

# **Transpower Post-Breach Inquiry**

## **Further Analysis of Breaches**

### **Report to the Commerce Commission**

**28<sup>th</sup> November 2005**

**Final**

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## **Preface**

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## **Authorship**

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# 1. Introduction

## 1.1 Background

Transpower New Zealand Limited (“Transpower”) reported breaches of its price path threshold set by the Commerce Commission (“the Commission”) under Part 4A of the Commerce Act 1986 in both its first and second Compliance Statements. The Commission decided to conduct a post-breach inquiry relating to Transpower and issued it with a s.98 request for further information.

NZIER has provided the Commission with two earlier reports to assist with its inquiry. The report dated 9<sup>th</sup> August 2005 addressed a number of specific questions in relation to Transpower’s breaches of price path thresholds. It drew upon the extensive information that Transpower had provided in response to a s. 98 request from the Commission.<sup>1</sup>

The report dated 31<sup>st</sup> August 2005 analysed Transpower’s newly released 2005 Compliance Statement and identified the impact the information contained in it had on the contents and conclusion of the earlier report.<sup>2</sup> One of the more significant outcomes of this analysis is that, as a result of new information provided by Transpower relating to its payments of local authority rates Transpower does not breach its price path threshold in 2003/04 by very much at all. A very material breach in 2004/05 is still recorded, however. In fact, using the data in the new Compliance Statement an increased level of breach in 2004/05 is apparent. Moreover, a further very substantial breach is recorded for 2005/06.

## 1.2 Current Report

As a result of NZIER’s two reports, Transpower was requested by the Commission to provide further information in regard to:

- The volume of services it provided, or expects to provide, over the period 2002/03 – 2005/06; and
- The interim grid expenditure it applied to the Electricity Commission on 14<sup>th</sup> April 2005 for approval for under the Rules. Transpower refers to these investments as tactical transmission upgrades (TTUs).

Transpower has provided the Commission with this information. In addition, the Electricity Commission has made its decisions relating to

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<sup>1</sup> NZIER, *Transpower Post-Breach Inquiry*, Report to the Commerce Commission, 9 August 2005.

<sup>2</sup> NZIER, *Transpower’s 2005 Compliance Statement*, Report to the Commerce Commission, 31 August 2005.

whether it will approve under the Rules Transpower's TTUs on all but one of the projects.<sup>3</sup>

The Commission has sought a further report from NZIER which takes into account this additional information and establishes whether, and to what extent, Transpower's reported breaches can be accounted for by:

- Volume growth;
- The interim grid expenditure relating to the TTUs;
- Increased charges for system operator services; and
- Any other obvious factors.

The Commission's intention is that the report should provide it with some assurance before it devotes considerable resources to a full inquiry relating to Transpower that it is confident that it is unlikely that some relatively simple and obvious factors may "explain" Transpower's breaches. This purpose has implications for the approach adopted in the analysis; the aim is to identify the "outside" limits that factors, such as, volume growth and grid expenditure can realistically explain of the reported breaches. The aim is not to establish the level of breach per se.

## **2. Transpower's Breaches**

### **2.1 Compliance Statements**

In order to establish the extent to which Transpower's breaches might be accounted for by various factors it is useful to establish the magnitude of the breaches. Table 1 sets out some useful calculations. The data and calculations require some explanation.

The figures in the top panel making up "Total Company Charges" have been taken from Transpower's various Compliance Statements. The most recent figures have been used when there are different figures in different statements. In particular, the third Compliance Statement gives actual revenue figures for 2004/05 and these have been used instead of the projected figures in the second Compliance Statement.

The figures relating to "Council Rates", "Electricity Comm Levy" "CPI-X Adjustment" and "EV Adjustment Charge" are also from Transpower's various Compliance Statements. Again, the most recent figures have been used when there are different figures. This is particularly material for rates because in its latest Compliance Statement Transpower made a significant revision to this expense in 2003/04.

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<sup>3</sup> Roy Hemmingway to Paula Rebstock, 15 & 18 November 2005.

**Table 1 Transpower's Price Path Breaches**

	2001/02	2002/03	2003/04	2004/05	2005/06
Connection Charge	\$100,811,345	\$99,204,631	\$95,335,912	\$98,352,380	\$93,326,425
Interconnection Charge	\$291,260,158	\$311,321,052	\$314,748,955	\$327,185,929	\$371,135,889
HVDC Charge	\$50,488,967	\$55,483,696	\$63,549,657	\$66,022,615	\$58,694,055
Fixed Contract Charge	\$28,021,755	\$8,970,827	\$2,390,516	\$2,327,416	\$2,439,231
New Investment Charge	\$8,917,048	\$9,394,974	\$10,064,969	\$10,201,590	\$10,106,013
Notional Embedding Charge	\$2,104,796	\$2,060,730	\$2,109,374	\$2,202,844	\$2,386,756
Transitional Rebate	-\$1,634,153	-\$1,240,110	-\$968,620	\$0	\$0
Economic Value Adjustment	-\$42,554,047	-\$46,566,101	-\$47,015,063	\$0	\$0
<b>Total TAO Charges</b>	<b>\$437,415,869</b>	<b>\$438,629,700</b>	<b>\$440,215,702</b>	<b>\$506,292,774</b>	<b>\$538,088,370</b>
Ancillary Services	\$4,668,839	\$4,677,750	\$4,287,937	\$0	\$0
NZEM Fees	\$8,870,101	\$8,403,253	\$7,702,982	\$0	\$0
Dispatch Fees non-NZEM	\$1,410,341	\$1,410,341	\$1,410,341	\$0	\$0
SOSPA Fees			\$2,055,457	\$22,844,183	\$22,841,488
<b>Total SO Charges</b>	<b>\$14,949,280</b>	<b>\$14,491,344</b>	<b>\$15,456,718</b>	<b>\$22,844,183</b>	<b>\$22,841,488</b>
<b>Total Company Charges</b>	<b>\$452,365,149</b>	<b>\$453,121,043</b>	<b>\$455,672,419</b>	<b>\$529,136,957</b>	<b>\$560,929,857</b>
Less: Council Rates	\$158,653	\$968,548	\$2,471,765	\$2,166,119	\$2,513,923
Less: Electricity Comm Levy					\$7,113,587
Less: CPI-X Adjustment					\$7,861,986
Less: EV Adjustment Charge				\$47,015,063	\$47,015,063
	<b>\$452,206,496</b>	<b>\$452,152,495</b>	<b>\$453,200,654</b>	<b>\$479,955,775</b>	<b>\$496,425,299</b>
Breaches as per Transpower Calculations		\$0	\$1,048,159	\$26,755,121	\$43,224,645
Breach Relative to 2002/03		\$0	\$1,048,159	\$27,803,280	\$44,272,804
Less: System Operator Adjustment	\$0	\$0	\$860,018	\$0	\$0
Less: New Services Adjustment	\$0	\$0	\$0	\$0	\$10,106,013
Less: Notional Embedding Adjustment	\$0	\$0	\$42,116	\$151,990	\$335,902
Less: Transitional Rebate	\$0	\$0	\$0	\$968,620	\$968,620
Adjusted Notional Revenue	\$452,206,496	\$452,152,495	\$452,298,520	\$478,835,165	\$485,014,763
<b>Adjusted Breach Relative to 2002/03</b>		<b>\$0</b>	<b>\$146,025</b>	<b>\$26,682,670</b>	<b>\$32,862,268</b>

Source: Calculated by NZIER from Transpower's Compliance Statements and other information.

The figures for "Council Rates" and "Electricity Comm Levy" are deducted in arriving at the breach because these are subject to a pass through provision under the threshold. The "CPI-X Adjustment" is deducted because the threshold limit rises by this amount. The "EV Adjustment Charge" in 2003/04 of \$47,015,063 is deducted from revenue in 2004/05 and 2005/06 because the threshold was redefined to exclude this charge from 2004/05 onwards.

## 2.2 Level of Breaches Using Transpower Data

These adjustments produce the breaches using the data in Transpower's Compliance Statements. These show that using Transpower's information

and returns it breached by \$1,048,158 in 2003/04 and by \$26,755,121 in 2004/05 and that on the basis of its projections it will breach by \$43,224,644 in 2005/06.

### **3. Some Initial Adjustments**

#### **3.1 System Operator Charges February- March 2004**

In previous analyses of Transpower's Compliance Statements we have also deducted from income in 2003/04 the amount of \$860,018 relating to increased system operator charges paid in February and March 2004. The rationale for doing this is that the new contract with the Electricity Commission, and hence the increase in charges for system operator services, was not in place on the assessment date of 6 September 2003 and so do not need to be counted by Transpower as revenue in its First Compliance Statement. This adjustment is very debateable, but the treatment adopted is favourable to Transpower as it reduces by this sum its breach of the threshold in 2003/04. Given the purpose of the current paper we believe this adjustment should be made in our analysis.

#### **3.2 New Investment**

The Gazette Notice that covered the first two Compliance Statements provided that new investments could be excluded from the threshold calculation "if the other party agrees in writing that the terms and conditions are reasonable or reflect contestable provision of the goods and services". This notice was first published on 5 June 2003. In the Gazette Notice relating to the third Compliance Statement, this requirement was slightly altered so that new investments could be excluded from the threshold calculation "but, in the case of new investments contracts entered into after 5 June 2003, only if the other party agrees in writing that the terms and conditions are reasonable or reflect contestable provision of the goods and services".

A literal interpretation of the revised wording is that the revenue derived from all new investment contracts is excludable, irrespective of when the contract was entered into. The exception is contracts entered into after 5 June 2003. These are only excludable if the other party has agreed in writing that the terms and conditions are reasonable or reflect contestable provision. We know that soon after 5 June 2003 Transpower adopted contracts that ensure all new investment expenditure qualify for exclusion.<sup>4</sup> This means that Transpower could argue it is entitled to exclude all, or nearly all, the revenue related to new investment contracts from its 2005/06 notional revenue.

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<sup>4</sup> Transpower, Third Compliance Statement, p.25.

On the other hand, the definition of the price path in the latest Gazette Notice is based on “the maximum notional revenue (excluding any EV adjustment charges) at the reference date which would not have caused Transpower to breach the price path threshold under the initial notice at that date”. The “reference date” is 30 June 2004 and the “initial notice” is the Commerce Act (Electricity Lines Thresholds) Notice 2003. This is the original Gazette Notice which contains the earlier version of the clause relating to exclusions of revenue related to new investment. So, Transpower could conceivably argue that its current price path is to be calculated from a basis inclusive of revenue related to new investments, apart from those that it had written agreements from the other party in relation to, which would have been relatively few in 2003/04.

This situation is neither what appears to have been intended nor how Transpower has interpreted the new investment clause in the 2005 Gazette Notice definition of “specified services”. What Transpower has done in its third Compliance Statement is to “exclude revenue from new services under new investment contracts entered into after 5 June 2003, and for which the other party agrees in writing that the terms and conditions are reasonable or reflect contestable provision of the goods and services.”<sup>5</sup> It had adopted the same practice in its second Compliance Statement.<sup>6</sup> This resulted in it excluding all new investment undertaken in 2004/05 apart from \$216,014 that related to investments agreed prior to the publication of the initial notice.

There are two alternative sets of adjustments that could be made for new investment. One based on the literal reading of the Rules as outlined above. This would result in the exclusion from revenue of the total \$10,106,013 of New Investment Charge in 2005/06 but the inclusion in earlier years of the revenue from this charge. The other potential adjustment, which is also debateable, is based on the assumption that what was always intended to be excluded was revenue related to new services introduced since 2001/02, provided that for investments after 5 June 2003, the required acknowledgement had been received from the other party. This would result in the deduction of \$1,031,142 in 2002/03, \$2,211,370 in 2003/04 and \$2,427,384 in the remaining two years. The figures of \$1,031,142 and \$2,211,370 are from the covering letter to Transpower’s revised first Compliance Statement<sup>7</sup>. The additional \$216,014 in 2004/05 is from the covering letter to Transpower’s second Compliance Statement.<sup>8</sup>

Given the purpose of the current paper is to find the limits of the factors that might “justify” Transpower’s reported breaches and so make devoting

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<sup>5</sup> Transpower, Third Compliance Statement, p.25.

<sup>6</sup> Howard Cattermole to Paolo Ryan, 9 November 2004, pp. 8-9.

<sup>7</sup> Howard Cattermole to Paolo Ryan, 11 October 2004.

<sup>8</sup> Howard Cattermole to Paolo Ryan, 9 November 2004.

further resources to investigating the breach unnecessary, we consider the first of these options is the most appropriate, even though it is contrary to both what appears the likely intention and the practice adopted by Transpower to date. We note, however, that if the second option was chosen then Transpower would not have breached in 2003/04, but the breach in that year was minor even without this adjustment and of itself is unlikely to be a reason to initiate the use of considerable resources to conduct a full investigate.

### **3.3 Notional Embedding<sup>9</sup>**

Our detailed analysis of the data provided by Transpower showed that virtually all of the changes in Notional Embedding Charges were due to changes in the number of contracts in position and not changes in prices. Since Transpower is subject to a price cap and not a revenue cap, only the changes due to price changes need to be incorporated into the analysis. The adjustments in the line labelled “Notional Embedding Adjustments” in Table 1 are aimed at removing the impact of “volume” changes.

### **3.4 Transitional Rebates**

Transitional rebates were introduced by the Transpower Board to smooth the price path transition of some offtake customers to the new pricing methodology adopted in 1999. The decision was to limit the rate of increase in charges for any individual offtake customer to 5% plus the rate of inflation every year, compounded. The initial decision of the Board relating to transitional rebates recorded that the costs would be borne by Transpower’s shareholders through its economic value accounts.<sup>10</sup> However, subsequent Board decisions to extend the scheme, and management papers recommending extension, were silent on this matter.

Moreover, since there is no evidence that adjustments were made to the shareholders’ or customers’ economic value accounts relating to transitional rebates, the clear implication is that the outcome was that transitional rebates were always effectively a transfer between Transpower’s customers and not a charge to its shareholders. The transitional rebates lowered Transpower’s actual revenue which lowered its NOPAT and hence the calculated economic gain and loss. This in turn reduced any EV adjustment rebates, or increased any EV adjustment charges and so raised customers’ charges in general. Because EV adjustments were limited to the lesser of one-third of the balance in the customers’ economic value account or 10% of revenue, there were timing differences but while EV adjustments were a feature of pricing, the transitional rebates did get reflected in the charges to

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<sup>9</sup> See NZIER, *Transpower Post-Breach Inquiry* ... p. 14 for an explanation of Notional Embedding Charges.

<sup>10</sup> Transpower, Minutes from Board Meeting held on 2 December 1999, p.14.

customers in general. Thus, the available evidence indicates that contrary to the original decision of the Transpower Board, transitional rebates were cross-subsidies between customers and did not impact on Transpower's shareholders at all.

If this analysis of transitional rebates is accepted, then the decision to stop payment of them in 2004/05 did not reflect a price rise by Transpower but a decision to remove a form of cross-subsidy. In addition, neglecting the timing issues, the transitional rebates and EV adjustment charges were effectively linked "dollar for dollar". In effect, the transitional rebates were a component of the EV adjustment charges paid to particular customers on a different basis; even though this is not how they were generally thought of within Transpower or the market place. This line of reasoning suggests that the same adjustment as has been made for EV adjustment charges should be made for transitional rebates. Hence, in Table 1 we have deducted the transitional rebate figure for 2003/04 of \$968,620 from the revenue in 2004/05 and 2005/06. Although this treatment could be debated, given that the purpose of this paper is to find a lower limit for the breaches, we consider the adjustment appropriate as part of the consideration.

Another way of looking at this matter is to note that the objectives of Part 4A focus clearly on efficiency and the removal by Transpower of a cross-subsidy between customers is not contrary to this objective. The adjustment that we have made in Table 1 effectively removes from the recorded breach the impact of removing this cross-subsidy and so is not contrary to the objectives of the Act.

## **4. Volume Impacts**

### **4.1 Difficulties Defining Volume**

In our first report for the post-breach inquiry we noted Transpower effectively adopted a revenue path threshold in place of a price path threshold by taking the volumes for connection, interconnection, HVDC charges etc. as one unit. The Commission has requested we attempt to gauge the impact of this approach to defining services in its Compliance Statements.

Transpower's use of a revenue path threshold particularly affects HVDC charges for the South-North link and interconnection charges for the core grid. Transpower now contracts with the Electricity Commission to provide the system operator service on a bulk basis. The changes in services provided by customer specific connection assets are largely captured by new investment charges.

Deciding on the units to use to measure the volume of services provided by the core interconnected transmission grid and the HVDC link is not straight forward. These services have not in the past been defined in detail by Transpower. The Electricity Commission is currently engaged in an exercise to define them and develop measures to apply to them. This work has yet to be completed. In its current state it provides some insights, however. It suggests that in terms of HVDC and interconnection assets, Transpower's role can be seen as providing capacity, reliability and information. Of these, capacity seems the most relevant as a measure of volume for implementing the price path threshold.

## 4.2 AMD and AMI and MWh Measures

Transpower currently allocates its HVDC and interconnection charges among the parties liable to pay them on the basis of measures of peak capacity utilisation by them. The measures used are referred to as “Anytime Maximum Demand” (AMD) for allocating interconnection charges among offtake customers and “Anytime Maximum Injection” (AMI) for allocating HVDC charges among South Island generators.

An alternative approach to transmission services is to view Transpower as a provider of transport for electricity and to measure the volume of its output in terms of the quantity of energy carried and the distance it is carried. It is almost impossible, however, to accurately measure for a whole year the distance electricity is carried on an interconnected HVAC grid network with constraints. This is because electricity does not flow “in a straight line” between two points when there is a grid. However, if it is assumed the average distance each unit is carried does not materially vary between years, then measuring the impact of volume under a price path threshold the distance carried is not material. This alternative approach suggests that MWh of electricity conveyed might be a reasonable volume measure proxy.

Transpower has published on its webpage its Interconnection Rate and HVDC Rate per kW of AMD and AMI for every year since the late 1990s. It has also provided the Commission with data on the MWhs carried by the transmission system in every year from 2002/03 onwards, including its forecast for 2005/06. In Table 2 we use these data to calculate the notional revenue relating to interconnection and the HVDC using the two alternative volume proxy measures we have identified.<sup>11</sup> The notional revenue formula we have used is from the 2005 Gazette Notice which uses the volumes in 2002/03 as the base volumes. Where MWh data are used as volume we have calculated a combined figure for interconnection and HVDC as it is not possible to separately identify usage of these assets on a MWh basis. Where AMD and AMI data are used we have been able to separately identify interconnection and HVDC charges.

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<sup>11</sup> We estimate MWh for 2001/02 based on data in Transpower's *Annual Report*, 2005.

**Table 2 Volume and Price Measures and Notional Revenue for HVDC and Interconnection**

	2001/02	2002/03	2003/04	2004/05	2005/06
Interconnection Rate (per kW)	\$48.36	\$50.18	\$50.57	\$50.62	\$55.81
HVDC Rate (per kW)	\$20.42	\$18.85	\$19.08	\$19.85	\$23.14
MWh	35,697,000	35,867,682	35,975,147	37,273,461	37,545,607
Interconnection Charge	\$291,260,158	\$311,321,052	\$314,748,955	\$327,185,929	\$371,135,889
Implicit Interconnection AMD	6,022,749	6,204,086	6,224,025	6,463,570	6,649,989
Price per kW	\$48.36	\$50.18	\$50.57	\$50.62	\$55.81
Notional Interconnection Revenue - based on AMD	\$300,029,615	\$311,321,052	\$313,740,646	\$314,050,850	\$346,250,059
Difference Actual Revenue and Notional Revenue - Interconnection	-\$8,769,458	\$0	\$1,008,309	\$13,135,078	\$24,885,830
HVDC Charge	\$50,488,967	\$55,483,696	\$63,549,657	\$66,022,615	\$58,694,055
Implicit HVDC AMI	2,472,525	2,943,432	3,330,695	3,326,076	2,536,476
Price per kW	\$20.42	\$18.85	\$19.08	\$19.85	\$23.14
Notional HVDC Revenue - based on AMI	\$60,104,885	\$55,483,696	\$56,160,686	\$58,427,128	\$68,111,020
Difference Actual Revenue and Notional Revenue - HVDC	-\$9,615,917	\$0	\$7,388,972	\$7,595,487	-\$9,416,965
Difference Actual Revenue and Notional Revenue - HVDC & Interconnection	-\$18,385,375	\$0	\$8,397,281	\$20,730,565	\$15,468,865
HVDC & Interconnection Charges	\$341,749,125	\$366,804,749	\$378,298,613	\$393,208,544	\$429,829,944
MWh	35,697,000	35,867,682	35,975,147	37,273,461	37,545,607
Price per MWh	\$9.57	\$10.23	\$10.52	\$10.55	\$11.45
Notional Revenue - HVDC & Interconnection - based on MWh	\$343,383,168	\$366,804,749	\$377,168,559	\$378,378,574	\$410,620,708
Difference Actual Revenue and Notional Revenue - HVDC & Interconnection	-\$1,634,043	\$0	\$1,130,054	\$14,829,970	\$19,209,236

Source: Calculated by NZIER using data from Transpower's s.98 responses and website

### 4.3 Breaches after Volume Adjustments

Table 3 contains recalculations of Transpower's breaches using the notional revenue figures for interconnection charges and HVDC charges based on AMD and AMI volume measures from Table 2. The other data in Table 3 are the same as in Table 1. What the calculations show is that the lowest notional revenue on this basis was in 2003/04, and not 2002/03,<sup>12</sup> and the lower bound breach in 2004/05 is estimated to be, after adjustments, \$14,203,361 and in 2005/06 it is estimated to be \$25,644,659. In other words, taking into account the volume increase using the capacity utilisation statistics AMD and AMI as the measures of volume, effectively reduces the breach in 2004/05 by approximately \$12.5m and in 2005/06 by \$7.2m. Sizeable breaches are still left in both years, however.

<sup>12</sup> Under the threshold definitions this means that breaches are to be measured relative to 2003/04 revenue.

**Table 3 Transpower's Price Path Breaches Adjusted for Volume Based on AMD and AMI**

	2001/02	2002/03	2003/04	2004/05	2005/06
Connection Charge	\$100,811,345	\$99,204,631	\$95,335,912	\$98,352,380	\$93,326,425
Interconnection Charge**	\$300,029,615	\$311,321,052	\$313,740,646	\$314,050,850	\$346,250,059
HVDC Charge**	\$60,104,885	\$55,483,696	\$56,160,686	\$58,427,128	\$68,111,020
Fixed Contract Charge	\$28,021,755	\$8,970,827	\$2,390,516	\$2,327,416	\$2,439,231
New Investment Charge	\$8,917,048	\$9,394,974	\$10,064,969	\$10,201,590	\$10,106,013
Notional Embedding Charge	\$2,104,796	\$2,060,730	\$2,109,374	\$2,202,844	\$2,386,756
Transitional Rebate	-\$1,634,153	-\$1,240,110	-\$968,620	\$0	\$0
Economic Value Adjustment	-\$42,554,047	-\$46,566,101	-\$47,015,063	\$0	\$0
<b>Total TAO Charges</b>	<b>\$455,801,244</b>	<b>\$438,629,700</b>	<b>\$431,818,421</b>	<b>\$485,562,209</b>	<b>\$522,619,504</b>
Ancillary Services	\$4,668,839	\$4,677,750	\$4,287,937	\$0	\$0
NZEM Fees	\$8,870,101	\$8,403,253	\$7,702,982	\$0	\$0
Dispatch Fees non-NZEM	\$1,410,341	\$1,410,341	\$1,410,341	\$0	\$0
SOSPA Fees			\$2,055,457	\$22,844,183	\$22,841,488
<b>Total SO Charges</b>	<b>\$14,949,280</b>	<b>\$14,491,344</b>	<b>\$15,456,718</b>	<b>\$22,844,183</b>	<b>\$22,841,488</b>
<b>Total Company Charges</b>	<b>\$470,750,524</b>	<b>\$453,121,043</b>	<b>\$447,275,138</b>	<b>\$508,406,392</b>	<b>\$545,460,992</b>
Less: Council Rates	\$158,653	\$968,548	\$2,471,765	\$2,166,119	\$2,513,923
Less: Electricity Comm Levy					\$7,113,587
Notional Revenue	\$470,591,871	\$452,152,495	\$444,803,373	\$506,240,273	\$535,833,483
Less: System Operator Adjustment	\$0	\$0	\$860,018	\$0	\$0
Less: New Services Adjustment	\$0	\$0	\$0	\$0	\$10,106,013
Less: Notional Embedding Adjustment	\$0	\$0	\$42,116	\$151,990	\$335,902
Less: Transitional Rebate	\$0	\$0	\$0	\$968,620	\$968,620
Adjusted Notional Revenue with AMD/AM	\$470,591,871	\$452,152,495	\$443,901,239	\$505,119,663	\$524,422,947
Minimum Notional Revenue	\$443,901,239	\$443,901,239	\$443,901,239	\$443,901,239	\$443,901,239
Plus: CPI-X Adjustment					\$7,861,986
Plus: EV Adjustment Charge				\$47,015,063	\$47,015,063
Threshold with AMD/AMI Volume	\$443,901,239	\$443,901,239	\$443,901,239	\$490,916,302	\$498,778,288
<b>Breach with AMD/AMI Volume Adjustment</b>				<b>\$0</b>	<b>\$14,203,361</b>
TTU Adjustment					\$10,350,000
<b>Breach with AMD/AMI Volume and TTU Adjustments</b>				<b>\$0</b>	<b>\$15,294,659</b>

Source: Calculated by NZIER from Transpower's Compliance Statements and other information.

Table 4 contains recalculations of the breaches using the notional revenue figures for interconnection and HVDC charges based on the proxy MWh volume measure from Table 2. The other data in Table 4 are the same as in Table 1 and Table 3. What these calculations show is that the lowest notional revenue on this basis was in 2003/04 and the breach in 2004/05 was, after adjustments, \$12,836,729 and in 2005/06 it was \$14,637,062. In other words, taking into account the volume increase using the transportation measure of MWh conveyed on the network effectively

reduces the breach in 2004/05 by approximately \$13.9m and in 2005/06 by \$18.2m. Sizeable breaches are still left in both years, however.

**Table 4 Transpower's Price Path Breaches Adjusted for Volume Based on MWh**

	2001/02	2002/03	2003/04	2004/05	2005/06
Connection Charge	\$100,811,345	\$99,204,631	\$95,335,912	\$98,352,380	\$93,326,425
Interconnection & HVDC Charge**	\$343,383,168	\$366,804,749	\$377,168,559	\$378,378,574	\$410,620,708
Fixed Contract Charge	\$28,021,755	\$8,970,827	\$2,390,516	\$2,327,416	\$2,439,231
New Investment Charge	\$8,917,048	\$9,394,974	\$10,064,969	\$10,201,590	\$10,106,013
Notional Embedding Charge	\$2,104,796	\$2,060,730	\$2,109,374	\$2,202,844	\$2,386,756
Transitional Rebate	-\$1,634,153	-\$1,240,110	-\$968,620	\$0	\$0
Economic Value Adjustment	-\$42,554,047	-\$46,566,101	-\$47,015,063	\$0	\$0
<b>Total TAO Charges</b>	<b>\$439,049,912</b>	<b>\$438,629,700</b>	<b>\$439,085,647</b>	<b>\$491,462,804</b>	<b>\$518,879,134</b>
Ancillary Services	\$4,668,839	\$4,677,750	\$4,287,937	\$0	\$0
NZEM Fees	\$8,870,101	\$8,403,253	\$7,702,982	\$0	\$0
Dispatch Fees non-NZEM	\$1,410,341	\$1,410,341	\$1,410,341	\$0	\$0
SOSPA Fees			\$2,055,457	\$22,844,183	\$22,841,488
<b>Total SO Charges</b>	<b>\$14,949,280</b>	<b>\$14,491,344</b>	<b>\$15,456,718</b>	<b>\$22,844,183</b>	<b>\$22,841,488</b>
<b>Total Company Charges</b>	<b>\$453,999,192</b>	<b>\$453,121,043</b>	<b>\$454,542,365</b>	<b>\$514,306,986</b>	<b>\$541,720,622</b>
Less: Council Rates	\$158,653	\$968,548	\$2,471,765	\$2,166,119	\$2,513,923
Less: Electricity Comm Levy					\$7,113,587
Notional Revenue	\$453,840,539	\$452,152,495	\$452,070,600	\$512,140,868	\$532,093,112
Less: System Operator Adjustment	\$0	\$0	\$860,018	\$0	\$0
Less: New Services Adjustment	\$0	\$0	\$0	\$0	\$10,106,013
Less: Notional Embedding Adjustment	\$0	\$0	\$42,116	\$151,990	\$335,902
Less: Transitional Rebate	\$0	\$0	\$0	\$968,620	\$968,620
Adjusted Notional Revenue with MWh Vo	\$453,840,539	\$452,152,495	\$451,168,466	\$511,020,258	\$520,682,577
Minimum Notional Revenue	\$451,168,466	\$451,168,466	\$451,168,466	\$451,168,466	\$451,168,466
Plus: CPI-X Adjustment					\$7,861,986
Plus: EV Adjustment Charge				\$47,015,063	\$47,015,063
Threshold with MWh Volume	\$451,168,466	\$451,168,466	\$451,168,466	\$498,183,529	\$506,045,515
<b>Breach with MWh Volume</b>				<b>\$0</b>	<b>\$12,836,729</b>
TTU Adjustment					\$10,350,000
<b>Breach with MWh Volume and TTU Adjustments</b>				<b>\$0</b>	<b>\$4,287,062</b>

Source: Calculated by NZIER from Transpower's Compliance Statements and other information.

## 5. System Operator Charges

### 5.1 Pre 1 March 2004

On 1 March 2004 the System Operator Service Provider Agreement (SOSPA) between Transpower and the Electricity Commission came into force. Prior to this date Transpower had obtained its revenue for providing these services by a variety of arrangements:<sup>13</sup>

- Fees for providing scheduling, dispatch and grid operator services to members of the New Zealand Electricity Market (NZEM) and non-members of NZEM had been recovered under contracts;
- Fees for providing common quality services – the costs of procuring and providing ancillary services and an allocation of Transpower’s overhead costs to cover these activities – had been recovered through common quality charges in accordance with Part D of Transpower’s connection contracts with its clients; and
- Charges to recover costs associated with security to ensure that the grid assets were available in accordance with good industry practice and met the service capability required by Part C of the connection contracts were recovered through the interconnection grid charge in accordance with Part C of the connection contracts.

In 2003/04, the plan was for these fees and charges to total \$20.3m with \$11.0m relating to the first group - scheduling, dispatch and grid operator charges - \$9.5m of which was to be collected from NZEM members and \$1.5m from non-NZEM members. \$4.5m related to the second group – the costs of procuring and providing ancillary services - and \$4.9m related to the third group - common quality costs not related to ancillary services.<sup>14</sup>

### 5.2 Post 1 March 2004

Since 1 March 2004 Transpower has recovered the costs of providing the services under the SOSPA from the Electricity Commission.<sup>15</sup> The annual base fee is \$21,352,000. In addition:

- Transpower is reimbursed by the Electricity Commission for:
  - The pricing manager license fee it pays to M-Co for access to the computer trading system, COMIT. This amounts to \$1,100,000 per year; and
  - Audit fees for its software systems (SPD and RMT);

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<sup>13</sup> Transpower’s. 98 document C301, p.1.

<sup>14</sup> Transpower’s. 98 document C303. That the total of the components comes to \$20.4m is due to rounding.

<sup>15</sup> Transpower’s. 98 document C304.

- Transpower is also paid by the Commission:
  - An information access fee of \$1,489,488 per year;
  - Compliance investigations and proceedings fees on a time and materials basis; and
  - Development fees on a time and materials basis.

In addition, during February/March 2004, Transpower was paid by the Electricity Commission a one off “commencement fee” of \$152,000 relating to the SOSPA.

Moreover, under the SOSPA, if a policy statement, rule change or decision of the Electricity Commission results in an impact on the obligations, liabilities or costs of providing the system operator service then either Transpower or the Electricity Commission can notify a “fee change event”. The result will be that the fees will be either increased or decreased to reflect the changed service.

The Electricity Governance Rules also allow the System Operator to levy certain other charges directly on participants. Transpower is allowed to recover from specific participants the “reasonable identification and testing costs” of maintaining other standards. Transpower can also charge those seeking information from it for that information. Transpower can also charge asset owners for processing applications for dispensations from Rules and certificates that arrangements are equivalent to a required standard.

### **5.3 Estimated Increase in Revenue**

The move to the SOSPA did increase Transpower’s revenue for carrying out the SOSPA activities. A straight forward comparison between revenue in 2003/04 and revenue in 2004/05 is not possible because the change over between the two contractual relationships occurred on 1 March 2004 and not at the end of a pricing year.

The nearest we can come to identifying what Transpower’s income for these services would have been in 2003/04 if the new contract had not been developed, is to annualise the eleven month revenue for the system operator services identified in its second Compliance Statement and then add to this the \$4.9m planned revenue for non-ancillary service common quality revenue collected through interconnection charges.

This produces an estimate of \$19.5m for 2003/04. This compares with \$22,844,183 of revenue in 2004/05. These calculations indicate that there was a material increase in the annual price for System Operator Services on 1 March 2004 of the order of \$3.35m.

## 6. Interim Grid Expenditure

### 6.1 Background

On 14<sup>th</sup> April 2005 Transpower applied to the Electricity Commission under Rule 16 of Section III of Part F of the Electricity Governance Rules 2003 for approval of interim grid expenditure totalling \$158.235 million in 30 projects. The initial information provided by Transpower was not sufficient for the Electricity Commission to make decisions under the Rules. The Electricity Commission sought further information from Transpower on several occasions, and we understand is still seeking information about one project. The Electricity Commission released what it termed “indicative decisions” for the various projects covered by Transpower’s application on 7<sup>th</sup> October.<sup>16</sup> It invited feedback from interested parties. It has considered the feedback and made decisions on 29 of the 30 projects; the one outstanding project is for \$20.2m for a new 110 kV line between Stoke and Blenheim.<sup>17</sup>

### 6.2 The Three Tests

The Electricity Commission has identified that Rule 16 requires it to be satisfied that the expenditure it approves satisfies three tests:

- Test A: It must be proposed by Transpower before the Electricity Commission makes final decisions on the first Grid Upgrade Plan;<sup>18</sup>
- Test B: It must be additional to Transpower’s normal on-going grid expenditure;<sup>19</sup> and
- Test C: It must be either:
  - Reasonably prudent or necessary to meet Transpower’s current grid reliability standards; or
  - Prudent expenditure on preparatory work necessary for other grid expenditure that has not yet been approved in a grid upgrade plan; or
  - Emergency expenditure.<sup>20</sup>

The consequence of the Electricity Commission approving interim grid expenditure is that it is recoverable by Transpower from designated

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<sup>16</sup> Electricity Commission, *Assessment of Transpower’s Application for Interim Grid Expenditure Dated 14 April 2005 (Tactical Transmission Upgrades)*, October 2005.

<sup>17</sup> Roy Hemmingway to Paula Rebstock, 15 & 18 November 2005.

<sup>18</sup> Rule F:III:16.2.1.

<sup>19</sup> Rule F:III:16.2.2.

<sup>20</sup> Rule F:III: 16.2.3.

transmission customers on the basis of the transmission pricing methodology approved under Part F.<sup>21</sup>

### 6.3 Test A

The Electricity Commission interprets Test A as meaning it does not have the power to approve any interim grid expenditure that had already been incurred or committed by Transpower at the time of making an application for approval under the rule.<sup>22</sup> On this basis, the Electricity Commission excluded approximately \$27.2m of the \$158.23m expenditure for which it received applications. Some of this expenditure it would have excluded on other grounds also.

### 6.4 Test B

The approach the Electricity Commission has taken to Test B is to consider whether, when it is incurred, the expenditure is:

- Over and above the aggregate historic level of Transpower’s typical or regular, and continuous, expenditure relating to the grid; or
- Not in the nature of Transpower’s typical or regular, and continuous, expenditure in relation to the grid.<sup>23</sup>

The Electricity Commission notes that it has not received from Transpower in any of its sequence of written communications “any information supporting the view that the (interim grid expenditure) for any or all of the ... Projects is “additional to Transpower’s normal ongoing grid expenditure””. Indeed, the Electricity Commission notes that in response to a request it made on 25<sup>th</sup> May 2005 for Transpower to provide information of this type, Transpower erroneously claimed that “Rule 16.2.2 provides that the transitional provisions may be utilised by Transpower in respect of “normal ongoing grid expenditure””. In a subsequent letter Transpower expressed the view that the expenditure is “normal ongoing grid expenditure” because it represents “a cyclical peak in the capital requirements to maintain security in line with load growth”.<sup>24</sup> On this basis, the Electricity Commission would be unable to approve any of the expenditure as Transpower has unequivocally indicated that it breaches Test B.

Despite Transpower having told the Electricity Commission that all the expenditure fails Test B, the Electricity Commission has gone on to reach the contrary view on the basis that the annual aggregate expenditure is

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<sup>21</sup> Rule F:III:17.1.

<sup>22</sup> Electricity Commission, *Assessment of Transpower’s Application ...*, p.7.

<sup>23</sup> Electricity Commission, *Assessment of Transpower’s Application ...*, p.23.

<sup>24</sup> Electricity Commission, *Assessment of Transpower’s Application ...*, p.23.

higher than expenditure spent on capital in each of the past five years. The data the Commission provides supports this conclusion about the trend in capital expenditure.<sup>25</sup> The Electricity Commission has indicated that it thought Transpower did not understand the Rules properly when it indicated otherwise.

The internal documents provided by Transpower to the Commerce Commission under s. 98 indicate that it was Transpower's Board that decided in August 2004 not to apply to the Electricity Commission for approval under Rule 16. The Board minutes record that "Directors take the view that the tactical upgrades are best seen as "business as usual" and ask the Chief Executive to engage with the Electricity Commission on this basis ... [

]

The Electricity Commission is, of course, unaware that decision making on this matter was at the highest level and obviously fully informed as to the Rules and financial implications. It is unknown whether the Electricity Commission would have adopted quite such an accommodating approach if it were fully acquainted with Transpower's decision making process and the discussion surrounding it, which focussed on concern that the Electricity Commission was starting to interfere with Transpower's decision making about investments. However, the Electricity Commission has made the "decision" that all the expenditure passes Test B.

## 6.5 Test C

Transpower's application was for approval of expenditure on the basis of the first limb of Test C; on the basis that the expenditure is "reasonably prudent or necessary to meet Transpower's current grid reliability standards". The Electricity Commission considers that, for expenditure to be "necessary to meet Transpower's current grid reliability standards", the expenditure must be essential to meet the standards.<sup>26</sup> As regards "reasonably prudent", the Electricity Commission considers this requires the proposed expenditure to be the least cost means of achieving the current grid reliability standard.<sup>27</sup>

## 6.6 The Electricity Commission's Decisions

Table 5 summarises the Electricity Commission's decisions for the 30 projects Transpower submitted.

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<sup>25</sup> Electricity Commission, *Assessment of Transpower's Application* ..., p.24.

<sup>26</sup> Electricity Commission, *Assessment of Transpower's Application* ..., p.26.

<sup>27</sup> Electricity Commission, *Assessment of Transpower's Application* ..., p.27.

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**Table 5 Summary of Decisions**

Category	Projects	\$m	Decision
A	1-6, 8, 14-17, 19-28, 30	\$112.26	Approved
B	7, 29	\$1.22	Approved but customer specific
B/C	18	\$20.20	Awaiting further information
C	None		
D	9 -13	\$24.55	Not Approve
Total		\$158.23	

Source: Calculated from Roy Hemmingway to Paula Rebstock 15 & 18 November 2005

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## 6.7 Implications for the Price Path Threshold

The first point to note is that the Electricity Commission has decided that under the current Rules it is unable to approve expenditure that had already been incurred or committed prior to the application being lodged. The application was not lodged until 14<sup>th</sup> April 2005, which is after the start of Transpower's 2005/06 pricing year. On this basis, there are no implications from the TTUs for the price path breach in 2004/05. The Electricity Commission has, however, indicated that it may progress a Rule change that will allow it to approve this expenditure retrospectively.<sup>28</sup> If this happens then there may be implications for the 2004/05 price path.

The second point is that what Transpower applied for is approval of investment expenditure on upgrading voltage support and the thermal capacity of existing lines to cater for on-going growth in demand. It is arguable that Transpower's price path needs no adjustment to allow it to make a return on such investments because Transpower is allowed to retain the increase in revenue that occurs as a result of the increase in output it provides in response to the growth. Transpower was set a price path threshold instead of a revenue threshold partly for this reason. The calculations in Table 3 and Table 4 indicate the increase in revenue available to Transpower through having a price path is significant. To put the point another way, to allow Transpower both an adjustment for volume growth and an adjustment for the expenditure on TTUs would provide it with two adjustments for essentially the same purpose.

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<sup>28</sup> Roy Hemmingway to Paula Rebstock 15 November 2005.

The Commerce Act does not require the Commerce Commission to provide an uplift in Transpower's price path threshold for all, or any, expenditure on investment approved by the Electricity Commission. What the Act requires is for the Commerce Commission to take into account "before exercising any of its powers under (Part 4A) or sections 70 to 72 any electricity governance regulation or rule, or decision made under them, that relates to or affects the quality standards or pricing methodologies applicable to Transpower".<sup>29</sup>

The third point is that the \$158.23m is the capital value of the investments and not the impact on Transpower's costs each year. The yearly cost figure is far smaller. Transpower has provided to the Electricity Commission its view of the "indicative increase to interconnection rate" in \$/kW needed to "cover" each project. In total the figure provided by Transpower is \$1.95/kW.<sup>30</sup> However, if only the amounts currently approved by the Electricity Commission are included, then the estimated impact drops to \$1.17/kW. If the one project on which the Commission has yet to decide on is included then the figure is \$1.41/kW.

The interconnection rate in 2004/05 was \$50.62/kW and it increased to \$55.81/kW in 2005/06, or by 10.25%. The estimated \$1.41/kW or 2.79% increase due to the tactical transmission upgrades amounts for a little over a quarter of the increase in the Interconnection Rate Transpower imposed on its offtake customers in 2005/06. The \$1.41/kW equates to approximately \$10.35m; which is still less than the volume adjusted breach for 2005/06 of \$14.6m in Table 4 and well less than the volume adjusted breach of \$25.6m in Table 3. Moreover, most of the expenditure will only be incurred during 2005/06 and 2006/07 and so there is no justification for all of it to be reflected in prices from the start of 2005/06.

If the Commission decided to amend the Rules and approve expenditure that had occurred or been committed prior to 14<sup>th</sup> April 2005 and also approved the outstanding Stoke-Blenheim project then the estimated impact on the interconnection rate is \$1.64/kW. This equates to \$12.04m; which is still less than the volume adjusted breach for 2005/06 under either method of calculation. Moreover, the  $\$1.64 - \$1.41 = \$0.23/\text{kW}$  increase in interconnection rates that relates to expenditure in the period prior to 14<sup>th</sup> April 2005 would not account for the estimated breaches in 2004/05.

The tactical transmission upgrades are not the only investment proposals that Transpower is currently pursuing. It is developing plans to install 400kV lines from the central North Island to Auckland and into Christchurch. It is also working on expanding the capacity of the HVDC

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<sup>29</sup> Commerce Act 1986, s.57MA.

<sup>30</sup> Ralph Craven to Roy Hemmingway, 1 July 2005. Available on the Electricity Commission's website.

link between the two islands. Transpower has not so far indicated to the Commission it has made application under the transition provisions to the Electricity Commission in relation to expenditure on preparatory work for these grid upgrades even though the way is clearly open to it under Rule 16 of Section III of Part F to do so.

## **7. Any Other Obvious Factors?**

We have not identified during the course of our investigation any other factors that could explain Transpower's breaches. When it comes to conducting a building block approach investigation of whether Transpower has earned excessive profits, it will be difficult for Transpower to argue that its WACC is too low as it has set its own WACC. On the other hand, Transpower may raise arguments about its asset valuations, and it has already signalled that it believes it is justified in having increased prices to cover increased operating expenses because of the planning work on grid upgrades it is currently undertaking. Asset valuation and operating expenses are not matters about which we wish to make judgements prior to further investigation, however. Of course, in a building block analysis to establish the best estimate of the actual breach the revenue that Transpower received from new investments in 2005/06 would not be excluded; the issue regarding interpretation of the Gazette Notice is only relevant to answering the question of whether Transpower still breached the price path threshold if it should raise this argument in a legal sense and win.

## **8. Summary**

The Commission has sought a report from NZIER to assist it with its post-breach inquiry relating to Transpower. This report is required to take into account the additional information Transpower has provided to the Commission relating to tactical upgrades, transitional rebates and volumes. It is also required to consider the Electricity Commission's decisions regarding Transpower's application for approval of its tactical transmission upgrades.

The purpose of the additional report is to establish whether, and to what extent, Transpower's reported breaches can be accounted for by:

- Volume growth;
- The interim grid expenditure;
- Increased charges for system operator services; and
- Any other obvious factors.

In Section 2 we show that according to the most recent information provided by Transpower it breached the price path threshold by \$1,048,158

in 2003/04 and by \$26,755,121 in 2004/05 and that, on the basis of its projections, it will breach by \$43,224,644 in 2005/06.

In Section 3 we consider some adjustments to Transpower's calculation of its breaches. These relate to system operator charges in 2003/04, notional embedding charges, transitional rebates and new investment charges. The approach adopted in each case is shaped by the purpose of the analysis being to give the Commission confidence that should it embark on further enquiries, an explanation will not emerge that accounts for the breaches.

The only adjustment in this Section that is material relates to new investment. Our analysis suggests that the wording in the 2005 Gazette Notice is open to an interpretation that would allow Transpower to exclude almost all revenue it received relating to new investment contracts in 2005/06 on the grounds it do not relate to "specified services". There is absolutely nothing to indicate that Transpower has relied upon this possible interpretation; which is clearly contrary to the intentions, but we have highlighted it and used it in our analysis to alert the Commission. Of course, in a building block analysis the revenue that Transpower received from new investments in 2005/06 would not be excluded; the issue regarding interpretation of the Gazette Notice is only relevant to an analysis of whether Transpower breached the price path threshold in a legal sense.

In Section 4 we analyse the impact on the breaches of Transpower's approach to defining services resulting in it not taking advantage of volume growth. We identify two different bases for measuring volume in the context of transmission and calculate notional revenue in each year using these volume measures for HVDC and Interconnection Services. The inclusion of the impact of volume on either basis would significantly reduce the reported breaches in 2004/05 and 2005/06. Sizeable breaches are left in both years, however.

In Section 5 we consider the revenue impact of the change to the Electricity Commission contracting with Transpower to provide system operator services from March 2004. We calculate that the increase in charges for these services on a like-for-like basis was \$3.35m.

In Section 6 we consider the tactical transmission upgrades. We note that if adjustments are made so Transpower receives the benefit from increased volumes that the upgrades are intended to cater for and it arguably does not need any further adjustment to its threshold to cater for these expenses. Even if an adjustment is thought warranted then, unless the Rules are changed, it will not apply to 2004/05 as the Electricity Commission has indicated it will not approve expenditure incurred or committed before 14<sup>th</sup> April 2005. On the basis of data Transpower has provided to the Electricity Commission, the largest increase in the Interconnection Rate in 2005/06 it could justify, even if all the expenditure had been fully incurred, which it

has not, is \$1.41/kW, or 2.79%. This is just over a quarter of the actual increase in interconnection charges Transpower has imposed.

Even if the Rules were changed and prior and committed investment was approved, this would still not account for the adjusted breaches. Transpower is engaged in planning other investment projects but has not so far informed the Commission it has applied to the Electricity Commission for approval of this expenditure under the transitional provisions.

In Section 7 we consider whether there are other factors that could provide a simple explanation of the breach. We have not identified any.

## **9. Conclusion**

Transpower's breaches in 2004/05 and 2005/06 cannot be simply or reasonably explained away by the combined effects of volume increases (even when measured on the more generous MWh basis) and interim grid expenditure related to its TTUs (even when the entire planned expenditure on the projects that have been approved by the Electricity Commission, whether committed or undertaken prior to 14<sup>th</sup> April or not, is included). This is the case, even if Transpower is given the advantage of being able to exclude from its 2005/06 revenue all income relating to new investments but benchmark itself off revenue in 2003/04 that includes this category of revenue. Nor can they be explained away by any other obvious factor we have been able to identify and analyse.