2,561,224	2,565,087
HAY Fire Systems 2010-11	No	HVDC	Replacement	HVDC Policy works	2,349,641	-	2,349,641	-
VARC SNI CB CT Replace	Yes	Substation	Replacement	ACS Circuit Breakers	2,300,000	-	2,301,022	2,170,350
HAI-TRK A Reinsulation	Yes	Transmission	Replacement	TL Insulators	2,270,000	-	2,270,000	2,270,000
NatSpare 250MVA Tfr 09/10	Yes	Substation	Enhancement	ACS Power Transformers National Spares	2,110,626	-	6,243,569	6,635,000
National Spare TX 220/33kV	Yes	Substation	Replacement	ACS Power Transformers National Spares	2,099,968	-	6,341,468	6,989,073
WVY T2 Supply Transformer Rpl	Yes	Substation	Replacement	ACS Power Transformers Replacement	1,780,221	230,000	2,120,124	2,120,771
NatSpare 150MVA Tfr 09/10	Yes	Substation	Enhancement	ACS Power Transformers National Spares	1,574,848	-	5,117,877	5,183,000
COL-OTI A Strct Bealey Rvr Sec	Yes	Transmission	Replacement	TL Structures	1,497,072	-	1,497,072	1,500,000
BPE-WGN B Grillage Refurbish	Yes	Transmission	Refurbishment	TL Grillage	1,481,627	279,764	3,995,041	3,314,075
BEN-DC Installation of new water storage ta	No	HVDC	Replacement	HVDC Capital	1,469,815	-	1,469,815	-
HAY Installation of New Water Storage Tank	No	HVDC	Enhancement	HVDC Capital	1,402,057	-	1,402,057	-
					<b>70,722,936</b>	<b>29,940,296</b>	<b>146,714,511</b>	<b>82,955,315</b>

## Capacity to Implement Increased Capex Level

<b>GRID - Business Plan &amp; Actual</b>		
<b>\$ millions</b>		
<b>Financial Year ended</b>	<b>Business Plan</b>	<b>Actual / Forecast</b>
<b>June 2007</b>	57.4	50.7
<b>June 2008</b>	56.3	50.1
<b>June 2009</b>	97.7	67.0
<b>June 2010</b>	104.3	142.3
<b>June 2011</b>	176.3	n/a
<b>June 2012</b>	177.0	n/a

This table shows the significant forecast level of growth in RRE capex over the next 2 years. This is primarily the result of a major effort by Transpower over the past year in developing asset management strategies for key asset categories. These strategies are considered by Strata to be appropriately focused on achieving the least-cost outcomes.

Given this focus, it may surprise that a number of strategic analyses have determined the most cost-effective approach to achieving Transpower's Grid performance objectives actually requires a significant increase in the level of capex. There are two key reasons for this:

- in some instances Transpower's view of the level of acceptable risk has changed, or the asset condition has declined so that increased spend is required, or a combination of both. An example is the increased spend on transformers following the decision to replace all remaining single phase transformers over the next 20 years; and
- Transpower's previous strategy has been determined not to be the most cost-effective on a whole-of-life basis. Tower painting is a good example. This is forecast to reach \$14.8m in the 2009/10 year, but is then forecast to increase to \$19.6m in 2010/11 and \$23.7m in 2011/12.

Provided the cost/benefit analysis has been appropriately conducted, and Strata has no reason to question this, Strata takes no issue with the fact that this increase has occurred.

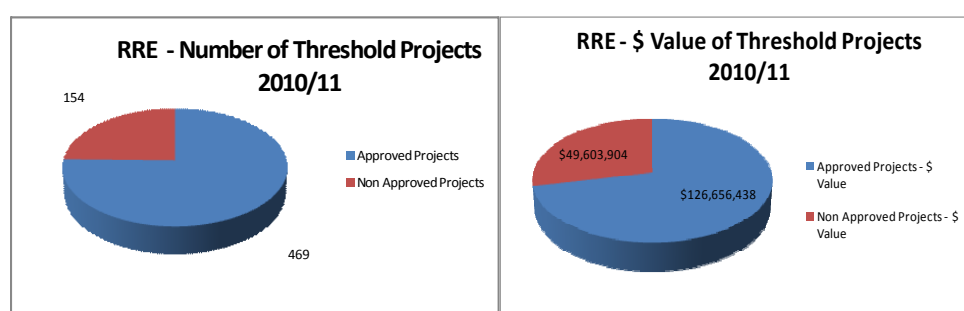
However, Strata does have a concern when considering whether the Project List is an appropriate basis for the calculation of a Threshold.

This concern is not whether the increase in capex is necessary, but whether Transpower has the capacity to achieve it. This is despite the forecast outturn for 2009/10 of \$142.3m at January 2010 being 36% above the Business Plan of \$104.3m and the year-to-date actual being above the Business Plan too. Transpower's updated forecast (as at April 2010) is for actual capex for the 2009/10 year of \$145.0m.

Strata's concern is based on Transpower's under-performance over the past 3 financial years, including reaching just 69% of Budget in 2008/09. While Transpower is confident it will exceed the Threshold by a significant margin Strata's view is that caution is required in using Transpower's forecast year-end position for 2009/10 as a benchmark against which to assess the capacity to achieve significantly higher levels of capex in 2010/11 and 2011/12. If we look for other reference points, the last available actual year-end figure was \$67.0m in 2008/09. The Project List figure of \$176.3m for 2010/11 represents an increase of 163% on that figure.

## Approvals

RRE Threshold Projects - 2010/11		
		% of Total
<b>Approved Threshold Projects</b>		
- number of projects	469	75.3%
- total spend in year	126,656,438	71.9%
<b>Non Approved Threshold Projects</b>		
- number of projects	154	24.7%
- total spend in year	49,603,904	28.1%
<b>Total Threshold Projects</b>		
- number of projects	623	
- total spend in year	176,260,342	



The extent to which projects have been subject to all of Transpower's applicable processes is also a key area of focus. The table and graphs above indicate the level of approvals for projects is 72% by dollar value and 75% by number of projects.

RRE has previously indicated a target level of 80% approval by the beginning of the financial year in July. Historically the level of approval has been very much lower than this at the time the Project List was

submitted to Strata in March, the lowest being in 2009 when the level of approvals was 46% (by dollar value). Subject to the quality of the application of the processes, the approval levels indicated by Transpower represent a significant improvement.

We note that a number of projects were approved using the Project Approval Document (PAD), which did not have a number of features present in the Business Case document that is now used for approvals. This contains an explicit focus on least-cost and the procurement strategy. RRE has reviewed 272 projects with the purpose of ensuring the improvements in the Business Case document have been complied with. However Strata notes there are a further 213 PAD's which have not been reviewed.

### **Rollovers**

<b>RRE - Rollovers from 2009/10</b>	
<b>2009/10 Budget</b>	14,468,310
rolled into:	
<b>2010/11 Plan</b>	21,336,336
<b>2011/12 Plan</b>	898,080
<b>Total</b>	<b>22,234,416</b>

A total of \$14.5m of projects budgeted in 2009/10 have been rolled forward into subsequent years. The forecast spend on the projects has increased so that the amount rolled into 2010/11 is \$21.3m and \$0.9m into 2011/12 – a total of \$22.2m over both years. As a percentage of the annual budget of \$104.3m for 2009/10, the amount of \$14.5m is approximately 14%, which represents approximately 1.7 months spend on a pro rata basis.

### **3.3.3 Documentation Review**

#### **Major Projects >\$1.0m**

As would be expected, there are a relatively small number of very large projects in the Project List for 2010/11.

<b>RRE - Number of Major Projects - Annual Spend</b>	
<b>Project Size</b>	<b>2010/11</b>
\$1.0m - \$1.5m	14
\$1.5m - \$5.0m	11
\$5.0m - \$10.0m	4
\$10.0m	1
<b>Total</b>	<b>30</b>

Transpower has provided Strata with documentation for the 10 largest projects and a small number of other projects selected by Strata.

The new Business Case document format, where used in the projects reviewed, appears to be being used very effectively. It places the focus very centrally on:

- achieving least-cost (in the context of meeting the Grid performance objectives);
- options analysis;
- the development of procurement strategies; and
- timing and availability of resources.

The PAD documents were a little more variable but, as discussed above, Transpower has audited 272 PADs to confirm that key aspects explicitly dealt with in the new Business Case format have been addressed. As noted there are a further 213 PAD documents which have not been reviewed.

Transpower’s audit of the PAD documents checked for factors such as options analysis, the loading of data into AMDB, ensuring that cost estimates sources are defined, costs/benefit analysis is clearly set out and whether there is a clear statement as to why the option proposed represents the least-cost ‘whole-of-life’ solution.

Strata has reviewed the PAD Audit documents and found them generally to be satisfactory. However in two instances the PAD Audit & Review Checklist recorded that the PADs made a clear statement

“to support why the proposed options represent the least ‘whole of life’ solution”

but did not appear to do so (refer to the PADs for National Spare Transformers and Woodville T1& T2 and 11kV Switchgear). Strata acknowledges that in the case of the National Spare Transformers there has been considerable separate analysis undertaken of the costs associated with different strategic options.

**Minor Projects <\$1.0m**

<b>RRE - Number of Major Projects - Annual Spend</b>	
<b>Project Size</b>	<b>2010/11</b>
\$0 - \$0.5m	546
\$0.5m - \$1.0m	47
<b>Total</b>	<b>593</b>

The table above shows the majority of projects are relatively small. Strata considers the level of analysis should be commensurate with the size of the project, however it is important, because of the sheer number of smaller projects, that the key elements of policies and processes are properly applied. The approach of having mandatory fields in approval documents is considered to be a good means of ensuring this.

Nothing in the material Strata has reviewed raises any particular concerns regarding Minor Projects.

Note that the questions addressed by Strata in reviewing the documentation, together with Strata's findings, are attached at Appendix V – Project List Assessment.

## **3.4 RRE - Conclusions and Proposed Adjustments**

### **3.4.1 Conclusions**

Strata's key concerns in relation to RRE capital expenditure are:

- The efficacy of Transpower's planning and challenge processes as applied in developing an achievable capex programme;
- The accuracy of the draft Business Plan
- RRE's capacity to fully implement a capex programme substantially as planned; and
- The appropriateness of the proposed Project List as a basis for establishing a Threshold.

These concerns are based on Strata's key findings in each of the following areas:

#### **Current Year and Historical Performance**

- **High level of unplanned projects** – there are 431 unplanned projects totalling \$57m compared with the Budget of 530 projects totalling \$104.3m.
- **High number of budgeted projects which have not been progressed** – 212 out of 530 projects in the Budget are forecast to have no spend in 2009/10.
- **History of under-performance against budget over the preceding 3 years.**

- **Project data records not kept up to date** - a minimum of \$21.6m (and up to \$27.9m) was omitted from the 2009/10 Budget.
- **Delayed rollout of US Cost costing system.**

### Policy and Process Review

- **No comprehensive targets set for cost containment or reduction.**
- **Project deferral process is not sufficiently robust.**
- **Asset Management Framework could be improved** – asset management, including achieving least-cost capex, could be further reinforced with the introduction of a recognised asset management framework such as PAS 55.

### Project List Review

- **Significant increase in planned capex** – planned capex of \$176.3m in 2010/11 represents a very significant increase on previous budgets (\$104.3m in 2009/10) and on the actual outturn in previous years (e.g. the last Actual end figure was just \$67m in 2008/09)
- **PAD review not fully effective** – the review of PADs relating to 2010/11 projects (to ensure the improvements in the new Business Case document were applied to these projects) does not appear to have been as effective as it could have been as only 56% of the PADs were reviewed.

There have however been a number of significant improvements to the RRE policy and processes, notably:

- New project initiation and approval documentation, which puts a very clear focus on factors critical to achieving least-cost capex;
- The development of a clear set of asset strategy documents, which provide a good platform from which to progress specific projects on a least-cost basis; and
- The amalgamation of the procurement functions of IST and RRE.

Also it is acknowledged that Transpower exceeded the YTD Budget at the half year and continues to forecast a year-end position significantly above the Threshold. However it is noted that, even if the level of capex is higher than planned, the actual programme now being implemented is substantially different from that which was budgeted.

### 3.4.2 Adjustment Options

The review of Transpower's current year performance and its policies and processes is undertaken to provide information relevant to the assessment of 2010/11 Business Plan for use as a Threshold. Two options for adjustments are discussed below.

#### **Option 1 Historical level Threshold**

The use of Transpower's Business Plan as the basis for a Threshold relies on the Business Plan being an accurate representation of the levels of expenditure required to maintain asset performance. Given Strata's concerns regarding the accuracy of the Business Plan and Transpower's capability to implement it in practice, consideration of an alternative to the Business Plan as the basis for setting a Threshold is considered appropriate.

One option is to set the Threshold at historical actual RRE expenditure levels. A three year average could be used to provide some levelling of major one-off projects that may have occurred in a single year. If a large project or programme is planned for the regulatory period and it is likely that this expenditure will cause Transpower to breach a Threshold based on historical actual expenditure, consideration could be given to include the individual project in the Threshold.

A Threshold for 2010/11 based on historical three year average RRE actual expenditure would be:

<b>\$ millions Financial Year ended</b>	<b>Full Year Actual Expenditure</b>
Jun-07	57.4
Jun-08	56.3
Jun-09	67.0
<b>Three year average</b>	<b>60.2</b>

On the basis above, the 2010/11 Business Plan RRE expenditure component would be adjusted downwards to \$60.2 million.

## **Option 2 Adjustment to Proposed Project List**

The second option is a continuation of the previous approach taken in 2009/10 of using Transpower's proposed list and adjusting it, based on the analysis of:

- historical performance data;
- current year data and forecasts;
- project documentation for current year and forecast year(s) projects;
- policy and process documentation; and
- proposed project lists for the year for which an allowance is to be established.

This analysis takes into account a range of factors including the adequacy of the policy and processes, procurement methodologies, a focus on least-cost, challenge processes, capacity to implement capex, options analysis and costing methodologies. The amount of the allowance would vary significantly depending on the particular adjustments proposed.

## **Recommendation**

There are a number of factors to consider when evaluating these options for setting the 2010/11 Threshold:

- the historical cost average approach is a simple methodology to apply and is based on actual performance by Transpower;
- some base data for the historical cost average approach will be as much as 5 years old by the time the Threshold applies;
- Transpower's 2010/11 RRE Business Plan expenditure is \$176 million and a \$60 million Threshold falls significantly below the level that Transpower claims is required to adequately manage the transmission assets;
- Transpower has developed and implemented new, revised and improved asset management policies and strategies. In Strata's opinion represent good practice and will, if applied appropriately, result in efficient asset management planning over time; it is expected that the implementation of the revised suite of asset management policies and strategies will lead to material increases in the levels of RRE expenditure for key asset classes. In particular, tower painting and the transformer replacement programmes are expected to raise expenditure above historical levels; and
- Due to the ex post assessment facility the establishment of a threshold at a level below Transpower's business plan should not

inhibit investments that are necessary to maintain appropriate network performance.

On balance Strata proposes that Transpower's Business Plan, adjusted as recommended below, is the appropriate method for the calculation of the Threshold for 2010/11.

### 3.4.3 Proposed Adjustments

Based on its analysis of Transpower's Project List for 2010/11, Strata proposes the following adjustments:

<b>Proposed Adjustments for RRE 2010/11 Project List</b>		
<b>Factor</b>	<b>Discount</b>	<b>Applies to</b>
Capacity, Rollovers, Unplanned	10.0%	All Projects
Cost Containment Targeting & Monitoring	2.0%	All projects
US Cost delays	2.0%	All projects
Non- Approved Projects	5.0%	Projects not approved
<b>Total</b>		
- applying to All Projects	14.0%	
- applying to Non Approved Projects	5.0%	

## **4. Information Systems and Technology Capital Expenditure**

### **4.1 IST 2009/10 Performance Review**

The purpose of undertaking this review of the progress that Transpower has made in completing capital works during the 2009/10 regulatory period is to provide information relevant to setting the Threshold for the following regulatory period(s). This review is not intended to provide a detailed compliance assessment.

To assist Strata's assessment, Transpower has provided the following:

- a full project-by-project extract for IST capex including YTD actuals to 31 December 2009 and Forecast FY 30 June 2010 outturn; and
- project initiation and approval documentation for specific current year projects, as requested by Strata.

## 4.1.1 Top 15 Projects

### IST - Top 15 Projects (Forecast FY2010 Spend)

Description	Status	Asset Category	Activity	Process	Programme	Business Owner	Year to Date - 31 Dec 2009		Full Year - 30 June 2010				Total Project			
							Actual	Budget	Forecast	Budget	Variance \$	Variance (%) / Unplanned	Total Project Forecast	Total Project SFE + BCA	Total Project Variance	Variance %
INC04 ATH-MGM LCM Works	Approved	Communications Coms	Development	IT & T	TNP	IST	487,618	342,033	2,375,939	1,172,545	(1,203,394)	-102.6%	3,772,802	2,749,155	(1,023,647)	-37.2%
OTC05 Auckland West LCM Works	Approved	Communications Coms	Development	IT & T	TNP	IST	590,019	881,218	2,368,585	2,023,779	(344,806)	-17.0%	2,827,250	3,367,427	540,177	16.0%
TNP SMR Design YR4	Approved	Communications Coms	Development	IT & T	TNP	IST	19,665	0	2,247,480	0	(2,247,480)	Unplanned	2,247,480	2,404,128	156,648	6.5%
OTC03 Blenheim to Christchurch	Approved	Communications Coms	Development	IT & T	TNP	IST	1,110,552	463,860	2,193,319	1,434,232	(759,087)	-52.9%	7,877,400	7,681,491	(195,909)	-2.6%
VOC01 Corp Operational Voice	Approved	Communications Coms	Development	IT & T	TNP	IST	155,527	2,073,476	2,037,566	3,543,228	1,505,661	42.5%	4,572,942	771,682	(3,801,260)	-492.6%
INC05 BPE-HAY LCM Works	Approved	Communications Coms	Development	IT & T	TNP	IST	112,212	1,506,792	1,953,835	1,988,773	34,938	1.8%	2,833,320	2,944,983	111,662	3.8%
INC11 Blenheim to FTB	Approved	Communications Coms	Development	IT & T	TNP	IST	33,114	894,150	1,771,267	1,170,091	(601,176)	-51.4%	4,080,562	2,920,674	(1,159,888)	-39.7%
INC16 Wellington	Proposed	Communications Coms	Development	IT & T	TNP	IST	0	352,982	1,579,765	630,375	(949,390)	-150.6%	5,210,619	29,639	(5,180,980)	NA
INC04 ATH-WDV SMR Works	Approved	Communications Coms	Development	IT & T	TNP	IST	399,115	750,575	1,373,283	878,363	(494,920)	-56.3%	1,629,613	1,314,075	(315,538)	-24.0%
PI Historian - CAPEX	Approved	IT Infrastructure	Development	IT & T	IST_MS&TN	IST	923,446	600,000	1,359,966	600,000	(759,966)	-126.7%	1,359,966	1,825,893	465,927	25.5%
OSS06 Nokia CNMS n/w mgmt	Approved	Communications Coms	Development	IT & T	TNP	IST	269,089	0	1,186,234	0	(1,186,234)	Unplanned	1,186,234	872,592	(313,642)	-35.9%
LCM Capitalised Fees 09/10	Approved	Communications Coms	Development	IT & T	TNP	IST	508,714	0	1,137,794	0	(1,137,794)	Unplanned	2,568,386	0	(2,568,386)	NO SFE
OSS01 Inventory	Approved	Communications Coms	Development	IT & T	TNP	IST	205,076	0	1,098,204	0	(1,098,204)	Unplanned	4,514,258	4,236,506	(277,751)	-6.6%
OTC11 ChCh Area Duct Works	Approved	Communications Coms	Development	IT & T	TNP	IST	429,486	0	1,067,840	0	(1,067,840)	Unplanned	3,026,272	2,437,201	(589,071)	-24.2%
INC08 - HAY to ISL LCM	Approved	Communications Coms	Development	IT & T	TNP	IST	608,561	223,295	1,062,379	223,295	(839,084)	-375.8%	3,673,006	4,112,956	439,950	10.7%
<b>Total</b>							<b>5,852,193</b>	<b>8,088,381</b>	<b>24,813,456</b>	<b>13,664,681</b>	<b>(11,148,774)</b>		<b>51,380,110</b>	<b>37,668,403</b>	<b>(13,711,707)</b>	

The table above sets out the top 15 projects based on the year-end spend forecast by Transpower in January 2010. This shows:

- five of the 15 were unplanned;
- Transpower's FY forecast for the top 15 projects is for a total of \$24.8m, compared with a budget for these projects of \$13.7m, a net overspend of \$11.1m (including unplanned projects).
- only two of the top 15 projects are forecast to be underspent; and
- only one project was not approved.

### 4.1.2 Performance against Threshold

The table below sets out Transpower's forecast performance for the financial year against the Threshold for 2009/10 for IST, including TNP leases. RRE figures are also provided to show the forecast overall position.

<b>Forecast Performance Against Threshold - 2009/10</b>				
<b>\$ millions</b>	<b>FY Forecast</b>	<b>Threshold</b>	<b>Variance (\$)</b>	<b>Forecast as % of Threshold</b>
<b>IST</b>	80.4	84.8	-4.4	94.8%
<b>RRE</b>	142.3	104.3	38.0	136.4%
<b>Total</b>	<b>222.7</b>	<b>189.1</b>	<b>33.6</b>	<b>117.8%</b>

This shows that, for 2009/10:

- IST capex is forecast by Transpower to be 5% under the Threshold; and
- Transpower's combined forecast is for the Threshold to be exceeded by 17.8% (\$33.6m), as a result of the RRE spend exceeding the Threshold by \$38.1m.

The key reason for IST underspending against the Threshold is the \$19.7m of budgeted works on which no spend is forecast during the current year.

### 4.1.3 Unplanned and 'No Spend' Projects

The table below sets out for IST projects:

- Transpower's FY forecast for projects which were unplanned; and
- the FY budget for planned projects for which Transpower forecasts no spend during the Financial Year.

<b>IST - Unplanned &amp; No Spend Projects by Key Asset Categories</b>		
	<b>Unplanned FY Forecast</b>	<b>No Spend FY Budget</b>
IT Infrastructure	3,900,470	6,344,851
Communications Coms	10,138,144	13,324,371
<b>Total</b>	<b>14,038,614</b>	<b>19,669,222</b>
<b>Number of Projects</b>	<b>82</b>	<b>41</b>

Note Unplanned FY Forecast is FY forecast where project is unplanned  
No Spend FY Budget is FY budget where Forecast FY is 0 or less

Strata notes that (excluding TNP Leases):

- no spend is forecast in 2009/10 on \$19.7m of projects. This is 41% of the \$47.6m FY Budget (excluding TNP Operating Leases)
- at \$14.0m, unplanned projects represent 29% of Budget

The table below compares planned and unplanned projects in relation to the forecast year-end capex spend.

<b>IST - Planned &amp; Unplanned Projects (excl Operating Leases)</b>				
	<b>Number</b>	<b>% Total</b>	<b>Forecast Y/end</b>	<b>% Total</b>
Planned (budgeted)	99	54.7%	31,196,063	69.0%
Unplanned (unbudgeted)	82	45.3%	14,038,614	31.0%
<b>Total projects</b>	<b>181</b>		<b>45,234,677</b>	

Planned projects represent:

- 69% of FY Forecast; and
- 55% (by project numbers) of Total Projects.

#### 4.1.4 Year to Date Spend

<b>IST - Spend on Budgeted Projects vs Forecast &amp; Budget</b>	
<b>\$ millions</b>	
YTD Spend on Budgeted Projects	8.1
FY Forecast Spend on Budgeted Projects	31.2
FY Budget	47.6
FY Forecast Spend as % of FY Budget	65.5%
YTD Spend as % of Forecast FY	26.0%
YTD Spend as % of FY Budget	17.0%

Strata notes that:

- Transpower is forecasting budgeted projects to reach 66% of FY Budget, however at 31 December 2009 these were only 17% of FY budget;
- At the half-year point, YTD spend on budgeted projects is only 26% of Transpower's FY Forecast; and

- Transpower's FY Forecast for budgeted projects is \$16.4m below FY Budget.

The table below sets out a closer examination of YTD spend (as at 31 December 2009) compared with the YTD Budget at that point:

<b>IST - Budgeted Projects - Actuals vs YTD Budget / FY Budget for Delayed Projects</b>				
<b>Actual vs YTD Budget 31 Dec 2009</b>	<b>No of Projects</b>	<b>%Total</b>	<b>Full Year Budget</b>	<b>%Total</b>
<b>All Budgeted Projects</b>	<b>99</b>		<b>52,944,221</b>	
- no spend	48	48.5%	24,949,143	47.1%
- less than 10% of YTD Budget	57	57.6%	34,671,405	65.5%
- less than 25% of YTD Budget	61	61.6%	37,690,672	71.2%
- less than 50% of YTD Budget	68	68.7%	42,127,909	79.6%
- less than 100% of YTD Budget	73	73.7%	46,866,988	88.5%

Strata has significant concerns regarding the planning and implementation of the capex programme and Transpower's ability to complete the planned and unplanned projects up to the forecast year end levels because:

- approximately 47% (by number and \$ value) of budgeted projects have no spend at all;
- budgeted projects with less than 50% actual spend vs YTD Budget represent 80% of the FY Budget;
- 73 (out of 99) budgeted projects are behind against the YTD Budget. These represent 88% (by value) of the FY Budget;
- against a Budget of 99 projects, there are an additional 82 Unplanned projects; and
- 68 of the budgeted projects are less than 50% through their respective YTD budgets.

#### 4.1.5 Project Variances

<b>IST - Historical YTD and Full Year Comparative Data (excl TNP Leases)</b>					
<b>\$ millions</b> <b>Financial Year ended</b>	<b>YTD</b>		<b>Full Year</b>		
	<b>Actual</b>	<b>Business Plan</b>	<b>FY Forecast at Half Year</b>	<b>Business Plan</b>	<b>Actual</b>
<b>June 2007</b>	-	-	-	29.5	19.6
<b>June 2008</b>	16.4	16.4	40.6	32.3	31.2
<b>June 2009</b>	9.5	27.6	53.3	66.2	30.8
<b>June 2010</b>	12.6	26.9	45.2	47.6	n/a

The table above illustrates the impact of variances against budget for the FY 2009/10 year and the preceding three years. Key points to note include:

- FY 2009/10 YTD Actual was just 47% of the YTD Budget.
- FY 2009/10 Full Year is forecast to be \$45.2m, which is just below the Threshold of \$47.6m, despite a significant underspend on budgeted projects – the deficit being made up by unplanned projects; and
- In the preceding 2 years the Actual Full Year expenditure has been less than forecast at half year. In 2009 the Actual FY expenditure was just 58% of the forecast provided 7 months into the year.

<b>IST - Over / Under spend on Budgeted Projects</b>			
<b>Forecast FY09/10</b>	<b>(Over) / Under spend</b>	<b>Number of Projects</b>	<b>Budget for Projects</b>
<b>Underspend on Budgeted Projects</b>	29.5	70	40.4
<b>Overspend on Budgeted Projects</b>	-7.8	24	12.2
<b>Total</b>	<b>21.7</b>	<b>94</b>	<b>52.6</b>

The table above sets out the forecast year-end position for budgeted projects:

- For projects forecast to be under-budget, the underspend is 73% of the original budget for those projects; and
- For projects forecast to be over-budget, the overspend is 64% of the total budget for those projects.

The table below sets out the forecast 15 largest variations for FY09/10 projects:

### IST - 15 Largest Forecast FY2010 Project Variances

Description	Status	Asset Category	Activity	Process	Programme	Business Owner	Year to Date - 31 Dec		Full Year - 30 June 2010				Total Project			
							Actual	Budget	Forecast	Budget	Variance \$	Variance (%) / Unplanned	Total Project Forecast	Total Project SFE + BCA	Total Project Variance	Variance %
ACC02 Clutha Ladder	Proposed	Communications Coms	Development	IT & T	TNP	IST	0	1,221,033	0	3,892,798	3,892,798	100.0%	2,163,521	61,742	(2,101,780)	N/A
Substn Autom IST Compt CAPEX	Approved	IT Infrastructure	Development	IT & T	Substation Auto	Grid Perf	(16,180)	1,548,879	(5,180)	2,549,119	2,554,299	100.2%	263,524	250,000	(13,524)	-5.4%
ACC15 Eastern Bay of Plenty	Proposed	Communications Coms	Development	IT & T	TNP	IST	0	1,038,347	0	2,448,047	2,448,047	100.0%	3,861,925	101,738	(3,760,186)	N/A
TNP SMR Design YR4	Approved	Communications Coms	Development	IT & T	TNP	IST	19,665	0	2,247,480	0	(2,247,480)	Unplanned	2,247,480	2,404,128	156,648	6.5%
ACC02 Clutha Ladder	Proposed	Communications Coms	Development	IT & T	TNP	IST	0	666,607	0	2,036,969	2,036,969	100.0%	0	0	0	N/A
VOC01 Corp Operational Voice	Approved	Communications Coms	Development	IT & T	TNP	IST	155,527	2,073,476	2,037,566	3,543,228	1,505,661	42.5%	4,572,942	771,682	(3,801,260)	-492.6%
ACC04 Lower South Island SMR	Proposed	Communications Coms	Development	IT & T	TNP	IST	0	552,758	0	1,407,590	1,407,590	100.0%	0	0	0	N/A
OTC01 Lower SI Fibre SMR Works	Proposed	Communications Coms	Development	IT & T	TNP	IST	0	736,386	205,793	1,500,213	1,294,420	86.3%	2,995,183	0	(2,995,183)	N/A
INC04 ATI-MGM LCM Works	Approved	Communications Coms	Development	IT & T	TNP	IST	487,618	342,033	2,375,939	1,172,545	(1,203,394)	-102.6%	3,772,802	2,749,155	(1,023,647)	-37.2%
OSS06 Nokia CNMS n/w mgmt	Approved	Communications Coms	Development	IT & T	TNP	IST	269,089	0	1,186,234	0	(1,186,234)	Unplanned	1,186,234	872,592	(313,642)	-35.9%
LCM Capitalised Fees 09/10	Approved	Communications Coms	Development	IT & T	TNP	IST	508,714	0	1,137,794	0	(1,137,794)	Unplanned	2,568,386	0	(2,568,386)	NO SFE
OSS01 Inventory	Approved	Communications Coms	Development	IT & T	TNP	IST	205,076	0	1,098,204	0	(1,098,204)	Unplanned	4,514,258	4,236,506	(277,751)	-6.6%
OTC11 ChCh Area Duct Works	Approved	Communications Coms	Development	IT & T	TNP	IST	429,486	0	1,067,840	0	(1,067,840)	Unplanned	3,026,272	2,437,201	(589,071)	-24.2%
Substation Automation Syst Ph2	Proposed	IT Infrastructure	Development	IT & T	Substation Auto	Grid Perf	0	0	997,933	0	(997,933)	Unplanned	2,859,662	0	(2,859,662)	N/A
INC16 Wellington	Proposed	Communications Coms	Development	IT & T	TNP	IST	0	352,982	1,579,765	630,375	(949,390)	-150.6%	5,210,619	29,639	(5,180,980)	N/A

Strata has reviewed the background information and documentation supplied by Transpower and, where it has comments, these are set out in the table below:

### **Project Delays**

Project delays are the key area of concern arising from the review of documentation because they were the primary cause of project variances. Projects were delayed both into and out of the 2009/10 year. The causes vary but include delays in preparing and agreeing the project Business Case and the failure by contractors to deliver to requirements or to deliver on time.

Delays on TNP projects were addressed under the TNP Review which was initiated in September 2009 to address difficulties relating to the implementation of TNP. The TNP group noted it had failed to implement its approved budget in both 2007/08 and 2008/09. It acknowledged that with the internal and external resources available it could not implement the required \$40m p.a. spend to conclude the TNP programme within 5 years and could only manage \$30m p.a. The decision was made to extend the programme by a year but still deliver key projects within the 5 year period.

While it is considered an appropriate step to have recognised the problem and rescheduled the TNP projects, these and other delays nevertheless raise questions about Transpower's planning and project management capacity and processes. Could the delays have been avoided with:

- better challenge processes, which more effectively assessed the capacity to implement the programme?
- better project management processes to prevent the problems with contractors not delivering?

Further questions include:

- has IST now correctly established TNP's capacity to implement the approved programme of projects?
- does IST now have the requisite skill sets available to implement its capex programmes?

The key questions and factors considered as part of the performance review of IST are set out at Appendix III – Performance Assessment.

## **4.2 IST Policy & Process Review**

### **4.2.1 Policy & Process Changes**

In 2009 IST implemented a number of changes to the way it performs its role. A number of the changes were structural or operational but reflected underlying policy or process changes.

Key changes included:

#### **Transfer of IST capex budgets**

In January 2009, Transpower's CEO directed that all IST capital budgets, other than core IST services and platforms, were to be transferred to the division for whom the expenditure was being incurred. The change is expected by Transpower to improve project outcomes by placing the responsibility for managing project expenditure with the division benefitting from it. It is also expected to reduce the number of IST projects and expenditure in future.

#### **Procurement**

In October 2009 a decision was made to amalgamate the procurement functions of Grid and IST (Project Support and Vendors and Commercial respectively) into the Sourcing Supply & Contracts Group which now forms part of Grid Projects.

The objectives for combining the two groups were to:

- develop and implement a simple single procurement process across Transpower;
- introduce vendor management across Grid;
- enhance procurement competencies;
- progressively improve the maturity of Transpower sourcing practices, policies and standards to achieve more effective sourcing at least cost;
- standardise commercial terms and reduce the number of different contract types;
- ensure consistent responses to the same vendors from different parts of the business; and
- provide feedback to the US-COST forecasting process.

The Sourcing Supply & Contracts Group is expected to be fully established and to have developed a single procurement process and standardised contracts by July 2010.

## **Capex Cost Targeting**

IST has established a Team Target of tracking and demonstrating cost savings and cost avoidance of 10% average across all external capital and business-as-usual (BAU) purchases for IST. IST has also developed a cost saving and avoidance tracking tool, which measures gains from Business Case through to a negotiated Contract.

While the broad target is commendable, Strata considers that there is considerable further work to be done developing and implementing specific strategies to save or avoid costs across the range of different procurement situations. However, Strata acknowledges IST's advice that in the 7 months to January 2010 it achieved cost avoidance and savings figures of \$13.7m (16.5%) on total purchases of \$83m. This was comprised of \$7.8m in cost savings and \$5.9m in avoided costs.

A recommendation in the 2009 Strata Report was the establishment of metrics to monitor the reduction and containment of capex costs. IST is now proceeding with a project using the current KPI Balanced Scorecard with enhanced metrics to measure IST's performance. An off-the-shelf product option was considered "over the top" and would deliver far more than the project needs. The project will cost \$319k and is forecast for completion in June 2010.

## **Cost Estimation Process**

IST has advised that, while the Forecast End Cost (FEC) Tool introduced in late 2008 has improved the visibility of forecast spend:

"Unfortunately, due a lack of effective engagement with the business coupled with project delays (primarily) in decision-making and scope creep, estimates and forecasts are still not as accurate as we would like them to be."

To address this, Transpower engaged ProjectPlus in November 2009 to conduct a review of IST's historical project estimation data. Key findings from an analysis of closed projects over the previous three financial years were:

- Large projects (>\$1m actual end cost) business plan estimates were too low on average (by 267% against the actual end cost).
- Small projects (<\$1m) business plan estimates were too high on average (18.7%).
- The precision range of the Business Plan estimates varies for large projects by more than +/- 1000%; for small projects by +/- 72%.

- Projects introducing new systems show the least accuracy and precision in their estimates at business plan and business case stage.
- Estimates for unplanned projects were more accurate than the planned ones.
- The estimation process cycle stages were not well connected.
- The quality of the underlying data is impacted by the lack of consolidated project structuring and accounting across IST projects and the de-coupled 'estimate – budget – expenditure' control process.

ProjectPlus has now submitted a proposal setting out steps to be taken to improve the accuracy of project forecasting. These include the standardisation of project structuring, estimation methods and the estimation cycle. The output of this work will be detailed documentation of:

- standardised project capital expenditure types and project structure items, reflecting activities, deliverables and roles;
- mapping of capital expenditure types / project structure items against budget items, including examples and cost ranges from previous projects (historical data) where applicable;
- recommended estimation methods per expenditure type or project structure item; and
- a defined end-to-end estimation cycle / process (including roles, responsibilities and interfaces into existing frameworks (SDLC, PMF, Development Framework)).

### **Service Delivery Life Cycle (SDLC) Changes**

A number of changes have been made to the SDLC/Project Management Framework. These include:

- each project in the IST Business Plan now requires an Investment Brief setting out forecast spend and a project justification, including a least-cost analysis. Because this took effect in October 2009 Transpower has, for this year only, replaced the full Investment Briefs with Draft Investment Briefs (DIBs). While these contain the same information they will not, according to Transpower, have the same level of rigour that full Investment Briefs (investigations) will have. They are however expected by Transpower to have the same level of accuracy (+/- 20%) as a full Investment Brief. How the same level of accuracy can be achieved with a lesser degree of rigour is not clear;

- further embedding of industry good practice into the IST processes (PRINCE2, ITIL, COBIT etc.) and the least-cost 'language' across IST operations;
- The Project Management Improvement Programme (PMIP) has focused on a number of deliverables:
  - align staff with industry good practice (Project Management Body of Knowledge – PMBOK);
  - train all staff in the project management methodology to be applied across IST (PRINCE2);
  - embed least-cost consistency into process, documentation and training;
  - align the framework to industry good practice - PRINCE2;
  - clearer stage gates that continually 'test' the ongoing validity of the project and least-cost focus

### **IST Restructure**

Included in the May 2009 restructuring of IST were changes aimed at improving the rate and quality of project delivery. Programme management positions were created in each of the delivery groups and also TNP, with a dedicated internal programme and project management team taking full responsibility for the re-planning and subsequent delivery of the programme. The restructuring activity was completed in August 2009, with the final positions being filled in November 2009.

#### **4.2.2 Review Findings**

Key questions in relation to the review of Transpower's policy and processes are set out below:

##### **Key Issues Identified**

- **Project Implementation**

Delays in implementing projects remains a key issue for IST. This issue is one that IST appears to be maintaining a close focus on. While a number of positive steps have been taken, it is not clear whether effective policies and processes are in place to deal with:

- the challenge of correctly identifying whether the resources and skills available are sufficient to do a particular programme of work;
- preventing or managing project creep; and
- speeding up decision making or, failing that, correctly taking it into account when scheduling projects.

- **Cost Estimation**

The ProjectPlus review identified a significant level of error in estimating project costs, particularly where these projects exceeded \$1.0m. On average the actual spend exceeded the forecast by an average 267%. It is acknowledged that this looked back over a 3 year period and matters have improved considerably. However, Strata does not consider the cost estimation processes to be optimal as yet. However, the further work proposed by ProjectPlus may address this issue.

- **Project Deferral and Termination Policy**

Strata expects that, given the extent of project deferrals and terminations in the current financial year, Transpower would have policies and processes governing these circumstances. Transpower's Chief Executive advised at the recent Electricity Transmission Workshop that it is necessary for Transpower to have in place such policies and processes.

IST has advised that, where a project is deferred or terminated, a Portfolio Change Request must be completed. This records the justification for the change and any associated budget shifts, project(s) to be cancelled, name changes and unplanned projects to be added. The decision to cancel or substitute projects usually lies with the Business Owner within each division. This may be in consultation with other Business Divisions, the Development Manager and the Programme Manager.

However no explicit consideration of the potential impact of deferral appears to be required, despite all projects in the Budget being regarded as entirely essential. A small number of deferrals is to be expected and the impact may well be negligible. However where deferrals occur on a large scale, the consequences may be much more significant. It appears that those signing off a Portfolio Change Request are the same as those who originally proposed and approved the project. This would potentially diminish the opportunity for any learning from the situation.

Strata considers these issues should be addressed at least where the projects are (either individually or as part of a programme) of significant value. We would also expect a process governing the substitution of projects in place of deferred projects. Projects being substituted into the current financial year have previously been determined not to be essential and excluded from the Budget. We expect that the process would ensure that bringing projects forward would be formally justified and approved and that projects would not be substituted simply because there was available spend within Transpower's Threshold limit.

- **Targeted Cost Reductions**

As noted, Strata considers that while very significant progress has been made in establishing a broad target for the reduction and avoidance of capex cost, further work is required to devise specific strategies and processes to achieve savings across a range of different circumstances. Targets should then be established based on these and performance measured against them.

### 4.2.3 Conclusions

Strata has concerns about:

- The effectiveness of project implementation processes, as they do not appear to be effective in avoiding delays, particularly internal delays;
- The need for further development of cost avoidance and reduction targeting and the monitoring of performance against targets; and
- Poor historical performance in the accurate estimation of costs.

However, IST has made some very significant changes, which Strata considers will significantly improve its performance in achieving least-cost capex. These include:

- the transfer of non-core IST budgets to the divisions which benefit;
- amalgamation of the IST and RRE procurement function in Grid Projects;
- investment in upskilling staff and embedding best industry practices and least-cost objectives;
- increased programme management resource; and
- potential gains from the cost management improvement project.

Strata considers that Transpower's policies and processes have covered most of the remaining gaps identified in previous review reports in best ensuring the achievement of the least-cost objective. Strata considers that there are two key remaining policy and process areas which have not yet been fully addressed:

#### **Policy & Process Framework**

While the policies and processes have individually been progressed significantly, there is still scope to improve the overall framework in which these operate. One such framework is PAS 55, a Publicly

Available Specification for the optimised management of physical assets, which has been developed over a number of years by the British Standards Institution, and which provides a framework for managing policies and processes in asset intensive businesses. The particular aspects of PAS 55 which Strata considers to be of particular value are the close linkages between corporate objectives / policy and strategy documents / project management / planning / analysis and approvals for specific projects. A PAS 55 (or similar) approach would apply additional rigour to ensuring that project approval and implementation are fully compliant with objectives, policies and processes and also to ensuring that continuous learning is applied.

#### **Cost Containment Targeting and Monitoring**

While IST has made some progress Strata does not consider that it has fully addressed the establishment of policies and processes governing the setting of capex cost containment targets and the development of methods to measure performance against these.

### **4.3 IST 2010/11 Proposed Project List**

#### **4.3.1 Information Basis**

Transpower has provided a Project List for the 2010/11 year, based on the position as at 26 March. This has not been signed off by Transpower's Board and not all projects have been given formal approval. However all projects have been subject to review and challenge to some extent, including the detailed CEO Review.

#### **4.3.2 Project List Analysis**

##### **Proposed IST Threshold Projects 2010/11**

<b>IST Threshold Projects 2010/11 - incl IST Operating Leases</b>		
<b>Spend Category</b>	<b>Project Value</b>	<b>Number</b>
<b>Telecommunications and Network Programme</b>		
Network Connections	2,897,497	1
Outer Core	11,134,278	4
Inner Core	7,188,802	6
Other	8,324,209	7
<b>Total Telecommunications and Network Programme</b>	<b>29,544,786</b>	<b>18</b>
<b>Capitalised Operating Leases</b>	<b>27,746,296</b>	<b>9</b>
<b>T&amp;N Tactical Programme</b>	<b>1,583,981</b>	<b>7</b>
<b>Market Systems and Transmission Applications</b>	<b>8,363,734</b>	<b>34</b>
<b>Information Services and Business Applications</b>	<b>1,709,240</b>	<b>6</b>
<b>Infrastructure Service</b>	<b>516,905</b>	<b>1</b>
<b>Total 2011/12 IST Capex</b>	<b>69,464,942</b>	<b>75</b>

The table above sets out Transpower's proposed IST Project List. The List is made up of 75 projects, which includes 9 capitalised TNP Operating Leases, with a total spend in 2010/11 of \$69.5m.

The table reflects the predominance of TNP and the associated operating leases in IST's planning. The Outer Core works are comprised of 10 'projects' at a total value of \$31.5m and 9 Inner Core 'projects' at a value of \$14.6m.

## Top 20 Projects

The figure below shows for the top 20 IST projects for 2010/11 in greater detail.

IST - 2010/11 Top Twenty - excl Capitalised Operating Leases								
Description	Approved	Asset Category	Activity	Programme / Project	2010/11	2011/12	Total Project	SFX (excl Contingencies)
OTC01 Lower SI Fibre LCM Works	Yes	Comms	Development	TNP - Telecommunications and Network Programme	5,960,339	-	4,524,120	6,929,897
VOC01 Corp Operational Voice	Yes	Comms	Development	TNP - Telecommunications and Network Programme	3,341,054	-	4,139,604	77,751
Substation Automation Syst Ph2	No	IT Infrastructure	Development	MSTA - Market Systems and Transmission Applications	3,062,385	3,625,000	11,562,120	-
ACC17 Auckland Area	No	Comms	Development	TNP - Telecommunications and Network Programme	2,897,497	-	2,897,497	197,558
INC11 Blenheim to FTB	Yes	Comms	Development	TNP - Telecommunications and Network Programme	2,835,928	-	4,707,460	2,802,140
INC09 Western Inner Core Route	No	Comms	Development	TNP - Telecommunications and Network Programme	2,337,557	1,392,666	3,730,224	77,255
OTC21 TWZ TKA OHA Diversity R	No	Comms	Development	TNP - Telecommunications and Network Programme	2,268,928	651,752	2,920,680	-
OTC11 ChCh Area LCM Works	Yes	Comms	Development	TNP - Telecommunications and Network Programme	1,840,981	-	1,476,996	3,000,078
INC04 ATI-MGM LCM Works	Yes	Comms	Development	TNP - Telecommunications and Network Programme	1,798,680	-	3,611,811	2,328,249
SEC01 Inner & Outer Security	No	Comms	Development	TNP - Telecommunications and Network Programme	1,385,928	-	2,413,787	102,421
MIG02 Substn Voice and Migrati	No	Comms	Development	TNP - Telecommunications and Network Programme	1,344,478	759,202	2,157,267	-
TNP SMR Design YR4	Yes	Comms	Development	TNP - Telecommunications and Network Programme	1,328,669	-	2,392,506	2,268,045
Line Rating Method and Variabl	No	IT Infrastructure	Development	MSTA - Market Systems and Transmission Applications	1,112,000	1,040,000	2,632,000	-
OTC03 Blenheim to Christchurch	Yes	Comms	Development	TNP - Telecommunications and Network Programme	1,064,030	-	7,564,849	7,527,985
OSS07 Mgmt Sys Upgrade	No	Comms	Development	TNP - Telecommunications and Network Programme	830,357	-	830,357	16,885
Substation Security Development	No	ITT	Development	IS - Infrastructure Services	516,905	-	1,406,483	-
CA Psymetrix - CAPEX	No	ITT	Enhancement	ISBA - Information Services and Business Applications	492,466	56,477	548,943	-
RTU Upspeed - Capex	No	ITT	Replacement	Tactical - T&N Tactical Programme	428,903	-	428,903	-
Switch and Router Refresh - Capex	No	ITT	Replacement	Tactical - T&N Tactical Programme	421,287	-	421,287	-
	No	HVDC	Enhancement	HVDC Capital	1,402,057	-	1,402,057	-
					<b>36,670,429</b>	<b>7,525,097</b>	<b>61,768,950</b>	<b>25,328,265</b>

## Capacity to Implement Capex Budget

<b>IST - Historical &amp; Forecast Full Year (excl TNP Leases)</b>		
<b>\$ millions</b>		
<b>Financial Year ended</b>	<b>Business Plan / Project List</b>	<b>Actual</b>
<b>June 2007</b>	29.5	19.6
<b>June 2008</b>	32.3	31.2
<b>June 2009</b>	66.2	30.8
<b>June 2010</b>	47.6	n/a
<b>June 2011</b>	41.7	n/a
<b>June 2012</b>	48.6	n/a

The lower level of capex in 2010/11 primarily reflects the impact of extending the Telecommunications & Networking Programme by a year (due to underperformance implementing it in previous years).

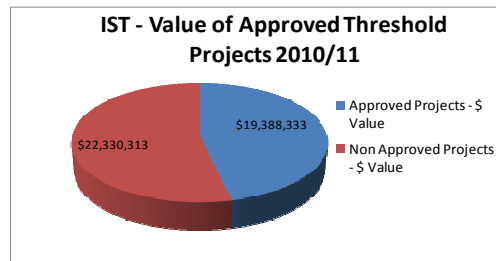
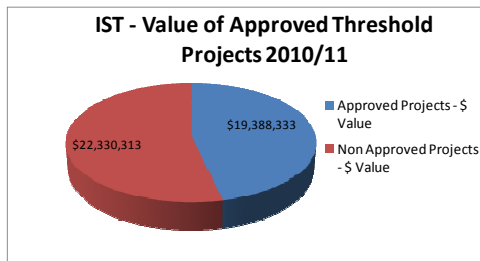
Notwithstanding the extension of TNP by a year, Strata remains concerned about IST's capacity to implement the planned spend. In the period 2006/07 to 2008/09 the actual outturn for the year averaged 64% of Business Plan, and in FY2009 was just 47%.

Transpower's forecast is to be at 95% of budget in the year to June 2010. However, for the 6 months to Dec 2009 the actual was just 42% of the year-to-date budget.

Therefore, despite the extension of TNP by a year and the much increased focus on project delivery, Strata is of the view that, to reflect the probability of underspend in 2010/11 a discount to reflect previous under-performance in project implementation is appropriate. Strata considers that, given the stability that will occur as the new direction is bedded down, the discount should be relatively small compared to the level of underspend in recent years.

**Approvals**

<b>IST Threshold Projects - 2010/11 (excl TNP Leases)</b>		
		<b>% of Total</b>
<b>Approved Threshold Projects</b>		
- number of projects	23	34.8%
- total spend in year	19,388,333	46.5%
<b>Non Approved Threshold Projects</b>		
- number of projects	43	65.2%
- total spend in year	22,330,313	53.5%
<b>Total Threshold Projects</b>		
- number of projects	66	
- total spend in year	41,718,646	



The extent to which projects have been subjected to all of Transpower’s applicable processes is also a key area of focus. The tables and graphs above indicate that (by dollar value) 53% of projects have not been approved as at 26 March 2010.

Strata notes that, as part of the changes to the SDLC/Project Management Framework, each project in the IST Business Plan requires an Investment Brief which sets out the forecast spend and the justification for doing so, including a least-cost analysis.

However, IST has taken the approach that, as the change only took place in October 2009, the full Investment Briefs will be temporarily replaced by Draft Investment Briefs (DIBs). While the DIBs contain much the same information as the Investment Briefs, Transpower has acknowledged they do not have the same level of rigour. Despite this, IST expects that they will have the same level of accuracy (+/- 20%) as a full Investment Brief. How the same level of accuracy can be expected with a lesser degree of rigour is not clear.

IST has advised that each project is backed by a signed DIB or, in the case of rollover projects a business case, along with a commitment from the business and IST that these investments can be adequately resourced. Any unsigned or unsupported DIBs have been excluded from the plan. There have been 4 challenge meetings held to validate the Project List, followed by

individual challenge sessions by the CEO with each divisional GM.

Out of 66 projects:

- 23 are approved;
- 13 projects totalling \$2.0m have no project initiation or approval docs noted;
- 22 have a Business Case; and
- 31 have a Draft Investment Brief.

### **Rollovers**

<b>IST - Rollovers from 2009/10</b>	
<b>2009/10 Budget</b>	7,999,239
rolled into:	
<b>2010/11 Plan</b>	1,380,701
<b>2011/12 Plan</b>	8,514,595
<b>Total</b>	<b>9,895,296</b>

A total of \$8.0m of projects budgeted in 2009/10 have been rolled forward into subsequent years. The forecast spend on the projects has increased so that the amount rolled into 2010/11 is \$1.4m and \$8.5m into 2011/12, a total of \$9.9m over both years. As a percentage of the annual budget of \$47.6m for 2009/10 the amount of \$8.0m is approximately 16.8% which represents approximately 2.0 months spend on a pro rata basis. More than \$7.0m relates to projects forming part of TNP which was rescheduled during the course of the year.

### **4.3.3 Project Documentation Review**

#### **Major Projects >\$1.0m**

<b>IST - Number of Major Projects - Annual Spend</b>	
<b>Project Size</b>	<b>2010/11</b>
\$1.0m - \$1.5m	5
\$1.5m - \$5.0m	8
\$5.0m - \$10.0m	1
<b>Total</b>	<b>14</b>

Transpower has provided Strata with documentation for the 10 largest projects and a small number of other projects selected by Strata.

The key documents provided by IST for review were the Final Business Case and the Draft Investment Brief. The Final Business Case, which is used to formally approve a project, appears to be effective, particularly in the analysis of options and costs/benefits. Greater focus could perhaps be placed on achieving least-cost capex.

However, in Strata's view, the Draft Investment Brief has limited impact in ensuring least-cost capex is achieved or in establishing the validity of the project data contained in the Project List. The DIB has value generally in setting out a clear description of the project and its objectives, drivers and benefits, and a high level view of the costs. However, the DIBs sighted did not provide confidence to Strata that the project was likely to be completed on budget, on time, and on a least-cost basis.

In large part this is a reflection of the early stage the project is at and it is simply not possible to be any more accurate or complete at that stage. However, where the project has only been subject to a DIB, Strata considers that it is necessary to make an adjustment to the project values.

#### **Minor Projects < \$1.0m**

<b>IST - Number of Minor Projects - Annual Spend</b>	
<b>Project Size</b>	<b>2010/11</b>
\$0 - \$0.5m	50
\$0.5m - \$1.0m	2
<b>Total</b>	<b>52</b>

The table above shows that the vast majority of projects are very small and, as noted previously, the level of analysis should be commensurate with the size of the project. However, it is important, because of the number of smaller projects involved, to ensure that the key disciplines relevant to achieving least-cost capex are maintained. The approach of having mandatory fields in approval documents is considered to be a good means of ensuring this.

Nothing in the material Strata has reviewed raises any particular concerns regarding Minor Projects.

## 4.4 IST – Conclusions and Proposed Adjustments

### 4.4.1 Conclusions

Strata's key concerns in relation to IST capital expenditure are:

- the efficacy of IST's planning and challenge processes in developing an achievable capex programme;
- IST's capacity to fully implement a capex programme substantially as planned; and
- the accuracy of the draft Business Plan
- the appropriateness of the Business Plan as a basis for establishing a Threshold.

The concerns are based on Strata's key findings in each of the following areas:

#### **Current Year and Historical Performance**

- **Projects not progressed**
  - on a Budget of \$47.6m, \$19.7m of projects have not been progressed at all; and
  - 68 of 99 projects were less than 50% through the year-to-date Budget at the half year. The full year Budget for these projects is \$42.1m, which is 88% of the total annual Budget.
- **Unplanned projects**
  - there are 82 unplanned projects compared with 99 projects in the original Budget. These are forecast to cost \$14.0m.
- **Achievement of Budget**
  - Although IST has forecast that it will reach 95% of Budget by year-end, at the half-year it was only at 47% of the year-to-date budget.

#### **Policy and Process Review**

- **Cost Containment and Reduction Targets**
  - Although IST has set a 10% reduction target, it still has no comprehensive set of targets set for cost containment or reduction.

- **Project Deferral**
  - The process for deferring projects is not sufficiently robust.
- **Asset Management Framework**
  - Achieving least-cost capex could be further reinforced with the introduction of a recognised asset management framework such as PAS 55.
- **Draft Investment Briefs**
  - As confirmed by Strata's review of the documents provided by IST, the Draft Investment Briefs will not apply sufficient rigour to provide confidence in forecast project costs or achieving least-cost capex.

### **Project List Review**

- **Delays in Project Implementation**
  - Internal delays in finalising the scope of work and the Business Case were an evident cause of delay.
- **Non Approved Projects**
  - 65% of projects in the Project List have not been approved.

There have however been a number of significant improvements to the IST policy and processes, notably:

- Increased programme management resource and the bringing of TNP programme management functions in house;
- Project approval documentation has been improved (although it has not yet been applied to 2011/12 projects)
- The amalgamation of the procurement functions of IST and RRE is expected to drive significant benefits over time; and
- A broad cost containment and reduction target of 10% has been set by IST and progress against it is being monitored. Significant gains have already been noted.

#### **4.4.2 Adjustment Options**

The assessment of RRE expenditure progress against the 2009/10 Business Plan and Threshold is undertaken to provide information relevant to the assessment of the 2010/11 Business Plan and, if necessary, to provide options for adjustments to the 2010/11 Business Plan for use as a Threshold. In a similar manner to the approach taken for RRE expenditure, two options for adjustments to the IST Business Plan component are discussed below.

### **Option 1: Historical level Threshold**

A three year average based on actual historical expenditure levels could be used to provide some levelling of major one-off projects that may have occurred in a single year. If a large project or programme is planned for the regulatory period and it is likely that this expenditure will cause Transpower to breach a Threshold based on historical actual expenditure, consideration could be given to including the individual project in the Threshold.

A Threshold for 2010/11 based on historical three year average IST actual expenditure (excluding TNP leases) would be:

<b>\$ millions Financial Year ended</b>	<b>Full Year Actual Expenditure</b>
Jun-07	19.6
Jun-08	31.2
Jun-09	30.8
<b>Three year average</b>	<b>27.2</b>

On the basis above, the Threshold for the 2010/11 Business Plan projects (excluding TNP leases) would be \$27.2m, compared to the Project List total of \$41.7m.

### **Option 2: Adjustment to Proposed Project List**

The second option is a continuation of the previous approach of taking Transpower's proposed list and adjusting it, based on the analysis of:

- historical performance data;
- current year data and forecasts;
- project documentation for current year and forecast year(s) projects;
- policy and process documentation; and
- proposed project lists for the year for which an allowance is to be established.

This analysis takes into account a range of factors including the adequacy of the policy and processes, procurement methodologies, a focus on least-cost, challenge processes, capacity to implement capex, options analysis and costing methodologies. The amount of the allowance would vary significantly depending on the particular adjustments proposed.

## **Recommendation**

As discussed in Section 3, Strata considers that a Threshold based on an historical average is not appropriate for the 2010/11 Threshold for the following reasons:

- Transpower's 2010/11 IST Business Plan expenditure is \$41.7m and a \$27.2m Threshold falls significantly below the level that Transpower claims is required;
- As discussed in earlier sections of this report, Transpower has developed and implemented new, revised and improved IST policies and strategies that, in Strata's opinion represent good practice and will, if applied appropriately, result in efficient and accurate planning; and
- IST expenditure is technology driven and Transpower needs to be responsive to opportunities created. For example, 'smart grid' developments may introduce opportunities that require capital expenditure in IST infrastructure.

### **4.4.3 Proposed Adjustments**

Based on its analysis of Transpower's Project List for 2010/11, Strata proposes the following adjustments:

<b>Proposed Adjustments for IST 2010/11 Project List</b>		
<b>Factor</b>	<b>Discount</b>	<b>Applies to</b>
Capacity, Rollovers, Unplanned, Project Delays	10.0%	All Projects
Cost Containment Targeting & Monitoring	1.0%	All projects
Non- Approved Projects	5.0%	Projects not approved
<b>Total</b>		
- applying to All Projects	<b>11.0%</b>	
- applying to Non Approved Projects	<b>5.0%</b>	

## 5. Compliance with Settlement Agreement

The table below addresses Transpower's compliance with the specific requirements of the 12 May 2008 Settlement Agreement.

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 includes contingencies no greater than 7.5%.</i></p> <p>Strata confirms that Transpower has 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>A potential breach may have been identified in relation to the OHK-EDG Grillage project where approximately \$360,000 may have been expended without formal approval. Otherwise no breaches or potential breaches have been noted.</i></p> <p>Strata confirms that, except as described above, Transpower has complied with this requirement in respect of the projects approved. However, given 53.5% of IST projects (by value) have not yet been approved, Strata cannot confirm that Transpower has met this requirement for the IST's 2010/11 Business Plan. RRE's performance in respect of approvals has improved with 28% not approved. However, to the extent that some projects were not approved, Strata cannot confirm Transpower's compliance with this requirement in respect of RRE's Business Plan for 2010/11.</p>
<p>3. Transpower's processes have considered and targeted appropriate least-cost, efficient, interventions.</p>	<p><i>Since the 2009/10 Review Transpower has taken a significant number of further steps towards targeting appropriate least-cost,</i></p>

Compliance requirement	<i>Strata's comment</i>
	<p><i>efficient, interventions. A number of new policy and process changes have been made including:</i></p> <ul style="list-style-type: none"> <li><i>• RRE asset management strategy documents;</i></li> <li><i>• improved project initiation and approval documents;</i></li> <li><i>• the amalgamation of the procurement functions of IST and RRE;</i></li> <li><i>• structural changes within IST to enhance the project management process and a general increase in the resourcing of project management functions across IST and RRE.</i></li> </ul> <p>While steps have been taken to progress the setting and monitoring of specific capital expenditure reduction and containment targets within IST, further work is required. In respect of RRE little appears to have been done as yet.</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&amp;R, and (c) PAD templates.</p>	<p><i>In respect of each point Strata considers that:</i></p> <ul style="list-style-type: none"> <li><i>- procurement has been an area of focus;</i></li> <li><i>- open book tendering is apparently not considered a live option by Transpower, however it has noted that in many instances it has received disclosure of margins without a contractual requirement to do so; and</i></li> <li><i>- the PAD templates have now been superseded by the Business Case document which Strata considers to be appropriate.</i></li> </ul>

## 6. Summary

Transpower has made significant progress since the previous Strata Review in the development of policies, processes and supporting organisational structures which contribute positively to ensuring least-cost capex. In addition to a clear increase in the general level of focus on achieving least-cost capex, there have been a number of specific improvements including:

### RRE

- new project initiation and approval documentation;
- the development of asset strategy documents; and
- the amalgamation of the procurement functions of IST and RRE.

### IST

- a broad cost containment and reduction target of 10%;
- the amalgamation of the procurement functions of IST and RRE; and
- increased programme management resource and the bringing of TNP programme management functions in-house.

However, a number of issues noted in the course of the Review give rise to significant concerns:

- no spend (at all) is forecast on 32% of RRE's Budget and 41% of IST's Budget in 2009/10;
- a very high level of unplanned projects is evident:

Unplanned vs Budgeted		
	Unplanned	Budgeted
RRE	431	530
IST	82	99

- RRE's maintenance of data records and mis-categorisation of the Marsden Redevelopment Stage I project means that a minimum additional \$21m should have been included in the Budget;
- the rollout of the US-Cost costing system appears to have been delayed and the anticipated benefits have not been delivered;
- a set of comprehensive cost containment or reduction targets have not been set for RRE; and
- a high number of projects in the 2010/11 IST Project List have not yet been approved.

Strata's key concerns relate to Transpower's capacity to implement both the RRE and IST 2010/11 Budgets. In Strata's view the performance thus far against the 2009/10 Budget suggests failings in a range of areas (although we note RRE forecasts to significantly exceed its Budget in 2009/10). These areas include:

- project challenge and planning processes which should ensure that the budgets are achievable, that the necessary resources will be available, and that adequate steps are taken to minimise delays due to contractors and internal processes; and
- project management functions which perform in delivering projects to budget and on time.

The poor performance in implementing the 2009/10 Budget substantially as planned, a poor historical record in delivering against budget, and a significant increase in the overall level of capex leads Strata to the view that Transpower's IST and RRE budgets should be discounted when setting the Threshold for 2010/11. This is despite the range of improvements Transpower has made.

Strata has applied a range of discounts for the factors identified and calculated a combined IST and RRE Threshold for 2010/11 of \$210.3m against the Project List total of \$245.7m. Details of this calculation are set out in the next section.

## 7. Recommended RRE and IST Threshold

As discussed in Section 3, Strata recommends discounts be applied to the RRE Project List as set out below.

<b>Proposed Adjustments for RRE 2010/11 Project List</b>		
<b>Factor</b>	<b>Discount</b>	<b>Applies to</b>
Capacity, Rollovers, Unplanned	10.0%	All Projects
Cost Containment Targeting & Monitoring	2.0%	All projects
US Cost delays	2.0%	All projects
Non- Approved Projects	5.0%	Projects not
<b>Total Discount to be Applied</b>		
- applying to All Projects	<b>14.0%</b>	
- applying to Non Approved Projects	<b>5.0%</b>	

The table below sets out the calculation of the Threshold amount relating to the RRE Project List. Note that the discount for non-approved projects is applied first and then the remaining discounts are applied to the residual amount.

<b>Threshold Calculation for RRE 2010/11</b>	
<b>\$ millions</b>	<b>Amount</b>
Approved Projects	126.7
Non Approved Projects	49.6
<b>Total Project List</b>	<b>176.3</b>
<b>Discount for:</b>	
<b>1. Non Approved</b>	
Discount (%)	5.0%
Discount Amount	2.5
<b>Project List net of Discount</b>	<b>173.8</b>
<b>2. Capacity, Rollovers, Delays, Cost Containment</b>	
Discount (%)	14.0%
Discount Amount	24.3
<b>Project List net of Discount</b>	<b>149.5</b>
<b>Proposed Threshold</b>	<b>149.5</b>

The proposed Threshold amount for RRE in 2010/11 is \$149.5m

As discussed in Section 4, Strata recommends discounts be applied to the IST Project List as set out below.

<b>Proposed Adjustments for IST 2010/11 Project List</b>		
<b>Factor</b>	<b>Discount</b>	<b>Applies to</b>
Capacity, Rollovers, Unplanned, Project Delays	10.0%	All Projects
Cost Containment Targeting & Monitoring	1.0%	All projects
Non- Approved Projects	5.0%	Projects not approved
<b>Total</b>		
- applying to All Projects	<b>11.0%</b>	
- applying to Non Approved Projects	<b>5.0%</b>	

The table below sets out the calculation of the Threshold amount relating to the IST Project List. Note that the discount for non-approved projects is applied first and then the remaining discounts are applied to the residual amount.

<b>Threshold Calculation for IST 2010/11</b>	
<b>\$ millions</b>	<b>Amount</b>
Approved Projects	19.4
Non Approved Projects	22.3
TNP Operating Leases	27.7
<b>Total Project List</b>	<b>69.4</b>
<b>Discount for:</b>	
<b>1. Non Approved</b>	
Discount (%)	5.0%
Discount Amount	1.1
<b>Project List net of Discount</b>	<b>68.3</b>
<b>2. Capacity, Rollovers, Delays, Cost Containment</b>	
Discount	11.0%
Discount Amount	7.5
<b>Project List net of Discount</b>	<b>60.8</b>
<b>Proposed Threshold</b>	<b>60.8</b>

**The proposed Threshold amount for IST in 2010/11 is \$60.8m**

**The proposed combined RRE and IST Threshold for 2010/11 is \$210.3m**

# Appendix I – 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 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.

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

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

## Appendix II – Definition of Asset Replacement, Refurbishment and Enhancement Capital Expenditure

1. In order to meet its obligations to transmission customers and to comply with 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 (until 30 September 2010, thereafter this expenditure is subject to approval from the Commerce Commission).
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 are delivered at least cost. 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.
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; and

**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 for approval under Part F.

# Appendix III – Performance Assessment

## RRE

RRE Performance Assessment	
Question	Comment
<p>Has Transpower provided all the project data required by the Commission to assess Transpower's performance in the RCP under review. This includes forecast and historical data for:</p> <ul style="list-style-type: none"> <li>- actual project cost vs budget</li> <li>- rollovers</li> <li>- unplanned projects</li> <li>- projects not commenced or not significantly progressed against plan</li> <li>- uncompleted and terminated projects</li> <li>- projects recategorised eg included in a GUP?</li> </ul>	<p>Yes Transpower has provided all the project data required by the Commission to assess Transpower's performance in the RCP under review.</p>
<p>Do any project reclassifications that have occurred during the RCP impact on the performance against the Threshold?</p>	<p>The Marsden Redevelopment Project Stage 1 (SFE \$10.65m) was mistakenly classified as requiring EC approval and therefore was not included in the Business Plan. Two projects totalling \$512,000 which were included were subsequently submitted to the EC. These need to be deducted from the Threshold when comparing performance against it at year end.</p>
<p>Does the actual expenditure in the RCP materially exceed the Threshold? In calculating this, account needs to be taken of any amounts not included in the Threshold as a result of the Ex Post Assessment process</p>	<p>The forecast year-end position for RRE capex is \$142.3m compared with a Threshold of \$104.3m.</p>
<p>Is the project considered to comply with the criteria relating to Force Majeure Events and/or Security of Supply Events as defined at Page 4 and Page 7 respectively of the Settlement Agreement</p>	<p>No</p>
<p>Are there implications for the setting of future Thresholds arising from an overspend against the Threshold? The Commission will calculate an adjustment to future Thresholds to take into account (among other things) the impact of:</p> <ul style="list-style-type: none"> <li>- project cost overruns</li> <li>- unplanned projects (including unplanned rollovers).</li> </ul>	<p>Yes there are implications for the setting of Thresholds. The Forecast is for RRE to exceed the Threshold by \$38.1m. This includes \$57m of unplanned projects and cost overruns of \$16.6m on projects with a total budget of \$41.5m. This is an average overrun across 155 projects of approximately 40%.</p>
<p>Can the impact of the underspend be quantified in terms of</p> <ul style="list-style-type: none"> <li>- actual project cost vs budget</li> <li>- rollovers</li> <li>- unplanned projects</li> <li>- projects not commenced or not significantly progressed against plan</li> <li>- projects which have subsequently been recategorised (eg included in a GUP)?</li> </ul>	<p>The significant underspend on a large number of projects is primarily due to projects which have either not commenced or not been progressed against plan</p>

Is it likely that similar underspend will occur in future RCP periods?	While Transpower's processes have continued to improve, significant underspends on some projects (within the year rather than on a project total basis) are considered likely.
Has Transpower complied with existing policies and processes when implementing the projects included in its Business Plan for the RCP under review? Consideration of compliance will include (but not be limited to) the following:	
- appropriately monitoring the age and condition of its assets	This does not appear to have been an issue from the documentation reviewed.
- project scoping and initial costings	This does not appear to have been an issue from the documentation reviewed.
- cost / benefit analysis	This does not appear to have been an issue from the documentation reviewed.
- accurately costing projects and minimising cost overruns	There were cost overruns averaging 40% over budget on a total of 155 projects out of 530. However this is due in part to projects progressing at a different rate to that expected
- completing projects on time	The lack of progress on planned projects against YTD budget calls into question Transpower's ability to ensure completion on time
- applying good practice asset and project management disciplines	The application of project management disciplines are seriously in question given the significant extent to which projects have not been progressed and the number of unplanned projects
- effective procurement processes	The level of unplanned and unprogressed projects raises potential questions about Transpower's procurement processes.
Can the impact of non-compliance with existing policies and processes be quantified? Is it likely a similar underspend will occur in future RCP periods?	No
Has Transpower set appropriate targets for cost savings and cost reductions?	No capex cost savings or reduction targets have been set for RRE.
Has Transpower met the targets set for cost savings and cost reductions in the current RCP? If it has not can the benefit which would have accrued from achieving the targets be quantified?	Not measured as no targets were set.
What is the assessment of Transpower's performance in relation to actual spend versus Threshold taking into account (among other things) actual project spend versus project budget, rollovers, uncompleted and terminated projects, unplanned projects and recategorised projects. In respect of achieving the least-cost, efficient interventions, how effectively Transpower has implemented its policies and processes?	Transpower's performance in progressing budgeted projects has been poor and a significant level of unplanned capex has arisen. This suggests a combination of a number of factors relating to the performance of the planning, procurement and project management processes

## IST Performance Assessment

IST Performance Assessment	
Question	Comment
<p>Has Transpower provided all the project data required by the Commission to assess Transpower's performance in the RCP under review. This includes forecast and historical data for:</p> <ul style="list-style-type: none"> <li>- actual project cost vs budget</li> <li>- rollovers</li> <li>- unplanned projects</li> <li>- projects not commenced or not significantly progressed against plan</li> <li>- uncompleted and terminated projects</li> <li>- projects recategorised eg included in a GUP?</li> </ul>	<p>Yes Transpower has provided all the project data required by the Commission to assess Transpower's performance in the RCP under review.</p>
<p>Do any project reclassifications that have occurred during the RCP impact on the performance against the Threshold?</p>	<p>No</p>
<p>Does the actual expenditure in the RCP materially exceed the Threshold? In calculating this, account needs to be taken of any amounts not included in the Threshold as a result of the Ex Post Assessment process</p>	<p>The forecast year-end position, including TNP Operating Leases, is for IST capex of \$80.4m compared with a Threshold of \$84.4m. This is a variance of 5%.</p>
<p>Are there implications for the setting of future Thresholds arising from an overspend against the Threshold? The Commission will calculate an adjustment to future Thresholds to take into account (among other things) the impact of:</p> <ul style="list-style-type: none"> <li>- project cost overruns</li> <li>- unplanned projects (including unplanned rollovers).</li> </ul>	<p>n/a</p>
<p>Can the impact of any underspend be quantified in terms of</p> <ul style="list-style-type: none"> <li>- actual project cost vs budget</li> <li>- rollovers</li> <li>- unplanned projects</li> <li>- projects not commenced or not significantly progressed against plan</li> <li>- projects which have subsequently been recategorised (eg included in a GUP)?</li> </ul>	<p>The significant underspend on a large number of projects is primarily due to projects which have either not commenced or not been progressed against plan. This does have implications for the setting of future thresholds as it raises concerns about IST's capacity to manage and implement capex programmes.</p>

Is it likely that similar underspend will occur in future RCP periods?	While IST's processes have improved significantly, the history of underperformance means that a significant potential exists for a recurrence of an underspend in future.
Has Transpower complied with existing policies and processes when implementing the projects included in its Business Plan for the RCP under review? Consideration of compliance will include but not be limited to the following (see below):	
- appropriately monitoring the age and condition of its assets	This does not appear to have been an issue from the documentation reviewed.
- project scoping and initial costings	This does not appear to have been an issue from the documentation reviewed however it has been noted that agreeing project scoping has been a common cause of delay.
- cost / benefit analysis	This does not appear to have been an issue from the documentation reviewed.
- accurately costing projects and minimising cost overruns	There have been cost overruns but these have not been attributable to a failure to comply with policies and processes
- completing projects on time	The number of projects which have been delayed or had to be rescheduled call into question IST project planning and management processes
- applying good practice asset and project management disciplines	The application of project management disciplines are in question given the extent to which projects have not been progressed and the number of unplanned projects
- effective procurement processes	IST's procurement processes are considered to have developed considerably over the past year, however there is still room for further development. The amalgamated procurement function has identified a number of areas for development.
Can the impact of non-compliance with existing policies and processes be quantified? Is it likely a similar underspend will occur in future RCP periods?	No
Has Transpower set appropriate targets for cost savings and cost reductions?	A commendable IST-wide 10% cost reduction / avoidance target has been set and some significant gains have been measured already. It appears IST recognises more is to be done to actually achieve the target through targeting gains in specific areas and implementing and resourcing specific strategies to achieve them.
Has Transpower met the targets set for cost savings and cost reductions in the current RCP? If it has not can the benefit which would have accrued from achieving the targets be quantified?	In the 7 months to January 2010 IST achieved cost avoidance and savings figures of \$13.7m (16.5%) on total purchases of \$83m
What is the assessment of Transpower's performance in relation to actual spend versus Threshold taking into account (among other things) actual project spend versus project budget, rollovers, uncompleted and terminated projects, unplanned projects and reclassified projects. In respect of achieving the least-cost, efficient interventions, how effectively Transpower has implemented its policies and processes?	The number of projects and level of underspending on budgeted projects is very high. Similarly the number of unplanned projects is high. Performance in implementing a capex programme has therefore been poor. However, the balance of underspent budgets and unplanned projects is forecast by Transpower to result in a year end spend approximately 5% below Threshold.

## Appendix IV - Major Variances

<b>GRID - 2009/10 - Major Variances</b>	
<b>Project</b>	<b>Strata Comment</b>
<b>Marsden Substation Redevelopment Stage I</b>	In the draft 2009/10 business plan the budget but was incorrectly classified as requiring Electricity Commission approval and so was not included in the approved threshold allowance for 2009/10. Project CP_MDN_48_00_00 was approved by the Board in March 2009 (SFE \$10.65m).
<b>NatSpare 250MVA Transformer 09/10</b>	Unplanned spend as a result of the Project Schedule not being updated in January 2009. An additional \$6.1m should have been included in the 2009/10 Budget
<b>NatSpare 150MVA Transformer 09/10</b>	Unplanned spend as a result of the Project Schedule not being updated in January 2009. An additional \$4.8m should have been included in the 2009/10 Budget
<b>MDN T1 220/110kV Replacement</b>	Unplanned spend. The risk of delay into the 2009/10 year was clear at the time the PAD was signed in April 2008. Strata considers it should have been possible to determine in March 2009 that \$2.6m should be moved into the 2009/10 year.
<b>KWA T2 Transformer Rebuild 09-10</b>	Unplanned project. The T2 transformer at Kikiwa failed in May 2008. Although the decision was not made to refurbish until June 2009, given the requirement to replace or refurbish was known from 2008 onwards, it is not clear why the project was not included with an estimated cost in the 2009/10 Budget
<b>ARI -HAM B Urban Copper Replacement</b>	We note the reconductoring was deferred despite the condition assessment being Category 2 which, under Transpower's policy, required replacement. Also, no other documentation was provided other than a memo for Strata explaining the circumstances. This suggests no formal steps were taken to approve deferral of the project. This is at odds with Strata's understanding of the policy relating to project deferral.
<b>Switchyard security upgrade</b>	While a 'mini PAD' was not submitted until 27 March 2009 we would expect the intention to proceed with the switchyard security upgrade project was clear well before that and the project (\$1.2m) could therefore have been included in the Project Schedule
<b>OHK-EDG A Grillage Refurbishment</b>	<p>Unplanned project with spend of \$1.2m in current year and total project cost overrun of \$600k on an original SFE of \$608k. Transpower advised that a decision was made to bring forward \$700k of spending in April 2009 and this was therefore too late for inclusion in the current year budget. Transpower also advised the Business Case was an approval for capex on this project for the winter months of 2009. In fact the Business Case provided by Transpower related to 6 separate projects and only \$208k of the \$700k approved relates to this project. Also, despite the April 2009 approval date being given as the reason for this project not being included in the 2009/10 Budget, Transpower managed to include 4 of the other 5 projects in the Budget (the other was held over to 2010/11).</p> <p>Transpower also provided a copy of a BCA prepared in November 2009 which was apparently approved in January 2010. This covers the full projected spend of \$1.2m. This notes the spend on the project to date is \$571k when the approval under the Business Case appears to only be for \$208k. This raises the question of whether the works were being undertaken without proper approval. The BCA contains scant detail regarding the reason for the total project cost doubling although it notes it is part of the accelerated works programme. Transpower has provided no other supporting documents.</p>

## IST

<b>IST - 2009/10 - Major Variances</b>	
<b>Project</b>	<b>Strata Comment</b>
ACC02 Clutha Ladder	In September 2009 TNP reviewed its programme of projects following the failure to meet its budgets in the 2007/08 and 2008/09. This had given rise to concerns about its capacity to implement the budgeted works. The TNP programme has now been extended from 5 years to 6 with the key projects still to be completed within the 5 years. This project has been deferred into 2010/11. TNP has acknowledged that the programme, which would have required \$40m capex in each of the last 2 years, was beyond the ability of the current TNP resources. Transpower has estimated that its own resources and external market resources are together capable of delivering no more than about \$30 million per year.
ACC15 Eastern Bay of Plenty	Rescheduled under TNP Review (see comment re ACC02 Clutha Ladder above) to after 2009/10
TNP SMR Design YR4	Brought forward into the 2009/10 year. The SMR detailed design and procurement project is expected to reduce the risk of future project delays. IST could arguably have anticipated the potential benefits earlier of bringing the project forward
VOC01 Corp Operational Voice	Delays in preparing Business Case have resulted in the project being partly delayed beyond the current year
OTC01 Lower SI Fibre SMR Works	Rescheduled under TNP Review (see comment re ACC02 Clutha Ladder above) to after 2009/10
INC04 ATI-MGM LCM Works	This project was delayed (in part) into 2009/10 as a result of delays in preparing the Business Case
OSS06 Nokia CNMS n/w mgmt	The project start was delayed and the TNP rescheduling moved it to the 2009/10 year. It is not clear why the start was delayed.
OSS01 Inventory	Alcatel Lucent's delivered solution did not meet Transpower's requirements and the project was delayed into 2009/10 under the TNP Review (see comment re ACC02 Clutha Ladder above)
OTC11 ChCh Area Duct Works	Delayed into 2009/10 from 2008/09 because of contractor delays
Substation Automation Syst Ph2	This unplanned project is Phase 2 of the Substation Management System and according to Transpower's advice was expected to commence in February. The reason for it being unplanned is not clear
INC16 Wellington	This project has been brought forward as a result of recategorisation to inner core works

## Appendix V – Policy & Process Assessment

<b>RRE - Policy &amp; Process Assessment</b>	
<b>Question</b>	<b>Comment</b>
Has Transpower provided a description of current policies and processes relevant to Non Part F capex (including asset related strategies)?	Transpower has provided a description of a number of current policies and processes relevant to Non Part F capex (including asset related strategies). Strata has concerns regarding some policies, in particular the process for dealing with the deferral or termination of projects during the course of the year.
Has Transpower provided copies of new or amended policy and process documentation?	<p>Transpower has provided details of a number of new policy and process documents. This included:</p> <ul style="list-style-type: none"> <li>• strategy documents for key asset categories such as transformers, transmission lines and tower painting. These establish the optimal approach to refurbishment and replacement for key asset categories. In some instances (eg tower painting) the effect is an increase in capex in the short to medium term, despite the focus being on achieving grid performance objectives on a least-cost basis. This is because tower painting requires a very significant increase in capex to move, from painting towers only at the point when expensive rust treatment is required, to painting before this point is reached.</li> <li>• project initiation and approval documents which have been significantly revised to incorporate explicit requirements in relation to confirming option analysis, least-cost and procurement plans have been fully considered.</li> </ul> <p>Strata considers that, subject to proper application, the new and amended documentation improves the prospect of achieving the least-cost objective.</p>
Has Transpower provided evidence of the quantifiable benefits already obtained through implementation of new policy and/or processes. Details of the amount and timing of expected quantifiable benefits that will be realised from: <ul style="list-style-type: none"> <li>(a) changes to policies and processes already implemented</li> <li>(b) changes to policies and processes to be implemented during the Threshold period?</li> </ul>	<p>Strata asked Transpower to provide details of the amount and timing of expected benefits to be obtained through the implementation of RRE capex policy and process changes. While Transpower has indicated in many instances the benefits of particular changes it has not generally provided quantification or expected timing of the benefit. In Strata's view it is important not just to continuously improve policies and processes but to: quantify the impact and timing of the benefits; set targets in relation to this; and, measure performance against these targets. Without this there is no check on whether the policies and processes are working as expected and a lack of pressure on capturing the benefits as soon as possible</p>
Has Transpower provided all the information and clarification required by the Commission?	No, as mentioned above the analysis and quantification of the benefits of the policy and process changes has not been adequate.
Is the Commission satisfied that Transpower's evidence and analysis of the timing of the realised and potential quantifiable benefits is reasonable and accurate?	No, as discussed above the information provided is inadequate. This indicates the benefits which are available are unlikely to be properly factored into the forecast project costs and may not be captured in full or as soon as they could be.

As specifically required under the Settlement, has Transpower 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?	In respect of each point Strata considers that: - procurement has been an area of focus - open book tendering is apparently not considered a live option by TP however it has noted that in many instances it has received disclosure of margins without a contractual requirement to do so. - the PAD templates have now been superseded by the Business Case document which Strata considers to be appropriate
Has Transpower has considered and targeted appropriate least-cost, efficient, interventions. This includes (among other areas):	
- accurate and comprehensive project cost benefit analysis	Yes, the policy and process documents (particularly the new key asset category strategy papers) do have a clear focus on identifying and assessing the costs and benefits associated with each option for projects.
- appropriate analysis of procurement options	Yes the addition of the new strategy documents for asset categories and the combination of the procurement functions of IST and RRE are expected to further improve procurement option analysis and selection.
- effective procurement processes	Strata considers the improvements which Transpower has advised it intends to bring about, as part of the combination of the RRE and IST procurement functions, are likely to improve the effectiveness of the procurement process.
- robust challenge process which explicitly focuses on the achievement of least-cost capex	It appears the challenge process is steadily improving with respect to achieving the least-cost objective. However it is also apparent from year to date performance data that the challenge process has fallen down in relation to appropriately judging whether Transpower and its contractors have the capacity to implement the Project Plan
- robust costing methodologies	No - Strata is concerned at the apparent delays in the rollout of US Cost and notes Transpower's advice that, up to the end of 2009, it had only been applied to Part F projects.
- effective project management processes	Yes Strata considers the processes, particularly as amended, to be appropriate. Strata does however have significant concerns about Transpower's capacity to apply these processes given the extent to which Transpower has been unable to implement the projects set out in the Budget for the current year.
- benchmarking reviews which effectively gauge Transpower's performance in achieving least-cost capex	This is considered satisfactory given the difficulty in obtaining relevant benchmark data.
- targeted reduction or containment of Non Part F capex	While there are cost estimates looking forwards for certain assets (such as the 5 year tower painting unit cost estimates) and indications of savings (such as a 19% labour cost saving on grillage works) this is not the same as setting targets specifically aimed at the containment or reduction of capex costs.
- measurement of performance against these targets	As there is no comprehensive targeting there is consequently no mechanism which monitors performance against those targets.

# IST

<b>IST - Policy &amp; Process Assessment</b>	
<b>Question</b>	<b>Comment</b>
Has Transpower provided a description of current policies and processes relevant to Non Part F capex (including asset related strategies)	Yes Transpower has provided a description of a number of current policies and processes relevant to Non Part F capex. Strata has concerns regarding some policies, in particular the process for dealing with the deferral or termination of projects during the course of the year.
Has Transpower provided copies of new or amended policy and process documentation	Transpower has provided details of a number of new policies and processes and structural and operational changes which flow from them. Strata considers that the new and amended documentation improves the prospect of achieving the least-cost objective.
Has Transpower provided evidence of the quantifiable benefits already obtained through implementation of new policy and/or process. Details of the amount and timing of expected quantifiable benefits that will be realised from: (a) changes to policies and processes already implemented (b) changes to policies and processes to be implemented during the Threshold period?	Strata asked Transpower to provide details of the amount and timing of expected benefits to be obtained through the implementation of IST capex policy and process changes. IST has developed a tool for measuring gains made in saving or avoiding costs. It has already measured a saving of \$13.7m on total purchases of \$83.0m. However in Strata's view there is further work to be done to quantify the impact and timing of the benefits; set targets in relation to this; and, measure performance against these targets. Strata considers IST is aware of the work required.  We note that without setting targets and measuring performance there is no check on whether the policies and processes are working as expected.
Has Transpower provided all the information and clarification required by the Commission?	Yes, to the extent it has been able to. However the analysis and quantification of the benefits of the policy and process changes has not been as complete and detailed as desirable. It is acknowledged however that the changes, particularly the transfer of Vendors & Commercial into Grid Projects, may have disrupted this work
Is the Commission satisfied that Transpower's evidence and analysis of the timing of the realised and potential quantifiable benefits is reasonable and accurate?	No, as discussed above the information provided is not entirely adequate. This indicates the benefits which are available may not be properly factored into the forecast project costs and may not be captured in full or as soon as they could be.

As specifically required under the Settlement, has Transpower 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?	In respect of each point Strata considers that: - procurement has been an area of strong focus for IST - open book tendering is apparently not considered a live option by TP however it has noted that in many instances it has received disclosure of margins without a contractual requirement to do so. - not applicable to IST
Has Transpower has considered and targeted appropriate least-cost, efficient, interventions. This includes (among other areas):	
- accurate and comprehensive project cost benefit analysis	Yes, the policy and process documents have a clear focus on identifying and assessing the costs and benefits associated with each option for projects. Note this question relates to whether options for a particular project are likely to be properly
- appropriate analysis of procurement options	Yes the combination of the procurement functions of IST and RRE are expected to further improve procurement option analysis and selection.
- effective procurement processes	Strata considers the improvements which Transpower has advised it intends to bring about, as part of the combination of the RRE and IST procurement functions, are likely to improve the effectiveness of the procurement process.
- robust challenge process which explicitly focus on the achievement of least-cost capex	It is apparent that the challenge processes the 2009/10 Business Plan was subject to did not identify the issues which led to a large number of projects being delayed. IST has made changes to deal with delays, a major part of which was simply to reschedule the projects. However Strata is not confident that the issues of appropriate resources and skills, project creep and slow decision making have been completely dealt with as yet and have probably not been taken into account in the proposed Project List
- robust costing methodologies	No - Strata is concerned at the data from the ProjectPlus study which show huge deficiencies. It is acknowledged this was looking back over a 3 year period and matters have improved considerably however Strata is not confident the costing methodologies are optimal
- effective project management processes	Yes Strata considers the changes made, appointing additional project management staff, transferring non core services and platforms to the divisions, investment in further embedding good industry practices will positively impact on effective project management. Strata remains concerned about IST capacity to implement the projects set out in the Project Lists.
- benchmarking reviews which effectively gauge Transpower's performance in achieving least-cost capex	This is considered satisfactory given the difficulty in obtaining relevant benchmark data.
- targeted reduction or containment of Non Part F capex	While a broad 10% cost avoidance or cost saving target has been set for IST in Strata's view further work is required. This would involve in devising specific strategies to achieve savings across a range of different circumstances and then setting and measuring performance against targets.
- measurement of performance against these targets	IST is measuring performance in cost avoidance and reduction, however this only at a high level at present.

# Appendix VI – Project List Assessment

## RRE & IST Major Projects

Project List Assessment - Major Projects > \$1.0m	
Question	Comment
Has the project been categorised correctly, taking into account (among other things): - expenditure which has been included in operational expenditure - expenditure which has been included in a GUP - projects valued at less than \$1.0m?	Yes
Have the levels of contingency included in the project budgets been established in accordance with Part 2(e), Schedule 2 of the Settlement?	Yes
Are there any projects due to the result of an Insurance Event occurring in that or any previous financial year, for which insurance income is, or is reasonably anticipated by Transpower, to be received?	Strata has not been advised of any such projects
Has Transpower provided documentation for each project which demonstrates, to the satisfaction of the Commission, that the expenditure forecasts have been prepared in accordance with Transpower's capital works and IT planning processes and policies?	Transpower has provided Strata with documentation for the ten largest projects and for a number of other projects selected by Strata. Strata is satisfied except as noted in the discussion above that Transpower has complied with its capital works processes and policies
Has each project taken into account anticipated benefits of policy and process improvements?	Except as commented on above Strata considers Transpower has anticipated the benefits of policy and process improvements

## RRE

Project List Assessment - Minor Projects < \$1.0m	
Question	Comment
Has the project been categorised correctly, taking into account (among other things): - expenditure which has been included in operational expenditure - expenditure which has been included in a GUP - projects valued at more than \$1.0m?	Yes
Have the levels of contingency included in the project budgets been established in accordance with Part 2(e), Schedule 2 of the Settlement?	Yes
Are there any projects due to the result of an Insurance Event occurring in that or any previous financial year, for which insurance income is, or is reasonably anticipated by Transpower, to be received?	Strata has not been advised of any such projects
Has each project taken into account anticipated benefits of policy and process improvements?	Except as commented above Strata considers Transpower has anticipated the benefits of policy and process improvements

## IST

Project List Assessment - Minor Projects < \$1.0m	
Question	Comment
Has the project been categorised correctly, taking into account (among other things): - expenditure which has been included in operational expenditure - expenditure which has been included in a GUP - projects valued at more than \$1.0m?	Yes
Have the levels of contingency included in the project budgets been established in accordance with Part 2(e), Schedule 2 of the Settlement?	Yes
Are there any projects due to the result of an Insurance Event occurring in that or any previous financial year, for which insurance income is, or is reasonably anticipated by Transpower, to be received?	Strata has not been advised of any such projects
Has each project taken into account anticipated benefits of policy and process improvements?	Strata considers Transpower has anticipated the benefits of policy and process improvements