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# AMENDMENT OF ELECTRICITY DISTRIBUTION PRICE REVIEW 2006-10 DETERMINATION

STATEMENT OF REASONS

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ESC 2006 Amendment to the Electricity Distribution Price Review 2006-10  
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## PREFACE

In October 2005, the Essential Services Commission (the Commission) released its Determination on the price controls that would apply to prescribed electricity distribution services from 2006 until 2010.

Under the provisions of the *Essential Services Commission Act 2001*, four of the five licensed distributors appealed the Determination. Of the 9 appeals on 13 grounds brought by these distributors, two were upheld by the Appeal Panel. As a result, the Commission has undertaken a process to amend the Determination on the Electricity Distribution Price Review 2006-10 in order to reflect the Appeal Panel's decisions.

This process commenced in May 2006 with the release of a Proposed Approach paper that set out the approach that the Commission proposed to take to the review. In July 2006, the Commission issued a draft decision which set out the Commission's position and invited comments from stakeholders prior to the Commission making its final decision on the matter.

The purpose of this paper is to set out the Commission's statement of reasons for the decisions taken in relation to the matters the Appeal Panel has remitted to the Commission.

Where necessary, the Commission has altered Volumes 1 and 2 of the Determination to reflect the amendments made consequent to the appeal process. These volumes have been re-issued and are available on the Commission's website.

Greg Wilson  
Chairperson

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In October 2005, the Essential Services Commission (the Commission) released its Determination on the price controls that would apply to prescribed electricity distribution services from 2006 until 2010.

Under the provisions of the *Essential Services Commission Act 2001*, four of the five licensed distributors appealed the Determination. Of the 9 appeals on 13 grounds brought by these distributors, two were upheld by the Appeal Panel, namely the appeals relating to:

- the peak demand forecasts used to calculate the impact of growth on Powercor's operating and maintenance expenditure.
- the Momentary Average Interruption Frequency Index (MAIFI) S-factor targets on SP AusNet's rural network.

In regard to Powercor's peak demand forecasts, the Appeal Panel directed that the Commission's Determination be set aside and remitted to the Commission for amendment following the examination and testing of certain information on unconstructed and unclassified feeders provided by Powercor.

In so far as the appeal relating to SP AusNet's rural MAIFI targets was concerned, the Appeal Panel directed the Commission to change the MAIFI S-factor target for SP AusNet's rural network from 6.4 to 8.5. Specifically, it directed that the Determination should be amended in the following manner:

- Delete the figure of 6.4 appearing as the rural MAIFI target for SP AusNet in Table 5.4 on page 106 of Volume 2 of the Determination and replace it with the figure of 8.5.
- Delete the figure of 6.4 appearing as the rural MAIFI target for SP AusNet in Table 3.4 on page 75 of Volume 1 of the Determination and replace it with the figure of 8.5.
- Replace the 2006 short rural network target of 4.0 appearing in Table 5 on page 68 of Volume 1 of the Determination as the target proposed by SP AusNet with the figure of 5.9.
- Replace the 2006 long rural network target of 10.8 appearing in Table 5 on page 68 of Volume 1 of the Determination as the target proposed by SP AusNet with the figure of 13.5.

The Appeal Panel's directions in relation to SP AusNet's rural MAIFI targets are binding on the Commission and have been given effect through the required amendments being made to Volume 1 and 2 of the Determination. As a result, the subsequent process has focussed exclusively on the evaluation of Powercor's peak demand forecasts.

This process commenced in May 2006 with the release of a Proposed Approach paper that set out the approach that the Commission proposed to take to review Powercor's peak demand forecasts in light of the Appeal Panel's directions. It also set out a number of issues that had arisen as a result of the Commission's initial analysis of the forecasts.

In July 2006, the Commission issued its draft decision in relation to Powercor's peak demand forecasts. This paper set out the Commission's position in relation to Powercor's peak demand forecasts and invited comments from stakeholders prior to the Commission making its final decision on the matter.

Powercor was the only stakeholder to provide the Commission with submissions in response to both papers.

The purpose of this paper is to set out the Commission's statement of reasons for the decisions taken in relation to Powercor's peak demand forecasts and SP AusNet's rural MAIFI S-factor targets. Chapter 2 discusses SP AusNet's rural MAIFI targets for the S-factor scheme, while chapter 3 addresses Powercor's peak demand forecasts.

Where necessary, the Commission has altered Volumes 1 and 2 of the Determination to reflect the amendments made consequent on the appeal process. These volumes have been re-issued and are available on the Commission's website.

It should be noted that what the Commission has done, in accordance with the Appeal Panel's decision, and the requirements of the *Essential Services Commission Act*, is to amend its 2005 Determination. Accordingly, while previous papers issued by the Commission (including its draft decision on this matter) may refer to this process as a re-determination, it is actually a process of amending the 2005 Determination rather than a process of making a new price determination. The terminology used in this paper reflects this position.

## 2 | SP AUSNET RURAL MAIFI TARGET

In its Determination of October 2005, the Commission extended the S-factor scheme to include service targets for the Momentary Average Interruption Frequency Index (MAIFI). To implement this decision, the Commission established targets against which each distributor's actual performance on MAIFI would be compared. This comparison will be used to calculate the S-factor for each distributor over the 2006-10 period.

The MAIFI targets set for each distributor were the same as those established for reporting and monitoring purposes,<sup>1</sup> and were as proposed by the distributor, based on historical performance. The Commission determined SP AusNet's 2006 targeted MAIFI level as 4.0 for its short rural network and 10.8 for its long rural network.

As noted in chapter 1, SP AusNet appealed the MAIFI targets the Commission had set for its rural network. SP AusNet alleged that the Commission wrongly determined that the 2006 targeted MAIFI level proposed by SP AusNet for its rural network was 6.4 (based on 4.0 for its short rural network and 10.8 for its long rural network), when in fact the targeted level was 8.5 (based on 5.9 for its short rural network and 13.5 for its long rural network).

### 2.1 Appeal Panel's decision

The Appeal Panel accepted SP AusNet's position and directed the Commission to:

*... replace the MAIFI S-factor target for [SP AusNet's] rural network of 6.4 in the Determination with the corrected figure of 8.5 supplied by [SP AusNet].*

The Appeal Panel also directed that the Determination be amended by:

*(a) deleting the figure of 6.4 appearing as the rural momentary interruption frequency for SP AusNet in Table 5.4 on page 106 of Volume 2 of the Determination and replacing it with the figure of 8.5.*

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<sup>1</sup> Essential Services Commission 2005 Statement, p. 91

*(b) deleting the figure of 6.4 appearing as the rural momentary interruption frequency for SP AusNet in Table 3.4 on page 75 of Volume 1 of the Determination and replacing it with the figure 8.5.*

*(c) amending Table 5 on page 68 of Volume 1 of the Determination as follows:*

*(i) that “5.9” be substituted for “4.0” as the 2006 targeted level as proposed by [SP AusNet] for the short rural network*

*(ii) that “13.5” be substituted for “10.8” as the 2006 targeted level as proposed by [SP AusNet] for the long rural network.*

## **2.2 Panel findings of fact**

The Appeal Panel’s statement of reasons set out the following reasons for its decision:

- The Determination clearly indicates that MAIFI targets for the 2006-10 regulatory period were to be based solely on the historical reliability performance of each distributor for the period 2001 to 2004 inclusive. Table 5 on page 68 of the Determination indicates that MAIFI targets are based on historical performance, both directly and by noting that where any higher targets were proposed by distributors they were reduced back to targets matching average historical performance. Page 82 of the Determination states that, “The Commission considers that there is sufficient historical data on which to set targets and therefore has included MAIFI in the S-factor scheme.”
- The Commission relied upon evidence ... that average historical performance for MAIFI over 2001 to 2004 inclusive was only one factor taken into account in setting MAIFI targets for the 2006-10 regulatory period. The Panel considers that this evidence is inconsistent with the Determination itself, which does not make reference to factors other than historical performance with regard to the setting of MAIFI targets.
- The Panel finds that the Commission made an error of fact by failing to replace erroneous historical averages and future targets for MAIFI with accurate averages and targets in its data for consideration of the S-factor issue.

## **2.3 Conclusions**

The Appeal Panel’s findings and decision are binding upon the Commission. Thus the Panel directives have been reflected by amending Volumes 1 and 2 of the Determination.

## 3 | POWERCOR'S PEAK DEMAND FORECASTS

In its Determination, the Commission determined a set of feeder level peak demand forecasts that were used to decide the distributors' forecast operating and maintenance expenditure. The distributors' operating and maintenance expenditure forecasts were determined by, among other things, applying a rate of change<sup>2</sup> and adjusting for the costs expected to be incurred from servicing forecast peak demand (the impact of growth).

During the price review, Powercor submitted and resubmitted its feeder level peak demand forecasts three times — in October 2004; April 2005; and May 2005. In determining Powercor's operating and maintenance expenditure forecasts, the Commission relied upon the May 2005 forecasts as these were the final set of forecasts submitted by Powercor.

Following the Determination, Powercor appealed the Commission's decision to rely on the May 2005 forecasts. Powercor claimed that, by using the May 2005 forecasts rather than the April 2005 forecasts, the Commission had underestimated the impact of growth on its operating and maintenance expenditure forecasts.

In response to the appeal, the Appeal Panel set aside the Determination and remitted it to the Commission for amendment following examination and testing of the information on unconstructed and unclassified feeders contained in the April 2005 forecasts.

### 3.1 Background

In June 2004, the Commission released its Final Framework and Approach papers that set out the approach that would be used to come to a determination on the price controls for the 2006-10 regulatory period.<sup>3</sup> The Final Framework and Approach papers included a Guidance Paper and set out information requirements

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<sup>2</sup> The rate of change is the year to year change in operating and maintenance expenditure resulting from a number of factors such as expected productivity improvements and changes in the price of distributors' inputs.

<sup>3</sup> *Final Framework and Approach: Volume 1, Guidance Paper and Final Framework and Approach: Volume 2, Information Templates*. Both papers are available on the Commission's website: [www.esc.vic.gov.au](http://www.esc.vic.gov.au).

for the distributors to include when submitting their price-service proposals in October 2004.

The information requirements comprised a series of templates that the distributors were required to populate. One of these templates was Template 10 which required the distributors to set out their peak demand forecasts for the 2004 to 2010 period.<sup>4</sup> Template 10 required that the distributors provide forecasts of peak demand at the zone substation level and the feeder level for both MW and MVA. The forecasts at the feeder level needed to be further disaggregated into CBD, urban, short rural and long rural to give the total forecast demand expected on each of these classes of feeder. An example of Template 10 is set out in table 3.1.

**Table 3.1 Template 10, peak demand forecasts**

	<i>Sum of the peak demand on each zone substation</i>		<i>Sum of the peak demand on each feeder</i>	
	(MW)	(MVA)	(MW)	(MVA)
<i>Network type</i>				
CBD				
Urban				
Rural -short				
Rural - long				
<i>Total</i>				

Powercor developed its own zone substation and feeder level peak demand forecasts. It also had the National Institute of Economic and Industry Research (NIEIR) develop forecasts at the terminal station level. The forecasts developed by Powercor were then submitted to the Commission in October 2004, in the form of Template 10, as part of its price-service proposal. This version of the template is referred to in this paper as the October 2004 template.

In response to a query from the Commission, Powercor subsequently indicated that its peak demand forecasts at the feeder level did not include demand expected on its proposed unconstructed and unclassified feeders.

At the Commission’s request, Powercor supplied a revised Template 10 that included the demand expected on its proposed unconstructed and unclassified feeders. This version of Powercor’s Template 10 is referred to in this paper as the April 2005 template and is reproduced in table 3.2.

<sup>4</sup> The distributors were submitting their forecasts in 2004 and thus forecasts for 2004 and 2005 were required because actual data for these years would not be available at that time.

Table 3.2 **Powercor's peak demand forecasts**  
April 2005 template

		<i>2004</i>	<i>2005</i>	<i>2006</i>	<i>2007</i>	<i>2008</i>	<i>2009</i>	<i>2010</i>
<b>Zone substation</b>								
MW		1845	1923	2045	2101	2155	2204	2254
MVA		2101	2188	2326	2388	2450	2504	2561
<b>Feeder</b>								
MW	CBD	0	0	0	0	0	0	0
	Urban	853	879	885	887	905	924	944
	Short rural	631	651	666	661	681	694	708
	Long rural	520	539	553	538	543	554	565
	Uncateg.	0	30	55	141	149	150	161
	<b>Total</b>	<b>2004</b>	<b>2078<sup>a</sup></b>	<b>2159</b>	<b>2228<sup>a</sup></b>	<b>2325<sup>a</sup></b>	<b>2322</b>	<b>2378</b>
MVA	CBD	0	0	0	0	0	0	0
	Urban	1011	1042	1050	1052	1074	1096	1119
	Short rural	727	750	767	761	784	799	816
	Long rural	571	591	607	591	596	608	620
	Uncateg.	0	34	60	155	164	165	178
	<b>Total</b>	<b>2309</b>	<b>2417</b>	<b>2484</b>	<b>2559</b>	<b>2618</b>	<b>2669<sup>a</sup></b>	<b>2733</b>

<sup>a</sup> Totals may not add due to rounding.

However, the subsequent submission by Powercor of another Template 10 in May 2005 (which contained the same peak demand forecasts as those in the October 2004 template) led to a degree of confusion between Powercor and the Commission as to which version of Template 10 was to be relied upon. This version of Powercor's Template 10 is referred to in this paper as the May 2005 template and is reproduced in table 3.3.

Table 3.3 **Powercor's peak demand forecasts**  
May 2005 (October 2004) template

		<i>2004</i>	<i>2005</i>	<i>2006</i>	<i>2007</i>	<i>2008</i>	<i>2009</i>	<i>2010</i>
<b>Zone substation</b>								
MW		1845	1923	2045	2101	2155	2204	2254
MVA		2101	2188	2326	2388	2450	2504	2561
<b>Feeder</b>								
MW	CBD	0	0	0	0	0	0	0
	Urban	853	891	911	923	933	952	972
	Short rural	617	648	676	676	689	702	717
	Long rural	513	539	562	555	554	566	575
	<b>Total</b>	<b>1983</b>	<b>2078</b>	<b>2150</b>	<b>2154</b>	<b>2176</b>	<b>2220</b>	<b>2264</b>
MVA	CBD	0	0	0	0	0	0	0
	Urban	1011	1057	1081	1094	1106	1129	1153
	Short rural	711	746	778	778	793	808	826
	Long rural	563	591	617	609	608	621	631
	<b>Total</b>	<b>2285</b>	<b>2394</b>	<b>2477</b>	<b>2481</b>	<b>2508</b>	<b>2559</b>	<b>2610</b>

The Commission relied upon the May 2005 template for the purposes of making its Determination, this being the version of Powercor's Template 10 which had been most recently provided to the Commission.

Powercor appealed the Commission's decision to rely on the May 2005 template. Powercor claimed that, by using the May 2005 template, the Commission had under-estimated the impact of growth on its operating and maintenance expenditure forecasts. In particular, it claimed that the use of the April 2005 template would result in an impact of growth adjustment of 1.94 per cent per annum rather than the 1.74 per cent per annum that had been calculated by the Commission.

According to Powercor, the use of the April 2005 template (which included its peak demand forecasts for proposed unconstructed and unclassified feeders) would increase the level of Powercor's forecast operating and maintenance expenditure by \$4.3 million over the 2006-10 regulatory period.

### 3.2 Appeal Panel's decision

In response to Powercor's appeal, the Appeal Panel decided to set aside the Determination and remit to the Commission for amendment following appropriate examination and testing of the information on unconstructed and unclassified feeders contained in the April 2005 template.

### 3.3 Panel's findings of fact

In setting out its reasons for this decision, the Appeal Panel made the following observations and findings:

- It was clear from the evidence that there was a degree of confusion between Powercor and the Commission as to which version of Template 10 was to be relied upon. There was considerable evidence as to the process of provision of information by Powercor, and the Commission contended that the April 2005 template had been superseded by the May 2005 template. The Panel took the view that this confusion was largely the responsibility of Powercor.
- Nevertheless, it was the view of the Panel that, under Section 55(2)(c)(iii) of the *Essential Services Commission Act*, if an error of fact is shown to have occurred it was irrelevant who or what gave rise to that error. The existence of such an error affecting a Determination, if material, required the Panel to look to the appropriate remedy.
- The evidence ultimately indicated that the Commission, in making its Determination, did not take into account the information contained in the April 2005 template. In this regard, the Appeal Panel noted that there was no clear evidence to suggest that, had the Commission's attention been directed to information as to unconstructed and unclassified feeders contained in the April 2005 template, at the time of making the Determination, it would or should have rejected it.
- The omission to take into account the April 2005 template information constituted an error of fact, although brought about by Powercor, and affects the calculation of peak load demand and consequently the growth component of operating costs.
- Due to the confusion brought about by Powercor, there had been no opportunity for the Commission to properly examine and test the information submitted in the April 2005 template in regard to the impact of unconstructed and unclassified feeders. Whilst satisfied that there had been a material error, the Panel took the view that the information on unconstructed and unclassified feeders not yet taken into account by the Commission should be the subject of appropriate examination and testing by the Commission in order to assess the degree to which it affected the impact of growth on the calculation of operating expenses.

### 3.4 Approach to the review

To avoid confusion, this chapter will discuss the October 2004 template and April 2005 template. However, it should be remembered that the forecasts in both the October 2004 template and the May 2005 template are the same, and thus the discussion could equally apply to the May 2005 template.

The Appeal Panel directed the Commission to examine and test the information in the April 2005 template in regard to unconstructed and unclassified feeders.

The Commission has analysed the April 2005 template in the degree of depth that it would have applied had it taken that template into consideration prior to making its October 2005 Determination.

The Commission's analysis has focussed on reconciling the forecasts in the April 2005 template with those in the October 2004 template. Through this analysis, the Commission has sought to assure itself that the feeder level forecasts contained in the April 2005 template did not double count the same peak demand as that included in the October 2004 template, and that the April 2005 forecasts were reasonable.<sup>5</sup>

The Commission took this approach because of the much higher feeder growth rates reflected in the April 2005 template than were evident in the October 2004 template. It was not immediately clear to the Commission why the inclusion of unclassified feeders had resulted in much higher growth rates. Growth should reflect the character of the distribution area rather than the number of feeders within this area.

However, the primary difficulty the Commission has faced in examining and testing the information in the April 2005 template is that the Commission has had little information with which to reconcile the April 2005 forecasts with the October 2004 forecasts. In the absence of sufficient information with which to reconcile the templates, the Commission has undertaken an analysis of the forecasts against the historic data that it had available to it.

Thus, in making a decision on Powercor's peak demand forecasts, the Commission has instead had to make a judgement on whether the feeder forecasts contained in the April 2005 are reasonable based on an assessment of other information that it has had available to it.

### **3.5 Draft decision**

In its draft decision, the Commission re-affirmed the use of the October 2004 template forecasts.

To make its draft decision, the Commission requested certain information of Powercor, namely.

- a list of new feeders, the expected demand on those feeders and when they would be constructed.
- a reconciliation of this information with the forecasts in the April 2005 template.
- the supporting information used to develop the October 2004 template.

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<sup>5</sup> The peak demand in an area is a function of the area's customer base and the coincident demand profiles of these customers. It is not a function of the number of feeders used to service that coincident peak demand. Thus, the inclusion of additional feeders should result in a redistribution of existing load across more feeders rather than a net increase in the load carried. The exception to this is where the additional feeders are servicing new customer loads.

Through this information, the Commission aimed to assess the impact of estimated demand on Powercor's uncategorised feeders on the aggregated demand forecasts and determine whether the information on uncategorised feeders was reasonable and consistent with the forecasts on Powercor's other feeders.

While Powercor provided a list of new feeders, the expected load that these feeders would carry, when they would be constructed and a reconciliation of these forecasts with the forecasts in the April 2005 template, it did not provide the information used to develop the October 2004 template. In this regard, Powercor informed the Commission that:

The spreadsheet underlying the October 2004 template is unable to be provided because the updated October 2004 underpinning data was saved using the same file name. Following a detailed search of email and server folders we have not uncovered a version as used for the October 2004 template.<sup>6</sup>

The Commission intended to use the information underpinning the October 2004 template to compare the demand by feeder that was incorporated in the October 2004 template with the demand estimated by feeder (including uncategorised feeders) in the April 2005 template. This would have enabled the Commission to ensure that the April 2005 template appropriately reflected the inclusion of estimated demand on uncategorised feeders rather than a revision to the total forecast.

Without information reconciling individual feeder demand to the October 2004 template, the Commission could not be confident that the forecasts of expected demand on the uncategorised feeders included in the April 2005 template did not double count the demand expected on existing feeders. While information provided supporting the April 2005 template listed the load expected on existing feeders, the Commission could not be sure that these loads had been appropriately adjusted to recognise the loads that the uncategorised feeders would carry in the future.

The Commission noted in its draft decision that a comparison of the templates showed that the forecasts of demand on Powercor's urban, short rural and long rural feeders had been adjusted from the October 2004 template to April 2005 template. For example, in 2007, the load expected on Powercor's urban feeders falls from 1057 MVA in the October 2004 template to 1042 MVA in the April 2005 template.

However, the load forecast for the uncategorised feeders is larger than the adjustment made to expected demand on the urban, short rural and long rural feeders in the April 2005 forecasts. For example, in 2007, the expected load on the urban, short rural and long rural feeder falls by 77 MVA between the October 2004

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<sup>6</sup> Powercor 2006 Letter to Dianne Shields Essential Services Commission, Response to Template 10, 9 June 2006, p. 3.

and April 2005 templates but the level of expected demand on the uncategorised feeders for that year is 155 MVA. A similar pattern is shown in other years.

In the absence of the information used to develop the October 2004 template, the Commission requested that Powercor provide information on the actual demand carried by the uncategorised feeders built in 2005. Through this information, the Commission sought to assure itself that the load forecast to be carried by these feeders had eventuated and thus it could be confident about the forecasts developed for the uncategorised feeders.

However, the information provided by Powercor demonstrated that the actual level of demand on the feeders constructed in 2005 was greater than that expected.<sup>7</sup> At the same time, the actual level of load carried by all feeders in 2005 was less than the total forecast of demand for that year in both the October 2004 and April 2005 templates.<sup>8</sup>

As a result, the Commission undertook further analysis of the feeder level forecasts using the information that it had available to it at the time. This analysis compared the growth rates underlying both the October 2004 and April 2005 templates with the historic growth rates experienced in recent years. This demonstrated that:

- The growth rate in Powercor's actual peak demand at the feeder level between 2001 and 2004 was 0.63 per cent.<sup>9</sup>
- In comparison:
  - the 2005 to 2010 growth rate based on the April 2005 template is 2.49 per cent and the 2006 to 2010 growth rate is 2.42 per cent.
  - the 2005 to 2010 growth rate based on the October 2004 template is 1.74 per cent and the 2006 to 2010 growth rate is 1.32 per cent.
- The actual growth in peak demand at the zone substation level was 1.07 per cent over the 2001 to 2004 period, and this is lower than the growth rates underlying the zone substation forecasts set out in both templates — 3.20 per cent for 2005-10 and 2.44 per cent for 2006-10.

Based on this analysis, the Commission was concerned that, given that the forecasts contained in the April 2005 template were characterised by higher growth rates compared to history, the demand identified for uncategorised feeders might also be too high.

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<sup>7</sup> Powercor built three of the four feeders forecast to be built in 2005 but brought forward construction of four other feeders from 2006 and 2007 (Letter to Craig Madden Essential Services Commission, Response on Template 10, 11 July 2006, p. 1).

<sup>8</sup> Powercor's April 2005 template did not contain forecasts for uncategorised feeders in the 2004 year. Therefore, the actual versus forecast for 2004 has not been compared.

<sup>9</sup> Taking into the account the actual level of peak demand in 2005, the growth rate in Powercor's actual peak demand between 2001 and 2005 is 0.79 per cent.

Thus, in its draft decision, the Commission considered that it could not rely on the forecasts of peak demand included in the April 2005 template (which included demand on the uncategorised feeders) to be a reasonable estimate of demand for the 2006-10 regulatory period.

### **3.6 Responses to the draft decision**

Powercor was the only stakeholder to respond to the Commission's draft decision. Apart from contending that the draft decision did not properly give effect to the Appeal Panel's decision, Powercor's response focussed on the three following areas:

- reconciliation of the October 2004 and April 2005 templates
- comparison of forecasts and actual demand
- consistency with the other distributors.

In September 2006, the Commission wrote to Powercor responding to each of the issues raised by Powercor in its submission and requested from Powercor further information to support its April 2005 template.<sup>10</sup> This letter provided Powercor with a further opportunity to comment on the Commission's draft decision prior to the matter being finally decided.

#### **3.6.1 Reconciliation of the October 2004 and April 2005 templates**

In its submission in response to the Commission's draft decision, Powercor noted that the Commission had sought the data supporting the October 2004 template but that this data had been overwritten. Powercor commented that, while it understood that it may have been useful to reconcile the two templates, it should not be fundamental to the Commission's deliberations.

Powercor also commented that, even had this information been available, an analysis of this data would not have resulted in a reconciliation of the two templates as the differences between them were not solely related to the inclusion of the uncategorised and unconstructed feeders. Other differences were the result of:

- updating of the forecasts based on more complete 2004 feeder data
- correction for load transfers between existing feeders
- correction of transcription errors
- adjustment for load management initiatives.

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<sup>10</sup> Letter from Dianne Shields (ESC) to Richard Gross (Powercor), 18 September 2006.

In the Commission's view, this information appeared to contradict statements that were made by Powercor at the time of the appeal and appeared contrary to the understanding that the Appeal Panel had of the issue. In its decision, the Appeal Panel was of the view that "the higher growth rate in the April 2005 template as proposed by [Powercor] was based on the inclusion of unconstructed and unclassified feeders" (par.43). In cross examination, a representative of Powercor stated to the Appeal Panel that "... there is a slight difference between the revised [template] and the initial one and that was basically because the final peak demand figures for 2004 were available ..." (T273, L.18-21).

The Commission indicated to Powercor that it was not clear from the appeal process that Powercor had informed the Panel that there were other changes relating to:

- correction for load transfers between existing feeders
- correction of transcription errors
- adjustment for load management initiatives.

In its letter of September 2006, the Commission indicated that it wished to understand the variation between the October 2004 and April 2005 templates. This would assist it to evaluate whether the changes that had been made to accommodate unclassified feeder demand were appropriate and, in particular, did not entail any duplication between the forecast demand for the various types of feeders. It was important to the Commission's understanding of the differences between these two templates that the effect of each of the changes referred to above be clearly identified and isolated from the inclusion of the unclassified feeder demand.

Therefore, the Commission requested that Powercor identify and demonstrate how each of the factors listed above caused changes between the October 2004 and April 2005 templates. The Commission indicated that the changes resulting from each of these should be clearly isolated and quantified, and that Powercor should demonstrate that the information underlying these changes was available at the time the adjustments were made and the templates developed.

Although it was noted that the spreadsheet used to develop the October 2004 template was overwritten, the Commission expected that Powercor would be able to provide the source information from its local planning engineers that was used to develop the October 2004 and April 2005 templates.

In response, Powercor stated that:

*The allegation Powercor's reply to the Draft Re-determination references for the first time the presence of errors in the original template in addition to the absence of un-classified and un-constructed feeders is incorrect. The extract from the Appeal testimony presented in the Commission's 18 September 2006 correspondence attests to their [sic] being other differences between the original and revised template due to further data being available. Further, Powercor identified to the Commission in its submission of 9 June 2006 changes were made for reasons other than un-constructed and un-classified feeders.*

*A reconciliation of the original and revised templates has again been requested. As the Commission is aware the spreadsheets that supported the original template have been overwritten. The source data is contained within a set of active planning spreadsheets which change throughout the year as further intelligence and actual demand data is gathered. The local planning information incorporated in the original templates was captured around March/April 2004. As such, the information in the 31 December 2004 spreadsheets is not the same as that at March/April 2004 from which the original template was prepared.<sup>11</sup>*

While the Commission understood that the spreadsheet underlying the October 2004 template had been overwritten, the Commission did expect that Powercor would be able to re-produce the information that was used to construct that spreadsheet. However, as appears from the above, this is not the case. Powercor has informed the Commission that this information is also not available. As a result, the Commission has no information available to it to assess whether the changes that were made to the October 2004 template to develop the April 2005 forecasts were reasonable.

In its response to the Commission's September 2006 letter, Powercor also claimed that the Commission had incorrectly focussed on the October 2004 template:

*It is disappointing the Commission continues to use as a starting point for its analysis the original template. The information contained in the original template has been identified by the Commission as erroneous, a conclusion freely admitted by Powercor. There is no useful purpose in the Commission continuing to try interpret [sic] incorrect information. The approach adopted by the Commission should be based on consideration of the revised template utilising the same analysis it applied to other distributor's [sic] feeder demand forecasts.<sup>12</sup>*

As stated above, the Commission sought information on the October 2004 template in order to assess the forecasts contained in the April 2005 template. This is because the Commission needed to assure itself that the feeder level forecasts contained in the April 2005 template did not double count peak demand. It could only gain this assurance by understanding the changes that had been made between the October 2004 and April 2005 templates. Without this information, it has been very difficult for the Commission to assess whether the forecasts in the April 2005 template are reasonable.

In its submission to the Commission's draft decision, Powercor stated that:

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<sup>11</sup> Letter from Richard Gross (Powercor) to Greg Wilson (ESC), 10 October 2006.

<sup>12</sup> Letter from Richard Gross (Powercor) to Greg Wilson (ESC), 10 October 2006.

*What is demonstrable from a comparison of the two templates is demand for each existing class of feeder has decreased in the revised template strongly evidencing the transference of load from existing to new feeders.<sup>13</sup>*

In its draft decision, the Commission recognised that demand had transferred from existing feeders to uncategorised feeders:

*By comparing the forecasts in the two templates, it is observable that the forecasts of demand on Powercor's urban, short rural and long rural feeders have been adjusted from the October 2004 template to April 2005 template.<sup>14</sup>*

However, the Commission also noted that the adjustment made to expected demand on existing feeders was less than the level of demand forecast on the uncategorised feeders.

*... the load forecast for the uncategorised feeders is larger than the adjustment made to expected demand on the urban, short rural and long feeders in the April 2005 forecasts. For example, in 2007, the expected load on the urban, short rural and long rural feeder falls by 77 MVA between the October 2004 and April 2005 templates but the level of expected demand on the uncategorised feeders for that year is 155 MVA. A similar pattern is shown in other years.<sup>15</sup>*

Powercor did not provide the Commission with an explanation of this observation in its submission. Thus, in its letter of September 2006, the Commission requested that Powercor provide a reconciliation of the shifting of load from existing feeders to new feeders with the other four changes (identified above) made to formulate the April 2005 template. Powercor was requested to demonstrate that it had used information that was available at the time the templates were developed.

While Powercor did not provide this reconciliation, it commented that:

*It should also be noted that whilst the original template did not incorporate un-constructed and un-classified feeders, it did incorporate some load transfer from existing feeders. The extent to which load reduction was incorporated was dependent on the assumptions made by the local planning engineer. Consequently*

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<sup>13</sup> Letter from Richard Gross (Powercor) to Greg Wilson (ESC), 11 August 2006, p. 3.

<sup>14</sup> ESC 2006 Draft Re-determination, p. 4

<sup>15</sup> ESC 2006 Draft Re-determination, p. 4

*the type of comparisons the Commission is attempting to make with regard to 2007 load transfers is not possible.*<sup>16</sup>

The primary difficulty the Commission has faced in examining and testing the information in the April 2005 template is that the Commission has had little information with which to undertake this assessment.

The Commission has sought to understand what changes Powercor made to its forecasts between the October 2004 template and April 2005 template to assure itself that Powercor had appropriately adjusted growth across all its feeders in its April 2005 template to account for the inclusion of the peak demand on its uncategorised feeders. Through this analysis, the Commission aimed to assure itself that the April 2005 forecasts were accurate and did not double count growth.

However, the absence of the information used to formulate the October 2004 template has meant that the Commission has not been able to undertake this analysis. As a result, the Commission has no assurance that the April 2005 forecasts are accurate and do not double count growth.

### **3.6.2 Comparison of forecasts and actual demand**

In the absence of sufficient information with which to reconcile the October 2004 and April 2005 templates, the Commission undertook an analysis of the forecasts against the historic data that it had available to it. In its draft decision, the Commission considered that it could not rely on the April 2005 forecasts due to the high growth rate underlying these forecasts compared with the history.

In its submission in response to the Commission's draft decision, the principal points that Powercor made about the comparisons that the Commission had made between forecast and actual demand related to the following:

- The use of weather corrected data.
- The incorporation into forecasts of the National Institute of Economic and Industry Research's (NIEIR's) economic fundamentals.
- Consistency between terminal station, zone substation and feeder forecasts.
- Powercor's assertion that the Commission has assumed that economic fundamentals would remain unchanged.
- The Commission's acceptance of Powercor's forecasts in the 2005 Determination.
- The Commission's 2005 Operational Audit.

Each of these points is addressed in turn.

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<sup>16</sup> Letter from Richard Gross (Powercor) to Greg Wilson (ESC), 10 October 2006.

### *3.5.2.1 Weather corrected data*

In its submission in response to the Commission draft decision, Powercor noted that the actual peak demand that the Commission was relying on had not been weather corrected.

In its letter of September 2006, the Commission accepted that historic data should be weather corrected to appropriately compare history with forecasts. However, it noted that Powercor had only provided weather corrected data for 2004 and 2005 at the feeder level.

Therefore, the Commission requested that Powercor provide weather corrected data for the years 2001 to 2005 for feeder level, zone substation level and terminal station level (summer non-coincident 50%POE for the Powercor area) to enable an appropriate comparison to be made. Powercor was also requested to provide the methodology and spreadsheets used to undertake the weather correction.

In response, Powercor provided weather corrected data for 2001 to 2005 at the feeder and zone substation level. It did not provide weather corrected data at the terminal station level, nor did Powercor indicate why this information had not been supplied. In addition, Powercor did not provide the spreadsheets used to undertake the weather correction but noted that it had explained the methodology it used in an attachment to its submission in response to the Commission's draft decision.

The Commission has re-calculated the growth rates it set out in its draft decision using the weather corrected data made available by Powercor. This re-calculation resulted in the following:

- Growth in actual peak demand at the feeder level between 2001 and 2004 was 0.76 per cent.
- In comparison:
  - the 2005 to 2010 growth rate based on the April 2005 template is 2.49 per cent and the 2006 to 2010 growth rate is 2.42 per cent
  - the 2005-10 growth rate based on the October 2004 template is 1.74 per cent and the 2006 to 2010 growth rate is 1.32 per cent.

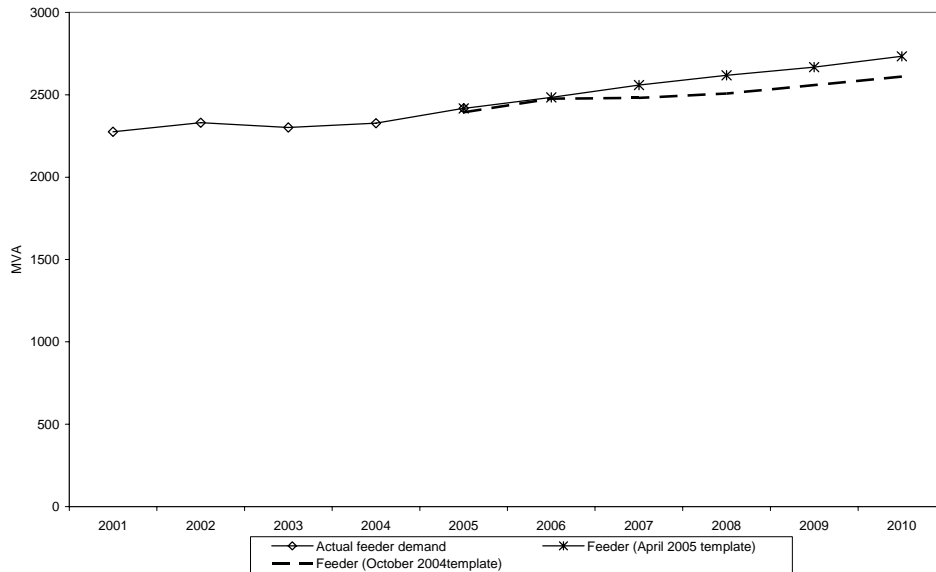
The Commission has revised the figure it presented in its draft decision comparing the feeder level forecasts against the actual feeder level peak demand experienced (see figure 3.1). This revised figure incorporates the weather corrected data provided by Powercor.

The Commission also recalculated the growth rates at the zone substation level. This recalculation shows that growth in peak demand at the zone substation level between 2001 and 2004 was 1.22 per cent. This compares with a growth rate of 3.20 per cent for 2005-10 and 2.44 per cent for 2006 to 2010.

The Commission has also revised the figure it presented in the Commission's draft decision comparing the zone substation level forecasts against the actual zone substation level peak demand experienced (see figure 3.2). This revised figure incorporates the weather corrected data provided by Powercor.

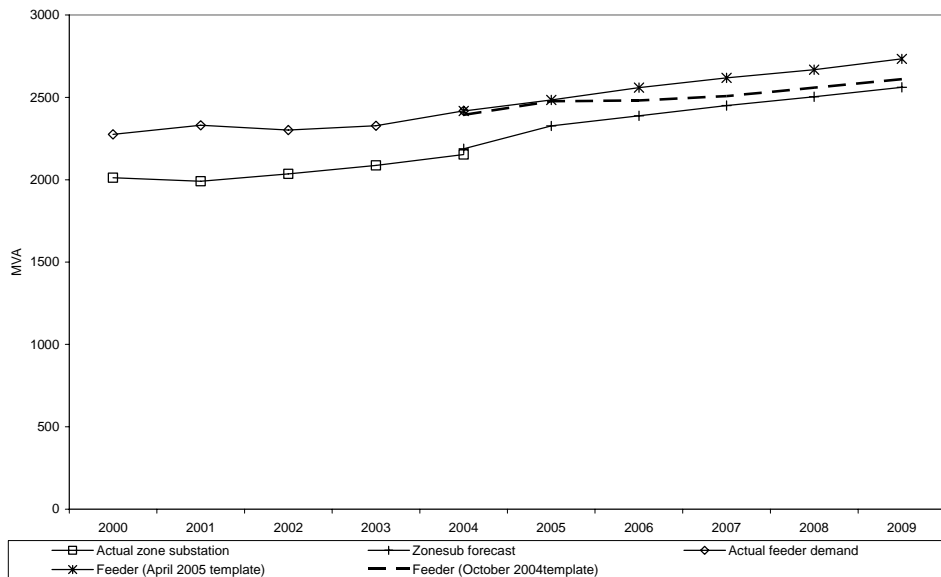
Therefore, the Commission remains of the view it expressed in its draft decision that the forecasts contained in the April 2005 template are characterised by high growth rates compared to history.

Figure 3.1 **Powercor peak demand, feeder level**  
2001-05 historic and 2005-10 forecast



Data source: Powercor Australia Pty Ltd; Powercor's October 2004 and April 2005 templates.

Figure 3.2 **Powercor peak demand, zone substation and feeder level**  
2001-05 historic and 2005-10 forecast



Data source: Powercor Australia Pty Ltd; Powercor's October 2004 and April 2005 templates.

### 3.5.2.2 NIEIR's economic fundamentals

In response to the Commission's draft decision, Powercor stated that its forecasts for demand, energy, customer numbers and connections were built up based on a set of economic fundamentals provided by NIEIR. Powercor indicated that these economic fundamentals also underpin the forecasts prepared by other distributors and VENCORP.

In its letter of September 2006, the Commission indicated that it was aware that Powercor reflected the growth trends predicted by NIEIR at the terminal station level in its forecasts. The Commission noted that, in this manner, the growth trends underlying Powercor's forecasts may reflect the economic assumptions NIEIR has used to develop its terminal station level forecasts.

The Commission also noted that it was aware that Powercor's forecasts incorporated a number of other factors, including historic load patterns and localised knowledge of expected demand conditions. In its price-service proposal, Powercor stated that:

*Powercor Australia prepares peak demand forecasts based on its detailed understanding of historic load patterns across the network and expected drivers of future growth in demand at different points in the network. These demand forecasts, together with information on known developments at specific locations in the network, form the basis for planning the required network augmentation and reinforcement.*

...

*Powercor Australia commissioned NIEIR to prepare peak demand forecasts at each of the upstream points where the Powercor Australia network is connected to the transmission network. The purpose of this analysis was to independently verify the validity of the Powercor Australia demand forecasts out to 2010. The underlying NIEIR economic forecasts ... were utilised in conjunction with Powercor Australia local knowledge to develop growth forecasts which reflect the growth trends predicted by NIEIR along with region specific conditions and load management initiatives.<sup>17</sup>*

In its submission of 9 June 2006, Powercor also commented that:

*NIEIR maximum demand data is used only as one of several inputs to validating our zone substation forecasts by terminal station area.<sup>18</sup>*

This information suggested to the Commission that a range of factors other than NIEIR's economic fundamentals underpinned or affected Powercor's peak demand forecasts.

In its September 2006 correspondence, the Commission requested that Powercor provide information on how NIEIR's economic fundamentals had been incorporated into the feeder level forecasts for both the October 2004 and the April 2005 templates. Powercor was requested to set out how NIEIR's economic fundamentals influenced the feeder level forecasts and what impact the other factors, such as historic load patterns and local knowledge, had on those forecasts. Powercor was required to show that the information it provided was available at the time the templates were developed.

In response, Powercor commented that:

*There is no question there are factors other than economic fundamentals considered in deriving feeder demand forecasts. However economic fundamentals are an important consideration. The different voltage levels within electricity distribution networks are physically interconnected. That is, there must be a correlation between demand forecasts at each voltage level within the network. Because of this, in preparing the revised template Powercor verified the feeder demand forecasts against the zone substation demand forecasts. For the purposes of the 2006-10 EDPR, reconciliation was undertaken by reference to the relative*

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<sup>17</sup> Powercor 2004 Price Service Proposal, pp. 60-61

<sup>18</sup> Powercor Letter to Dianne Shields, 9 June 2006, p. 4.

*growth gradients at the feeder and zone substation network levels. To the extent the respective gradients were consistent, the respective growth projections were considered to be appropriate.*

*Prudent network management requires careful consideration of zone substation and terminal station demand forecasts. As a consequence, considerable time is invested in deriving these forecasts and reconciling them to each other. This process includes ensuring consistency between NIEIR's demand forecasts and those derived within the business. It is through this process that economic fundamentals get incorporated into Powercor's zone substation demand forecasts. By implication, when the feeder and zone substation demand forecasts were compared for the 2006-10 EDPR, the impact of economic fundamentals was incorporated into the feeder demand forecasts.<sup>19</sup>*

While there should be a correlation between demand forecasts at each voltage level, the level of correlation between the zone substation and feeder level forecasts in the April 2005 template is higher than has occurred in the past (0.99 compared with 0.82 in the past).

However, as will be discussed in section 3.5.2.3, historically peak demand growth at the different network levels has not been the same. Further, Powercor has also provided information to the Commission that peak demand at the feeder level might grow at a different rate than at the zone substation level as a result of other factors that are taken into account in developing feeder forecasts.

As noted above, in its response to the Commission's draft decision, Powercor indicated that NIEIR's economic fundamentals also underpin the forecasts prepared by other distributors and VENCORP.

In its letter of September 2006, the Commission queried the extent to which NIEIR's economic fundamentals underpin the feeder level forecasts of the other distributors. In reviewing the methodology that these other distributors (excluding CitiPower) used to develop their feeder level forecasts, the Commission found the following:

- AGLE developed its own modelling which took account of known load changes, economic trends, government planning schemes and historic peak demand. The modelling builds up demand forecasts from a feeder level to a zone substation level and finally to a terminal station level.<sup>20</sup>

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<sup>19</sup> Letter from Richard Gross (Powercor) to Greg Wilson (ESC), 10 October 2006.

<sup>20</sup> AGLE 2004 Price Service Proposal, chapter 4

- SP AusNet forecast demand at the feeder level taking account of air conditioning penetration, new residential customers, known industrial load increase and transfer availability between zone substations and feeder.<sup>21</sup>
- United Energy did not specify the assumptions it used to develop its feeder forecasts.

The Commission indicated that it did not consider that Powercor had provided any information that would lead the Commission to accept Powercor's characterisation of what the other distributors (excluding CitiPower)<sup>22</sup> had done to forecast at the feeder level in preference to the information previously provided to and considered by the Commission. Therefore, Powercor's assertion as to this matter was not accepted by the Commission.

The Commission also noted that it was aware that NIEIR's economic fundamentals are used to develop terminal station level forecasts for VENCORP as VENCORP engages NIEIR to prepare growth forecasts on its behalf. However, the Commission went on to note that, as far as it was aware, VENCORP did not engage NIEIR to develop feeder level forecasts and nor did it produce its own set of feeder level forecasts. In contrast, in the 2005 Determination, the Commission determined a set of feeder level forecasts, not terminal station level forecasts.

In response to the Commission's September 2006 letter, Powercor made the following comment:

*The Commission states it does not believe other distributors have incorporated economic fundamentals in determining feeder demand forecasts. This statement contrasts with the statement of AGL that indicates it considers 'economic trends' and 'government planning schemes' and SP AusNet's reference to new residential customers which are all factors likely to be derived from NIEIR's analysis. It is also noted SP AusNet have referred to air conditioning penetration data which is only available through NIEIR. In case of United Energy, the Commission is simply unaware of how they determine feeder demand forecasts.<sup>23</sup>*

The Commission did not state in its letter that it did not believe that the other distributors had incorporated economic fundamentals in determining feeder level forecasts. Rather, it was unclear to the Commission the weight that was given to these economic fundamentals in developing feeder level forecasts relative to the other factors that these distributors had factored into their modelling.

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<sup>21</sup> SP AusNet 2004 Price-Service Proposal, chapter 5

<sup>22</sup> CitiPower and Powercor are both owned by the same parent company and thus use very similar methodologies to forecast demand.

<sup>23</sup> Letter from Richard Gross (Powercor) to Greg Wilson (ESC), 10 October 2006.

### 3.5.2.3 Consistency between forecasts

In its submission in response to the Commission's draft decision, Powercor stated that the April 2005 feeder forecasts are "totally consistent" with the zone substation and terminal station forecasts.

In its letter of September 2006, the Commission noted that NIEIR's economic fundamentals underpin VENCORP's forecasts. Therefore, it was not surprising that (to the extent they incorporate NIEIR's economic fundamentals) Powercor's zone substation forecasts and VENCORP's terminal station forecasts were consistent.

The Commission also observed that peak demand growth at the different network levels had not been consistent in the past.

- The actual growth in peak demand in Powercor's network over the 2001 to 2003 period had been 1.46 per cent at the terminal station level.<sup>24</sup> This compared with 0.56 per cent at the zone substation level and 0.57 per cent at the feeder level over the 2001-03 period.
- Actual growth in peak demand at the zone substation level has been 1.22 per cent over the 2001-04 period compared with 0.76 per cent at the feeder level over the same period.

In addition, the Commission noted that the rate of demand growth at the feeder level had been lower than the rate of demand growth at either the zone substation level or terminal station level.

Powercor itself has provided information to the Commission that suggests that peak demand at the feeder level might grow at a different rate from demand at the zone substation level.

First, Powercor indicated to the Commission that it had feeders that were shifting from a winter to a summer peak demand and that this would result in increased zone substation peak demand growth rates without a corresponding or subsequent increase in feeder demand growth rates. This was due to the fact that the summer feeder load increase may not exceed that of the winter peak and therefore feeder maximum demand remains constant.<sup>25</sup>

Second, in response to the Proposed Approach paper, Powercor noted that relative loads at the feeder and zone substation level are affected by factors that include:

- rebalancing of load between feeders
- load management on the feeder

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<sup>24</sup> Taken from NIEIR 2004 peak demand report

<sup>25</sup> Email to Marianne Lourey from Brent Cleeve 7 April 2005.

- increasing air-conditioning load overtaking off peak heating and hot water demands
- reduction in off-peak storage heating in new areas of reticulated gas
- new customers with different profiles being added to the feeder.<sup>26</sup>

Third, Powercor informed the Commission that its zone substation forecasts are derived using a different methodology from the feeder level forecasts. Powercor noted that the zone substation forecasts are derived using a predominantly top-down approach. By contrast, feeder level load forecasts are built up by local planning engineers based on local information and information at the zone substation level is not used to formulate feeder level forecasts.<sup>27</sup>

All of this information suggests that the growth rates at the feeder level and the zone substation need not necessarily be consistent.

However, in its September letter, the Commission requested that Powercor provide information that demonstrated its contention that growth at the feeder level should be consistent with that at the zone substation and terminal station levels. This information was requested to understand why growth at the feeder level should be 'totally consistent' with growth at other network levels. In doing so, Powercor was required to reconcile this information with the statements and information that Powercor had provided to date that suggested that peak demand at the feeder level may grow at a different rate from demand at the zone substation level.

In response to the Commission's letter, Powercor commented that:

*The Commission also states that demand forecasts at various levels of the network need not be consistent. Over the period 2001-05 the average growth rate for temperature corrected feeder demand has been 1.53 per cent per annum. Over the same period average growth in zone substation demand has been 1.69 per cent per annum. The close relationship between the two growth factors is further evidenced in the correlation coefficient for temperature corrected feeder and zone substation demand being 0.82. In the case of non-temperature corrected data over the same period the correlation coefficient rises to 0.85. Further at the 95 percent confidence interval, actual zone substation demand is shown to be significant in explaining variations in actual feeder demand. Powercor maintains that there is a strong correlation between the feeder and zone substation demand.<sup>28</sup>*

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<sup>26</sup> Powercor, Letter to Dianne Shields 9 June 2006, p. 3

<sup>27</sup> Powercor, Letter to Dianne Shields 9 June 2006, p. 3

<sup>28</sup> Letter from Richard Gross (Powercor) to Greg Wilson (ESC), 10 October 2006.

In further correspondence, Powercor also noted that:

*Feeder and zone substation demand are related. This is demonstrated through a correlation analysis presented by Powercor over the period 2001-05 that shows zone substation demand explains 82 per cent of the variation in feeder demand. This conclusion is to be expected given the interconnected nature of the distribution system. It is noted that the Commission agreed with Powercor that there must be a correlation between feeder and zone substation demand. It must be remembered that Powercor's zone substation forecasts have not changed.<sup>29</sup>*

The Commission notes the correlation between weather corrected feeder and zone substation demand (0.82). The correlation coefficient is confirmed by the Commission's own calculations and suggests that there could be a close relationship between growth at the zone substation level and feeder level.

However, as noted earlier, the Commission has calculated the correlations between the feeder level forecasts in the April 2005 template with the zone substation forecasts. This calculation shows that the correlation between the zone substation forecasts and feeder level forecasts in the April 2005 template is 0.99.

The Commission notes that the correlation between the forecasts in the October 2004 template and the zone substation (0.98) is also much higher than in the past (0.82).

Due to the difference in the correlation rates underlying the forecasts and those that Powercor has experienced in the past, the correlation rate set out by Powercor does not assist the Commission in understanding why growth at the feeder level should be the same as that at the zone substation and terminal station levels.

#### *3.5.2.4 Assumption economic fundamentals will remain unchanged*

In its submission to the Draft Re-determination, Powercor stated that the Commission cannot assume the economic fundamentals that underpin demand will remain unchanged in the next regulatory period. Powercor then noted that, in its 2006 Electricity Annual Planning Report, VENCORP's demand forecasts are influenced by:

- future population growth
- household disposable income
- future energy prices
- major private and government projects
- energy conservation measures

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<sup>29</sup> Email from Richard Gross (Powercor) to Greg Wilson (ESC), 17 October 2006.

- projected penetration of appliances, in particular air conditioning units and air conditioning capacity
- state and Federal Government energy policies or proposals, and
- forecast non-scheduled generation.

Powercor also noted that these issues were debated in depth in NIEIR's 2004 peak demand reports submitted as part of the 2006-10 EDPR, and that the Commission accepted the impact these issues had on demand in accepting the zone substation demand forecasts for each distributor as part of the 2006-10 EDPR. In addition, Powercor stated that the Commission accepted the impact these fundamental economic drivers had on energy, customer numbers and connections.

In its letter of September 2006, the Commission noted that it did not accept the distributors' forecasts at the zone substation level. Rather, the Commission determined a set of feeder level forecasts based upon those developed by the distributors.<sup>30</sup>

In response to this letter, Powercor stated that:

*The Commission states it has not accepted Powercor's zone substation demand forecasts but rather its feeder demand forecasts. Its evidence for this is the information presented in the mislabelled Table 4.3 in the Final Decision. The Final Decision makes it extremely difficult to determine what, if any, demand forecasts the Commission considered. However, it would be surprising if the Commission did not consider zone substation demand forecasts in arriving at its conclusions regarding growth related capital expenditure. Further, zone substation demand forecasts were clearly contemplated by Wilson Cook in deriving the expenditure cap presented in Table 7.3 of the Final Decision.<sup>31</sup>*

Whether or not the Commission made a determination on zone substation forecasts is irrelevant to the current process.

The Commission has been required by the Appeal Panel to assess the feeder level forecasts contained in the April 2005 template. While the Commission is aware that the zone substation forecasts did not change between the October 2004 and April 2005 templates, as has been discussed, Powercor has provided information to the Commission that suggests that the feeder level growth rates need not necessarily be the same as those at the zone substation level.

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<sup>30</sup> As Powercor pointed out to the Appeal Panel, Table 4.3 in the Final Decision has an incorrect title. Table 4.3 sets out feeder level forecasts and not zone substation forecasts as the title of the table suggests.

<sup>31</sup> Letter from Richard Gross (Powercor) to Greg Wilson (ESC), 10 October 2006.

It should also be noted that the October 2004 forecasts provide for much higher rates of future growth in peak demand than Powercor has experienced in the past (section 3.5.2.1). Thus, by re-affirming the October 2004 forecasts in its draft decision, the Commission had not assumed that economic fundamentals will remain unchanged in the future.

In its September 2006 letter, the Commission also noted that it did not accept the impact of the issues debated in the NIEIR reports on demand. In the 2005 Determination, the Commission raised concerns over the economic assumptions that NIEIR had used to formulate energy consumption, customer number and connections forecasts.

In particular, the Commission noted that it was often not clear what assumptions underlay NIEIR's economic forecasts or how the assumptions varied between each of NIEIR forecast scenarios:

*While a summary of the main economic forecasts used to develop the electricity forecasts is provided in the NIEIR reports, there does not appear to be a similar description of the assumptions that were used to develop these economic forecasts. ... It does not appear the assumptions underlying each [forecast] scenario are documented, nor how the assumptions vary from one [forecast] scenario to another. Instead an understanding of the assumptions requires investigation of the values inputted into the model and investigation of how the assumptions made impact upon the outputs produced.<sup>32</sup>*

The Commission also noted that NIEIR's assumptions regarding Victorian GSP, the impact of federal and state energy conservation policy and the downside risk to manufacturing appeared to be inconsistent with alternative information available to the Commission.

In response to the Commission's September 2006 letter, Powercor stated:

*Despite what is stated in the 18 September 2006 correspondence, the Commission did accept NIEIR's forecasts. It may not have accepted the 'base case' as proposed by distributors but it has accepted the 'alternate base case' as prepared by NIEIR. The growth projections for customers and energy clearly reflect the 'alternate base case' as it applies to Powercor. By implication the Commission must have satisfied itself the economic fundamentals that underpin the 'alternative base case' match the Commission's expectations. The economic fundamentals that underpin the 'alternate base case' are reflected in NIEIR's demand forecasts.*

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<sup>32</sup> ESC 2005 Final Decision, p. 138-139

*Thus the Commission can not state it did not rely on NIEIR in arriving at its Final Decision.<sup>33</sup>*

While the Commission relied on NIEIR's 'alternative base case' forecasts, as it stated in the 2005 Determination, the Commission's preferred approach would have been to make a downward adjustment to historic growth rates:

*Nevertheless, the Commission must come to a view on the forecasts and considers that it would be difficult to rely on a simplistic methodology that considers a downward adjustment to historic growth rates, even though, in the Commission's view, such an adjustment would be more reflective of the likely outcome on growth.<sup>34</sup>*

This was due to the concerns that the Commission had in regard to NIEIR's forecasting methodology.

In correspondence received from Powercor on 17 October 2006, Powercor commented that:

*Any review of template 10 must be consistent with already agreed forecasts. The ESC on page 149 of the Final Decision acknowledged it had adopted forecasts that use NIEIR's alternative base case scenario. This includes forecasts that cover energy, customers and connections. The consistent application of the NIEIR alternative base case scenario requires that the ESC also accept the demand forecasts that underlie the NIEIR alternative base case scenario. It should also be noted that ESC in setting the capital expenditure cap adopted the consultants Wilson Cook estimates of capex which was based on the zone sub [sic] demand projections.<sup>35</sup>*

It is difficult to independently determine which template was developed using NIEIR's alternative base case. The October 2004 template was submitted with commentary from Powercor that:

*Powercor Australia commissioned NIEIR to prepare peak demand forecasts at each of the upstream points where the Powercor Australia network is connected to the transmission network. The purpose of this analysis was to independently verify the validity of the Powercor Australia demand forecasts out to 2010. The underlying NIEIR economic forecasts ... were utilised in*

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<sup>33</sup> Letter from Richard Gross (Powercor) to Greg Wilson (ESC), 10 October 2006.

<sup>34</sup> ESC 2005 Final decision, p. 149.

<sup>35</sup> Email from Richard Gross (Powercor) to Greg Wilson (ESC), 17 October 2006.

*conjunction with Powercor Australia local knowledge to develop growth forecasts which reflect the growth trends predicted by NIEIR along with region specific conditions and load management initiatives.*<sup>36</sup>

However, Powercor is now implying that the April 2005 template is what should be accepted as the NIEIR alternative base case.

It should be noted that Powercor did not request NIEIR to update its terminal station forecasts when Powercor adjusted the feeder level forecasts in the April 2005 template. In other words, both templates were submitted to the Commission using the same NIEIR economic fundamentals and terminal station forecasts.

It is also important to note that, as Powercor points out, the zone substation forecasts did not change between the October 2004 and April 2005 templates. Thus, the zone substation forecasts in both templates are reflective of NIEIR's alternative base case. The only difference between the two templates was the adjustments that Powercor made to its feeder level forecasts.

It is the Commission's view that both templates were developed using NIEIR's alternative base case.

#### *3.5.2.5 Commission's acceptance of Powercor's forecasts in the EDPR*

In its submission in response to the Commission's draft decision, Powercor commented that the Commission accepted Powercor's forecasts for zone substation demand, terminal station demand, customer numbers and energy in the 2006-10 EDPR, but that the Commission's draft decision had ignored these forecasts and applied a different methodology. Powercor also suggested that it was not open to the Commission to reject forecasts that have already been accepted as part of the 2005 Determination.

The Appeal Panel has remitted the 2005 Determination to the Commission for amendment following appropriate examination and testing of the information on unconstructed and unclassified feeders contained in the April 2005 template. As a result of this direction, the Commission considers that it is required to fully examine and test that information, which entails the evaluation of the relevant forecasts and the assumptions underlying them.

In its letter of September 2006, the Commission noted that it did not accept Powercor's forecasts of customer numbers and energy.

*The Commission has not accepted the forecasts of customer numbers and energy consumption submitted by the distributors. The distributors' forecasts factor in assumptions on Victorian Gross State Product, energy conservation policies and downside risks to*

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<sup>36</sup> Powercor 2004 Price Service Proposal, pp. 60-61

*Victorian manufacturing activity that appear overly conservative when compared to other available sources of information.<sup>37</sup>*

All of the distributors, including Powercor, submitted forecasts which they described as being based upon NIEIR's Base Case scenario, although the Commission noted that there was a high level of inconsistency between NIEIR's forecasts and those submitted by the distributors.

*To inform [the Commission's] analysis, the NIEIR reports submitted in support of the NIEIR forecasts were reviewed, the consistency of the distributors forecasts with the forecasts set out by NIEIR in these was assessed and both NIEIR's and the distributors' forecasts (where these differed) were compared with the historic data that were available.*

*This analysis confirmed that the forecasts provided by the distributors to the Commission were not always consistent with the forecasts prepared by NIEIR. Some distributors had different numbers, some had different growth rates and others had both different numbers and different growth rates.*

*Some distributors also revised their forecasts prior to the Draft Decision, which only increase the inconsistencies with NIEIR's forecasts.<sup>38</sup>*

In making its Final Decision on the energy consumption and customer number forecasts, the Commission determined a different set of forecasts than those provided by the distributors or offered by NIEIR as the 'base' case, providing the following comments:

*Although it considers the high case may over-estimate growth, it also considers that the base and alternative base case scenarios are likely to under-estimate growth. ... it would be difficult to rely on a simplistic methodology that considers a downward adjustment to historic growth rates, even though in the Commission's view, such an adjustment would be more reflective of the likely outcome of growth.*

*Therefore, the Commission has decided to adopt forecasts that use NIEIR's alternative base case scenario as revised by NIEIR in August 2005. In the Commission's view, the alternative base case scenario may under-estimate growth and this is likely to provide*

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<sup>37</sup> ESC 2005 Final Decision Volume 1: Statement of Purpose and Reasons, p. 25.

<sup>38</sup> ESC 2005 Final Decision Volume 1: Statement of Purpose and Reasons, p. 134-135.

*the distributors with more revenue over the period than the review requirement ...*<sup>39</sup>

### 3.5.2.6 2005 Operational Audit

In its submission in response to the Commission's draft decision, Powercor stated that its demand forecasting methodology was given an A in the 2005 Operational Audit. Powercor states that this demonstrates that the processes and procedures in place for demand forecasting within Powercor are excellent.

The Commission has reviewed the work undertaken by the auditors for this review and notes that this Operational Audit focused on the distributors' Distribution System Planning Reports and their compliance with clause 3.5 of the Distribution Code. In the review, the auditors were requested to assess whether:

- the distributors have the systems in place to provide data underpinning the Distribution System Planning report
- the forecasts of demand and customer numbers were reviewed by an independent third party
- the Planning Report met the requirements of the Code including:
  - detailed plans for meeting predicted demand growth and to improve reliability to customers
  - included information on historic and forecast demand for each zone substation and the capacity of each zone substation
  - an assessment of the magnitude, probability and impact of loss of load
  - information on the distributors' planning standards
  - a description of feasible options for meeting forecast demand, including opportunities for embedded generation and demand management
  - where a preferred option for meeting forecast demand has been identified, a reasonably detailed description of that option, including estimated costs
  - the availability of contributions from the distributor to embedded generators or customers to reduce forecast demand and defer or avoid augmentation
  - a description of the nature, timing, cost and expected impact on performance of the distributor's reliability improvement program
  - an evaluation of the reliability improvement programs undertaken in the preceding year
- the Planning Report was available on the distributor's website.

On these matters, Powercor was rated 'good' (or A). However, the scope of the review cannot be interpreted to include an assessment of Powercor's demand

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<sup>39</sup> ESC 2005 Final Decision Volume 1: Statement of Purpose and Reasons, p. 149.

forecasting methodology. The audit focussed upon Powercor's network planning processes and was not an audit of its demand forecasting processes.

### 3.6.3 Consistency with the other distributors

In its submission in response to the Commission's draft decision, Powercor stated that the Commission had not properly taken into account the demand forecasts accepted for other distributors. Powercor noted that, whilst the drivers of demand growth are not identical between distribution territories, there should exist a high degree of commonality given all Victorian distributors are subject to similar economic conditions, government policy decisions and climatic conditions. For these purposes, Powercor provided a comparison of its feeder level growth rates with those the Commission approved for the other distributors.

Based on this comparison, Powercor commented that:

- Powercor has the second highest growth in maximum demand at the zone substation level but, based on the Commission's draft decision, the lowest growth in feeder maximum demand.
- Based on the April 2005 template, Powercor still has the second lowest growth in feeder maximum demand.
- The Commission's draft decision has concluded it is appropriate for Powercor to have a differential in growth in demand at the feeder and zone substation level double that of the next distributor.
- The Commission's analysis assumes growth in feeder demand within the AGL and SP AusNet distribution networks is double that of Powercor, despite the rapid growth of housing and industrial estates in the Powercor network.
- Despite three distributors recording negative growth in feeder demand over the period 2001-03, all have had approved a significantly higher growth rate than Powercor.

In its letter of September 2006, the Commission noted that it was expected that there would be inconsistencies between the distributors at the feeder level since each distributor developed its own feeder level forecasts incorporating local conditions. The Commission also noted that Powercor had commented to the Commission previously on the uniqueness of Powercor's distribution area:

*Powercor Australia is unique amongst Victorian distributors because it has an extensive rural network that combines low customer density with a large number of distribution substations. While the Powercor Australia distribution system is over 80 per cent longer than the TXU system, it serves only 10 per cent more customers.<sup>40</sup>*

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<sup>40</sup> Powercor, 2005, Submission to the Draft Decision, Expenditure Response, p. 18

The Commission also noted that Powercor had provided information to the Commission that suggests that the relative growth rates at feeder and zone substation level may vary. Given this, it is not unexpected that Powercor may have a high growth rate at the zone substation level relative to the other distributors, but a low relative growth rate at the feeder level.

In response to the Commission's letter, Powercor commented that:

*The comparison presented by Powercor in comparing demand forecasts between distributors has been dismissed on the basis Powercor's network is unique. The basis for this conclusion is a quote from Powercor related to the failure of fuses included as a step change in its Draft Decision Expenditure Submission. Whilst Powercor faces a number of additional cost impediments as a result of its large sparse network, these differences are not a major contributor to variations in growth forecasts. In the case of fuses, the vast size of the network meant it was impractical to conduct the same annual fuse testing regime adopted by urban based distributors. The point had nothing to do with growth forecasts. It should also be remembered the Commission dismissed Powercor's application for a step change in relation to fuse testing.*

*Powercor's economic fundamentals are undeniably related to those of the Victorian economy. In this sense, all distributor growth forecasts must be related as the welfare of the Victorian economy will have a major influence on all growth forecasts. It is thus not possible to say there is no relationship between Powercor's demand forecasts and those of other distributors.<sup>41</sup>*

In further correspondence, Powercor also commented that:

*There is an order of magnitude difference between the [October 2004] feeder demand forecasts for Powercor and those of other distributors:*

- *Powercor's feeder demand forecasts are half those of SP AusNet (the other rural distributor).*
- *The difference between feeder and zone substation demand forecasts for Powercor is double that of other distributors.*
- *It is also highlighted that the [Commission's 2005 Determination] has forecast for three distributors a positive feeder demand growth despite over the period 2001-03 each distributor experiencing negative feeder demand growth.<sup>42</sup>*

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<sup>41</sup> Letter from Richard Gross (Powercor) to Greg Wilson (ESC), 10 October 2006.

<sup>42</sup> Email from Richard Gross (Powercor) to Greg Wilson (ESC), 17 October 2006.

As the Commission stated in its September 2006 letter, the Commission is aware that certain economic fundamentals play a significant role in the forecasts.

However, as it noted in that same letter, it was expected that there would be inconsistencies between the distributors at the feeder level since each distributor developed its own feeder level forecasts incorporating local conditions. In other words, peak demand growth will be related to the Victorian economy but, due to other factors, it is not necessarily the case that this growth will be the same across distribution areas at the feeder level.

It should also be noted that there has not been a high degree of consistency in feeder demand growth across the distribution areas in the past. Powercor's growth in feeder level demand was 0.57 per cent over the 2001 to 2003 period. This compares with -2.70 cent over the same period for AGLE, -0.17 per cent for CitiPower, 1.16 per cent for SP AusNet and -0.03 per cent for United Energy.<sup>43</sup>

What should be particularly noted is the variation in feeder demand growth rates over this period between Powercor and SP AusNet. This suggests that there has not been a high level of consistency in the feeder level growth experienced by these two distributors.

### 3.7 Conclusions

The Appeal Panel has directed the Commission to examine and test the information in the April 2005 template in regard to unconstructed and unclassified feeders. However, Powercor has been unable to provide the Commission with much of the information the Commission considers necessary to enable it to undertake the task.

Powercor has been requested to provide the information underlying the October 2004 and April 2005 forecasts as well as reconciliations that demonstrate to the Commission how the forecasts changed between the October 2004 and the April 2005 templates. In particular, the Commission has sought information on how Powercor factored in other changes that were made to these forecasts.

The Commission sought this information to satisfy itself that the forecasts contained within the April 2005 template had been appropriately adjusted to account for the inclusion of uncategorised feeder forecasts.

The Commission considered that it needed to undertake this review because of the higher feeder growth rates reflected in the April 2005 template. It was not immediately clear to the Commission why the inclusion of uncategorised feeders

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<sup>43</sup> These growth rates are based on non-weather corrected data derived from the Commission's Comparative Reporting information. The Commission does not have available to it weather corrected data for the other distributors and Powercor did not provide this to the Commission.

had resulted in much higher growth rates as growth should reflect the character of the distribution area rather than the number of feeders within this area.

By undertaking this review, the Commission aimed to assure itself that the forecasts in the April 2005 template did not double count demand and thus provided a reasonable estimate of the level of peak demand expected on Powercor's network.

Powercor has not been able to demonstrate to the Commission that the adjustments that it made to formulate the April 2005 template were reasonable. This has in part been due to Powercor no longer having this information available to it or Powercor choosing not to provide this information to the Commission.

For example, in its letter of September 2006, the Commission requested information and data from Powercor to assist it to understand the forecasts in the April 2005 template. However, very little of this information and data was provided by Powercor in response to that letter.

In making a decision on Powercor's peak demand forecasts, the Commission has had to make a judgement on whether the feeder forecasts contained in the April 2005 are reasonable. In the absence of being able to reconcile the October 2004 and April 2005 templates, the Commission has had to base its assessment on other information that it has had available to it. Primarily, this assessment has been based upon comparing the forecasts contained in the April 2005 template against the peak demand growth that Powercor has experienced in the past.

This analysis has indicated to the Commission that it cannot rely on the forecasts contained within the April 2005 template.

The Commission gave consideration to re-forecasting the expected level of demand on the uncategorised feeders. However, as it noted in its draft decision, the Commission considers that it would be difficult to rely on a simplistic methodology that would raise issues over what a suitable start point might be and what growth rate should be applied.

As a result, the Commission has re-considered the forecasts contained within the October 2004 template to assess whether they may be a suitable forecast of the peak demand that may be expected on Powercor's network.

The growth rate underlying the forecasts contained within this template is high relative to the growth that Powercor has experienced over the last five years. Over the 2005-10 period, these forecasts anticipate a growth rate of 1.74 per cent. This compares with the 0.76 per cent growth experienced over the 2001 to 2004 period.

The Commission believes that the relatively high rate of growth underlying the October 2004 forecasts is more than adequate to account for any growth expected on Powercor's uncategorised feeders (subsequently reported in the April 2005 template).

Therefore, the Commission has re-affirmed the use of the forecasts contained in the October 2004 template.

Re-affirming these forecasts does not change the forecasts used in the Commission's 2005 Determination. That is, the impact of growth for Powercor from 2006 to 2010 remains at 1.74 per cent per annum, and the Powercor's X-factor for 2007 remains at 2.5 per cent.