

Certification of the Distribution Loss Factors (DLFs) proposed by the Victorian electricity distributors for the financial year 2011-12

9 March 2011

**Victorian Electricity Distribution
Businesses**



*Parsons Brinckerhoff Australia Pty Limited
ABN 80 078 004 798*

*Level 15
28 Freshwater Place
SOUTHBANK VIC 3006
PO Box 19016
SOUTHBANK VIC 3006
Australia
Telephone +61 3 9861 1111
Facsimile +61 3 9861 1144
Email melbourne@pb.com.au*

Revision	Details	Date	Amended By
00	Original	09-03-2011	
01	Amended nomenclature	10-03-2011	M Van Doornik
02	Corrected Tables	10-03-2011	M Van Doornik

©Parsons Brinckerhoff Australia Pty Limited (PB) [2011].

Copyright in the drawings, information and data recorded in this document (the information) is the property of PB. This document and the information are solely for the use of the authorised recipient and this document may not be used, copied or reproduced in whole or part for any purpose other than that for which it was supplied by PB. PB makes no representation, undertakes no duty and accepts no responsibility to any third party who may use or rely upon this document or the information.

Author: M. Van Doornik

Reviewer: P. Walshe

Approved by: P. Walshe

Signed: 

Date: 4 March 2011

Distribution: Jemena Electricity Networks (Vic) Ltd, CitiPower Pty, Powercor Australia Ltd, SP AusNet and United Energy Distribution

Please note that when viewed electronically this document may contain pages that have been intentionally left blank. These blank pages may occur because in consideration of the environment and for your convenience, this document has been set up so that it can be printed correctly in double-sided format.



**Parsons
Brinckerhoff
Australia
Pty Limited**

ABN 80 078 004 798

Level 15
28 Freshwater Place
SOUTHBANK VIC 3006
PO Box 19016
SOUTHBANK VIC 3006
Australia
Telephone +61 3 9861 1111
Facsimile +61 3 9861 1144
Email melbourne@pb.com.au

Certified to ISO 9001; ISO 14001;
AS/NZS 4801

Our reference 2159417A

9 March 2011

Certification of the DLFs for the Victorian Distribution Business 2011-12

PB reviewed the proposed DLFs prepared by Jemena Electricity Networks (Vic) Ltd to determine whether they have been prepared in accordance with the requirements of the National Electricity Rules.

Consistent with the reviews undertaken previously by the Essential Services Commission of Victoria, PB has assessed whether the proposed DLFs:

- are based on appropriate data
- accord with the correct methodology, and
- are a fair statement of the applicable loss factors for the DNSP.

The review involved:

- determining the approved calculation methodology that applies and a desk top review of the businesses proposed submission to AER against this methodology
- a meeting with each DNSP to assess data integrity and to clarify any aspects of the DLF calculation.

In our opinion, the proposed DLFs comply with the approved calculation methodology and are consistent with the requirements of clause 3.6.3 of the National Electricity Rules.

Yours sincerely

Peter Walshe
Principal Consultant
Parsons Brinckerhoff Australia Pty Limited



Contents

	Page number
1. Introduction	1
1.1 Purpose of this report	1
1.2 Background	1
1.3 PB's review methodology	1
1.4 Structure of this report	2
2. Proposed DLFs for the 2011-12 financial year	3
2.1 Proposed site-specific DLFs for large customers	3
2.2 Proposed site-specific DLFs for embedded generators	4
2.3 Proposed network average DLFs for other customers and embedded generators with less than 10MW output	5
3. PB's findings	6
3.1 Assessment of the proposed DLFs	6
3.2 Price impact on load customers	7
3.3 DLFs for embedded generators	9
3.3.1 ESC Methodology	9
3.3.2 New methodology for generators	10
3.4 Reconciliation of the previous forecast losses against actual	11
3.5 Forecast overall losses for the 2011-12 financial year	12
3.6 Conclusion	13

List of tables

		Page number
Table 2.1	Proposed site-specific DLFs for large load customers for the 2011-12 financial year	3
Table 2.2	Proposed site-specific DLFs for large embedded generators for the 2011-12 financial year	4
Table 2.3	Proposed network average DLFs for the 2011-12 financial year	5
Table 3.1	Changes in proposed DLFs for large load customers	8
Table 3.2	Changes in proposed network average DLFs	9
Table 3.3	Proposed DLFs for large embedded generators for the 2011-12 financial year	11
Table 3.4	Reconciliation between actual and losses recovered through the application of DLFs in 2009-10 (shown as a percentage)	12
Table 3.5	Overall loss levels	13

List of figures

		Page number
Figure 3.1	Trend of overall loss levels for Victorian DNSPs	13

Appendices

Appendix A	Terms of reference
------------	--------------------

1. Introduction

1.1 Purpose of this report

The Victorian DNSPs – Jemena Electricity Networks Ltd (JEN), CitiPower Pty, Powercor Australia Ltd, SPI Electricity (referred to as SP AusNet) and United Energy Distribution (UED) – are required to submit their proposed distribution loss factors (DLFs) for the financial year 2011-12 to the Australian Energy Regulator (AER) for approval.

The DLFs must be calculated in accordance with a published methodology. In accordance with the National Electricity Rules (NER) 3.6.3(g), the methodology must be either published by the Australian Energy Regulator (AER) or by the Distribution Network Service Provider and adherence to that methodology must be independently certified.

The methodology used by all Victorian businesses is the *Calculation Methodology for Distribution Loss Factors (DLFs) for the Victorian Jurisdiction (14 February 2007)* which was published by the Essential Services Commission (ESC). CitiPower and Powercor have published a new methodology for embedded generators. The new methodology will be applied starting in the 2011-12 financial year.

This report outlines Parsons Brinkerhoff (PB)'s findings from our review of the proposed DLFs.

1.2 Background

DLFs are used to adjust customer's metered electricity consumption data to allow for energy losses in the electricity distribution network.

The National Electricity Rules require that DLFs should be allocated to:

- each embedded generator of actual generation of more than 10MW – individual site-specific DLFs are to be determined according to the generator's actual location within the network
- each large customer consuming more than 40 GWh per annum or with a peak demand of 10MW or more – individual site specific DLFs are to be determined according to the customers' actual location on the network
- all other customers and embedded generators. For this category of customer / generator network average DLFs are to be allocated according to the type of connection points within the distribution network.

The distributors' proposals are summarised in part 2 of this report.

1.3 PB's review methodology

The proposed DLFs must be independently certified that they are based on appropriate data, the correct methodology and that the results are a fair statement of the applicable loss factors for each DNSP.

The Victorian distributors have engaged PB to undertake this independent certification. This report contains PB's analysis of the proposed DLFs.

PB has undertaken a common assessment of all five DNSPs submissions to determine whether the methodology results in a fair statement of applicable loss factors in the Victorian region.

The methodology adopted by PB for this review included:

- determining the approved calculation methodology that applies
- receiving each DNSP's proposed submission to the AER
- a desktop review of the DNSPs proposed submissions against the published methodology
- a telephone discussion or meeting with each DNSP to assess data integrity and to clarify any aspects of the DLF calculation
- assessment of any clarifying information provided.

1.4 Structure of this report

The remainder of this report is structure as follows:

- Part 2 provides the details of the DLFs proposed by the DNSPs for the 2011-12 financial year
- Part 3 provides the details of PB's assessment of the proposed DLFs
- Appendix A provides PB's terms of reference.

2. Proposed DLFs for the 2011-12 financial year

The distributors' proposed DLFs for the financial year 2011-12 are shown in Tables 2.1, 2.2 and 2.3.

2.1 Proposed site-specific DLFs for large customers

The proposed DLFs for large load customers are given in Table 2.1.

Table 2.1 Proposed site-specific DLFs for large load customers for the 2011-12 financial year

Distributor	National Metering Identifier	DLF for 2011-12
CitiPower	VAAA000431	1.0165
	VAAA000673	1.0172
Powercor	VCCCAF0002	1.0007
	VCCCAF0001	1.0063
	VCCDA0031	1.0010
	VCCGD0001	1.0009
	VCCGJ0001	1.0020
	VCCDA0022	1.0013
	VCCRD0007	1.0117
	VCCDA0025	1.0084
	VCCAB0003	1.0158
	VCCAD0001	1.0122
	6203764760	1.0087
	VCCSE0004	1.0538
	VCCGE0019	1.0085
	VCCBC0025	1.0353
	VCCTE0002	1.0565
	VCCSB0012	1.0542
	6203803617	1.0127
	VCCBF0010	1.0433
	VCCLD0024	1.0097
	UED	VEEE0PD8AD
VEEE0TF39Q		1.0142
VEEE0BG4Q3		1.0214
VEEE0NDNEX		1.0254
VEEE08KH3V		1.0091
VEEE0C8AW1		1.0050
6407649172		1.0114
JEN	VDDD000495	1.0102
	6001280255	1.0057
	VDDD000244	1.0114

	VDDD000134	1.0133
	VDDD000136	1.0029
SP AusNet	VBBB000073	1.0033
	VBBB000161	1.0090
	VBBB000058	1.0213
	VBBB000096	1.0525

2.2 Proposed site-specific DLFs for embedded generators

The proposed DLFs for large embedded generators producing more than 10MW of energy for the 2011-12 financial year are shown in Table 2.2.

Table 2.2 Proposed site-specific DLFs for large embedded generators for the 2011-12 financial year

Distributor	Generator	National Metering Identifier	DLF for 2011-12
CitiPower	none		
Powercor	Challicum Hills Wind Farm	6203661632	0.9820
	Codrington Wind Farm	6203008781	1.0342
	Yambuk Wind Farm	6203690629	1.0342
	Oakland's Hill Wind Farm	See Note 1	0.9086
UED	Clayton Generator	6407649172	1.0114
JEN	Somerton Power Station	6001264751	0.9921
SP AusNet	Alinta No1 Generator at Bairnsdale	6305010110	1.0528
	Alinta No2 Generator at Bairnsdale	6305651897	1.0528
	Toora Wind Farm	630565070	1.0771
	Wonthaggi Wind Farm	6305721689	1.0718
	Esso Longford Generator	VBBB002342	1.0795
	Clover Power Station 1	VMBTWZCLG1	0.9886
	Clover Power Station 2	VMBTWZCLG2	0.9886
	Rubicon Group of Generators	VTTSWZRUBX	1.0343

Note 1: Oakland's Hill Wind Farm will start up in the second half of 2011. The NMI of this generator has not been supplied.

2.3 Proposed network average DLFs for other customers and embedded generators with less than 10MW output

The proposed DLFs for network average customers and embedded generators smaller than 10 MW are given in Table 2.3.

Table 2.3 Proposed network average DLFs for the 2011-12 financial year

Distributor	Distribution Loss factors					
	Type	DLF-A	DLF-B	DLF-C	DLF-D	DLF-E
CitiPower	Short sub-transmission	1.0035	1.0113	1.0160	1.0387	1.0438
	Long sub-transmission	N/A	N/A	N/A	N/A	N/A
Powercor	Short sub-transmission	1.0047	1.0112	1.0360	1.0612	1.0695
	Long sub-transmission	1.0332	1.0397	1.0645	1.0897	1.0980
UED	Short sub-transmission	1.0051	1.0115	1.0187	1.0410	1.0548
	Long sub-transmission	1.0274	1.0338	1.0410	1.0633	1.0771
JEN	Short sub-transmission	1.0056	1.0110	1.0265	1.0389	1.0454
	Long sub-transmission	1.0266	1.0319	1.0474	1.0598	1.0663
SP AusNet	Short sub-transmission	1.0044	1.0122	1.0341	1.0555	1.0632
	Long sub-transmission	1.0390	1.0469	1.0687	1.0902	1.0979

Notes:

- DLF-A is the distribution loss factor to be applied to a second tier customer or market customer connected to a sub-transmission line at 66 kV or 22 kV.
- DLF-B is the distribution loss factor to be applied to a second tier customer or market customer connected to the lower voltage side of a zone substation at 22 kV, 11 kV or 6.6 kV.
- DLF-C is the distribution loss factor to be applied to a second tier customer or market customer connected to a distribution line from a zone substation at voltage of 22 kV, 11 kV or 6.6 kV.
- DLF-D is the distribution loss factor to be applied to a second tier customer or market customer connected to the lower voltage terminals of a distribution transformer at 240/415 V .
- DLF-E is the distribution loss factor to be applied to a second tier customer or market customer connected to a low voltage line at 240/415 V.
- Separate DLFs are also calculated for each DLF category A to E depending on whether the length of the sub-transmission line supplying the customer upstream of the customer's connection point is 'short' or 'long'.

A short sub-transmission line is defined as:

- a radial sub-transmission line where the route length of the line is less than 20 km, or
- a sub-transmission line in a loop where the total route length of all lines in the loop is less than 40 km.

All other sub-transmission lines are defined as 'long sub-transmission'

3. PB's findings

This section sets out PB's analysis and findings.

3.1 Assessment of the proposed DLFs

Consistent with previous assessments of DNSP's proposed DLFs undertaken by the ESC, PB has adopted the following approach when assessing whether the proposed DLFs are a fair statement of the applicable loss factors for each DNSP:

- For load customers — that the price impact on customers due to changes in DLFs represents no greater than a one per cent increase in energy cost. The ESC stated that increases in site-specific DLF of more than one per cent for some large customers may be appropriate if the change would better reflect their share of network losses.
- For embedded generators — that the calculated DLFs are based on sound assumptions about the operations of the generators.
- That distributors have taken into consideration their previous forecast errors in overall loss levels by examining the trend of reconciliation errors over time.
- That the overall levels of network losses of each distributor are reasonable.

In undertaking its review PB had regard to these considerations and also reviewed the following topics:

Calculation methodology

The Rules state that DLFs must be "*derived, in accordance with the methodology determined by the AER or the Distribution Network Service Provider*"¹. In previous years all of the Victorian DNSPs adopted the methodology developed by the Essential Services Commission of Victoria². As the AER has not established its own methodology, JEN, UED and SP AusNet have adopted the previous calculation methodology for the 2011-12 financial year.

CitiPower and Powercor have also adopted the previous calculation methodology for average demand customers and large site specific customers, but have published a new methodology, addressing section 2.1 of the ESC Methodology, to modify the calculation method used for large embedded generators. The new methodology was reviewed by the AER and published by the distribution businesses in accordance with the NER requirements under clause 3.6.3. CitiPower and Powercor have accepted all other sections of the ESC methodology.

All DNSPs stated that the proposed DLFs have been calculated in accordance with the calculation methodology approved by the ESC in previous years or their published amendments. PB discussed how each DNSP calculates the DLFs with respect to the three category types – large embedded generators, large site specific customers and average

¹ National Electricity Rules Clause 3.6.3

² Essential Services Commission of Victoria, 14 February 2007, Calculation Methodology for Distribution Loss Factors (DLFs) for the Victorian Jurisdiction

demand customers. PB confirms that each of the DNSPs undertook the appropriate level of calculation for each customer type.

Sales forecasts

PB notes that the Australian Energy Market Operator's (AEMO) forecast sales growth for Victoria in the year 2011-12 (projected in 2010) shows an expected growth of 2.5%³. PB undertook an investigation into the load growth forecast by the DNSPs, using the 2010/11 and 2011/12 forecast data, to ensure consistency with the AEMO forecasts. Overall, PB found that the forecast load growth of the DNSPs is consistent with the state wide forecast made by AEMO.

3.2 Price impact on load customers

A high price impact on a local customer may indicate a failure of the DLF calculation methodology to provide an appropriate loss factor. In past reviews the ESC adopted a threshold that price increases should be less than one per cent. PB considers that this threshold is reasonable and has also adopted it.

Table 3.1 and Table 3.2 present the changes in the DLF values for the 2011-12 financial year for large load customers and network average customers from the current (2009-10) financial year respectively, based on the proposed DLFs. The tables show that the impact on all customers of the proposed DLFs for 2011-12 does not result in price increases of greater than one percent.

However, the UED DLF-E category for both Short and Long Sub Transmission lines show price decreases of 1.023% and 1.129% respectively. This change in the UED DLF-E has resulted from a decrease in network losses. The actual losses calculated for financial year 2009/10 were 4.73%, which was significantly reduced compared to the actual losses of 5.64% for 2008/09. As the DLFs for 2010/11 are based on the actual 2008/09 losses and the DLFs for 2011/12 are based on actual 2009/10 losses, the effect of the decrease in losses from 2008/09 to 2009/10 has resulted in a general reduction of the forecast DLFs for 2011/12, most notably for DLF-E by more than 1%.

These changes result in a net decrease in the cost of energy to customers and are therefore acceptable under the ESC methodology.

³

Table 3.1 Changes in proposed DLFs for large load customers

Distributor	National Metering identifier	Current year DLF 2010-11	Proposed DLF 2011-12	Change
CitiPower	VAAA000431	1.0158	1.0165	0.069%
	VAAA000673	1.0181	1.0172	-0.088%
Powercor	VCCCAF0002	1.0008	1.0007	-0.010%
	VCCCAF0001	1.0081	1.0063	-0.179%
	VCCDA0031	1.0009	1.0010	0.010%
	VCCCGD0001	1.0009	1.0009	0.000%
	VCCCGJ0001	1.0021	1.0020	-0.010%
	VCCDA0022	1.0013	1.0013	0.000%
	VCCRD0007	1.0095	1.0117	0.218%
	VCCDA0025	1.0085	1.0084	-0.010%
	VCCAB0003	1.0183	1.0158	-0.246%
	VCCAD0001	1.0107	1.0122	0.148%
	6203764760	1.0084	1.0087	0.030%
	VCCSE0004	1.0561	1.0538	-0.218%
	VCCGE0019	1.0093	1.0085	-0.079%
	VCCBC0025	1.0289	1.0353	0.622%
	VCCTE0002	1.0568	1.0565	-0.028%
	VCCSB0012	1.0564	1.0542	-0.208%
	6203803617	See Note 2	1.0127	n/a
	VCCBF0010	See Note 2	1.0433	n/a
VCCLD0024	See Note 2	1.0097	n/a	
UED	VEEOPD8AD	1.0143	1.0124	-0.187%
	VEEOTF39Q	1.0165	1.0142	-0.226%
	VEEOBG4Q3	1.0240	1.0214	-0.254%
	VEEONDNEX	1.0246	1.0254	0.078%
	VEEO8KH3V	1.0092	1.0091	-0.010%
	VEEOC8AW1	1.0058	1.0050	-0.080%
	6407649172	1.0134	1.0114	-0.197%
JEN	VDDD000495	1.0085	1.0102	0.169%
	6001280255	1.0056	1.0057	0.010%
	VDDD000244	1.0117	1.0114	-0.030%
	VDDD000134	1.0137	1.0133	-0.039%
	VDDD000136	1.0031	1.0029	-0.020%
SP AusNet	VBBB000073	1.0047	1.0033	-0.139%
	VBBB000161	1.0081	1.0090	0.089%
	VBBB000058	1.0280	1.0213	-0.652%
	VBBB000096	1.0614	1.0525	-0.839%

Note 2: These are new Qualified Customers and therefore do not have DLFs for 2010-11

Table 3.2 Changes in proposed network average DLFs

Distributor	Type	Change in DLF				
		DLF-A	DLF-B	DLF-C	DLF-D	DLF-E
CitiPower	Short sub-transmission	0.021%	-0.005%	-0.065%	-0.112%	-0.129%
	Long sub-transmission					
Powercor	Short sub-transmission	0.090%	0.069%	0.000%	-0.075%	-0.103%
	Long sub-transmission	-0.155%	-0.173%	-0.234%	-0.302%	-0.327%
UED	Short sub-transmission	-0.099%	-0.237%	-0.333%	-0.763%	-1.023%
	Long sub-transmission	-0.233%	-0.366%	-0.459%	-0.876%	-1.129%
JEN	Short sub-transmission	0.020%	0.010%	-0.068%	-0.250%	-0.239%
	Long sub-transmission	0.322%	0.301%	0.220%	0.038%	0.038%
SP AusNet	Short sub-transmission	-0.090%	-0.138%	-0.308%	-0.443%	-0.487%
	Long sub-transmission	0.135%	0.086%	-0.093%	-0.220%	-0.254%

3.3 DLFs for embedded generators

For the 2011-12 financial year, the DNSPs have taken different approaches to the calculation of DLFs for embedded generators. JEN, UED and SP AusNet have retained the methodology published by the ESC in 2007, whereas CitiPower and Powercor have published a new methodology specifically targeting the calculation of DLFs for embedded generators. The following two sections discuss application of the methodologies.

Table 3.3 summarises the proposed DLFs for large embedded generators.

3.3.1 ESC Methodology

JEN, UED and SP AusNet have retained the ESC methodology as their own for calculating the DLFs associated with large embedded generators. The methodology states that the DNSPs must adhere to the following steps:

- model the operations of the generator based on historical record or other relevant information available
- determine the relevant forecast network losses by modelling the distribution network between the generator's connection point and the transmission network connection point and the transmission network connection point for each modelled operating period of the generator

- calculate the annual overall DLF utilising a volume weighted factor based on the forecast average electrical energy loss for each modelled operating period of the generator in the financial year in which the DLF is to apply.

The DLF is then calculated using the following equation:

$$DLF = 1 + \frac{Losses}{Magnitude\ of\ sales\ less\ generation}$$

PB has analysed the information provided by the DNSPs and confirms that in each case these steps have been adhered to.

As a change in DLF may indicate an issue with the underlying methodology, PB assessed the changes and generally found them to be less than 1 per cent. The only exception was for the Rubicon Group of Generators forecast DLF which decreased by 1.14%. The change was due to significantly increased generation combined with a minimal increase in losses⁴. PB therefore concludes that there are no emerging issues with the methodology or assumptions adopted for applying DLFs to large embedded generators.

3.3.2 New methodology for generators

CitiPower and Powercor published a new methodology addressing the calculation of DLFs for large embedded generators, entitled *CitiPower and Powercor Distribution Loss Factor (DLF) Calculation Methodology for Large Embedded Generators November 2010*.

The new methodology calculates the DLF using the difference in the network losses without the generator present and the network losses including the generator, which is then volume weighted by the generators' annual production. The new approach uses the following four steps:

- establish loss characteristics of the distribution network
- calculate distribution losses without embedded generation
- calculate distribution losses with embedded generation
- calculate the DLF using the revised approach, using the equation:

$$DLF = 1 + \frac{Network\ losses\ without\ generator - Network\ losses\ with\ generator}{Annual\ generation\ volume}$$

PB has analysed the proposed DLFs and has noted that the Challicum Hills Wind Farm has a significant change in DLF of -3.051% which has been attributed to the change in calculation methodology.⁵

Although CitiPower has also adopted a new methodology, it currently does not have any embedded generation that meets the 10MW threshold needed for a site specific DLF.

⁴
⁵

Refer to the SP AusNet 2011/12 DLF submission for a full explanation. PB understands that Powercor could not apply the previously used calculation methodology to a new generation site as the resulting DLF was not consistent with the actual losses in the network. Hence, a change in methodology to remove the inconsistency seems appropriate. PB notes that it is not required to review the calculation methodology when certifying that DLFs have been prepared in accordance with the published methodology.

Table 3.3 Proposed DLFs for large embedded generators for the 2011-12 financial year

Distributor	Generator	National Metering Identifier	Proposed DLF for 2011-12	Current DLF 2010-11	Change
CitiPower	none				
Powercor	Challicum Hills Wind Farm	6203661632	0.9820	1.0129	-3.051%
	Codrington Wind Farm	6203008781	1.0342	1.0357	-0.145%
	Yambuk Wind Farm	6203690629	1.0342	1.0357	-0.145%
	Oakland's Hill Wind Farm	See Note 3	0.9086	N/A	N/A
UED	Clayton Generator	6407649172	1.0114	1.0134	-0.197%
JEN	Somerton Power Station	See Note 4	0.9921	0.9864	0.578%
SP AusNet	Alinta No1 Generator at Bairnsdale	6305010110	1.0528	1.0449	0.76%
	Alinta No2 Generator at Bairnsdale	6305651897	1.0528	1.0449	0.76%
	Toora Wind Farm	630565070	1.0771	1.0792	-0.19%
	Wonthaggi Wind Farm	6305721689	1.0718	1.0704	0.13%
	Esso Longford Generator	VBBB002342	1.0795	1.0693	0.95%
	Clover Power Station 1	VMBTWZCLG1	0.9886	0.9874	0.12%
	Clover Power Station 2	VMBTWZCLG2	0.9886	0.9874	0.12%
	Rubicon Group of Generators	VTTSWZRUBX	1.0343	1.0462	-1.14%

Note 3: This is a new generator and does not yet have a NMI or historic DLF data

Note 4: NMI not supplied

3.4 Reconciliation of the previous forecast losses against actual

Clause 3.6.3 (h)(2) of the NER states that DNSPs must reconcile the losses forecast using the DLF methodology in previous years with the actual level of losses which transpired in that year.

In determining the DLFs for the next financial year, the DNSPs advised that they have undertaken reconciliation with the actual losses incurred in the previous financial year (2009-10). The results of the reconciliation process are shown in Table 3.4.

Table 3.4 shows that the magnitude of the DNSPs forecast errors for the previous five financial years have been generally less than 0.8% in terms of total energy distributed and for 2009/10 was less than 0.48%. The level of forecast errors fluctuates both in size and, with the exception of CitiPower, in over and under recovery.

With the exception of SP AusNet, the forecast error as a percentage of sales has increased for the 2009-10 financial year compared to 2008-09 and all DNSPs have had over recovery.

During the review, PB noted the following two minor errors in the submitted information:

1. SP AusNet initially used an incorrect denominator in calculating the percentage error
2. UED initially used an incorrect sign in the equation resulting in a negative rather than positive reconciliation factor.

Both of these errors were corrected and the reports were resubmitted to PB. This report contains the revised values. PB notes that the errors did not alter the values of the calculated DLFs.

PB discussed the reconciliation undertaken with each DNSP and confirmed that appropriate consideration had been given to the reconciliation error and adjustments had been incorporated into the models used to forecast losses for the 2011-12 period if required. PB considers that the DNSPs have demonstrated that they have taken into account the reconciliation required by clause 3.6.3(h)(2) of the NER in calculating the proposed DLFs.

Table 3.4 Reconciliation between actual and losses recovered through the application of DLFs in 2009-10 (shown as a percentage)

Distributor	2009-10			2008-09	2007-08	2006-07	2005-06
	Total level of losses recovered through the application of DLFs	Actual value of losses	Difference Forecast vs. actual losses	Forecast error as a percentage of sales	Forecast error as a percentage of sales	Forecast error as a percentage of sales	Forecast error as a percentage of sales
	MWh	MWh	MWh	(positive number indicates over-recovery)	(positive number indicates over-recovery)	(positive number indicates over-recovery)	(positive number indicates over-recovery)
CitiPower	258,136	235,533	22,603	0.37	0.35	0.82	0.97
Powercor	780,818	728,914	51,904	0.48	0.40	0.53	-0.28
UED	420,867	383,618	37,249	0.46	0.01	-0.27	-0.47
JEN	186,634	174,042	12,592	0.28	-0.17	1.14	0.12
SP AusNet	570,606	541,901	28,705	0.38	0.64	0.79	-0.22

3.5 Forecast overall losses for the 2011-12 financial year

When it undertook the approval of the DLFs, the ESC considered that the economic levels of losses for Victorian DNSPs should be in the range of 3 to 5 per cent of sales for urban based networks and could be as high as 10 percent of sales for distributors with predominantly rural networks.

PB believes these ranges are useful when examining network losses. PB has examined the forecast loss levels for the DNSPs and concludes that:

- the forecast losses for the urban based DNSPs CitiPower and JEN are within the expected range

- the forecast losses for the DNSPs with rural networks UED, Powercor and SP AusNet are within the expected range.⁶

This analysis is shown in Table 3.5 and shown graphically in Figure 3.1 below.

Table 3.5 Overall loss levels

Distributor	Overall loss as a percentage of total sales							
	2004-05 actual	2005-06 actual	2006-07 actual	2007-08 actual	2008-09 actual	2009-10 actual	2010-11 forecast	2011-12 forecast
CitiPower	4.32	4.29	3.92	3.74	4.11	3.81	4.07	3.97
Powercor	6.73	6.64	7.27	6.22	6.74	6.73	6.88	6.84
UED	4.34	4.66	4.65	5.01	5.64	4.73	5.59	4.68
JEN	4.70	5.05	3.67	4.02	3.92	3.92	3.93	3.78
SP AusNet	7.51	7.87	7.96	6.59	7.44	7.13	7.65	7.35

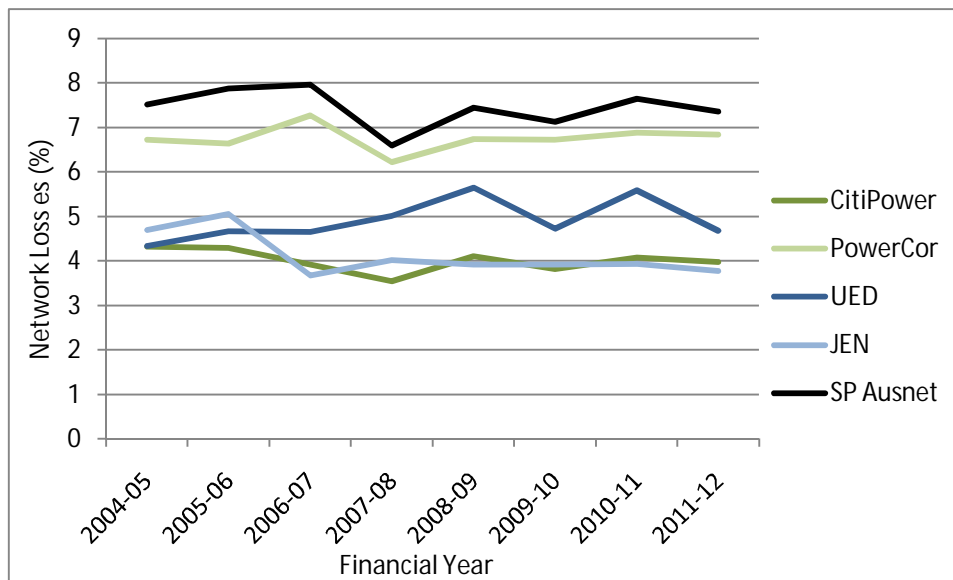


Figure 3.1 Trend of overall loss levels for Victorian DNSPs

3.6 Conclusion

Having assessed the proposed DLFs submitted by the Victorian DNSPs, PB found that:

- JEN, UED and SP AusNet have calculated the DLFs based on the correct methodology; that is the DLF Calculation Methodology published by the ESC.
- CitiPower and Powercor have calculated the DLFs based on the correct methodology; that is the DLF Calculation Methodology published by the ESC for Qualified Customers and network average DLFs and their published methodology *CitiPower and Powercor Distribution Loss Factor (DLF) Calculation Methodology for Large Embedded Generators November 2010* for large embedded generators.

⁶

PB notes that UED has a predominately urban network with some rural sections. Its forecast losses are appropriately at the lower end of the expected range.

- All Victorian DNSPs have used appropriate data for the calculation of the Distribution Loss Factors.
- The price impact on all load customers due to the proposed DLFs for 2011-12 represents no greater than one per cent increase in energy cost, indicating consistency in application of the DLF calculation methodology.
- The distributors have taken into consideration their previous forecast errors in overall loss levels as verified by the trend of reconciliation errors over time and that the levels of errors are acceptable.
- The overall levels of network losses of each distributor are within acceptable limits.

PB is satisfied that the proposed DLFs meet the requirements of clause 3.6.3 of the National Electricity Rules and are consistent with the published methodologies.

Appendix A

Terms of reference

Amendments to the 2010/11 Terms of Reference

The Terms of Reference (ToR) for the 2011/12 Distribution Loss Factor (DLF) Certification report shall be based on the attached ToR which were agreed to for the 2010/11 DLF certification report.

The following amendments have been applied to make the ToR suitable for 2011/12:

1. The DLF Certification shall be completed for the 2011/12 DLFs.
2. For CitiPower and Powercor, the certification for calculating DLFs for embedded generators shall be according to their published methodology, for Qualified Customers and network average DLFs the certification shall be according to the methodology published by the ESC.
3. The following timetable shall supersede the dates contained within Section 11 of the ToR:

Project task	Completion date
DNSPs provide PB with required information	25 February 2011
Draft certification report issued to DNSPs	4 March 2011
Final certification report issued to DNSPs	9 March 2011

**TERMS OF REFERENCE FOR CERTIFICATION OF VICTORIAN
DISTRIBUTION BUSINESSES'**

DISTRIBUTION LOSS FACTOR 2010/11

Document History

REV	REVISION STATUS	DATE	PREPARED
A	DRAFT	9 Dec 09	Gabriel Wan
B	Final	19 Jan 10	Gabriel Wan

4. Background

Each year, Distribution Network Service Providers (DNSPs) must determine the distribution loss factors (DLFs) to apply for their network in the next financial year in accordance with clause 3.6.3(g) of the National Electricity Rules (NER) and provide these to AEMO for publication by 1 April in that year. The NER requires DLFs to be determined in accordance with a methodology published either by the AER or the DNSP (where the AER has not published a methodology). Before providing the distribution loss factors to AEMO for publication, DNSPs must obtain the approval of the AER for the distribution loss factors it has determined for the next financial year.

5. DLF METHODOLOGY

The AER has not published a calculation methodology for determining DLFs. The AER has also advised that as it will not be publishing a methodology for determining DLFs to apply in 2010-11, DNSPs will continue to determine DLFs in accordance with their own published methodology or, where appropriate, the relevant published methodology operating in their jurisdiction as at 31 December 2007. Methodologies may be amended where necessary to better reflect the principles set out in the NER so long as the revised methodology is published by the DNSP in an accessible form and provided to the AER.

Accordingly, Victorian DNSPs will continue to determine the DLFs in accordance with the methodology published by the Essential Services Commission, Victoria (ESC)⁷. Refer to Appendix 1 for methodology paper.

6. AER APPROVAL OF DLF

The AER has written to the Victorian DNSPs about the approval process for the 2010-11 DLFs. For approval by the AER, the DNSP is to provide to the AER:

- the DLFs in a format fit for publication by AEMO;
- a copy of the methodology (in electronic form) and
- an independent assurance/certification that the DLFs have been calculated by the application of the relevant published methodology.

7. ASSURANCE / CERTIFICATION OF DLF

In previous years, the ESC has certified the DLFs prepared by Victorian DNSPs. However, with the transition from the ESC to the AER of a number of regulatory functions, the ESC is no longer able to perform this service for Victorian DNSPs. In light of this, the AER has advised that it considers that an assurance or certification provided by an auditor or a technical consultant is an acceptable alternative. The AER has also indicated that as with previous year approval process, it does not intend certification to be unduly burdensome but set at a standard sufficient for the certifying party to be confident that the appropriate data has been used, the correct methodology applied and that the results are a fair statement of the applicable loss factors for that firm.

⁷ In 2007 when the ESC was responsible for approving the DLFs prior to publication by NEMMCO, the ESC published a methodology in accordance with the NER and the Victorian DNSPs have been determining DLFs in accordance with this published methodology.

8. Scope of Work

There are five Distribution Network Service Providers (DNSPs) in Victoria, list below, and all five DNSPs have agreed to jointly engage an auditor/consultant to certify the DLFs.

- Jemena Electricity Networks (Vic) Ltd
- CitiPower Pty
- Powercor Australia
- United Energy Distribution
- SPI Electricity

The auditor/consultant is to review the DLFs proposed by the five DNSPs in accordance with the principles set out above and provide a report to each of the DNSPs certifying whether the DNSP's proposed DLFs have been calculated in accordance with the Calculation Methodology for Distribution Loss Factors (DLFs) for the Victorian Jurisdiction (14 February 2007) published by the ESC, appropriate data has been used and that the results are a fair statement of the applicable loss factors for that firm.

9. Information from VICTORIAN dnsp

Documents provided:

- Guidance Paper: Calculation Methodology for Distribution Loss Factors (DLFs) for the Victorian Jurisdiction (14 February 2007)
- Victorian DNSPs' DLF 2009-10 submission to ESC.
- Review Findings Of The Distribution Loss Factors (DLFs) Proposed By The Victorian Electricity Distributors For The 2009-10 Financial Year
- Victorian DNSPs' proposed DLFs for the 2010-11 financial year.

10. Deliverables

At the completion of its review the auditor/consultant will provide an independent certification report which:

- is of a professional standard capable of being submitted to the AER;
- includes a bibliography outlining all reference sources;
- summarises the expert's experience and qualifications and attach its curriculum vitae;
- identifies any person and their qualifications, who assists you in preparing the report or in carrying out any research or test for the purposes of the report;
- summarises the instructions and attaches these term of reference; and

- (without limiting the points above) carefully and clearly sets out the facts that the auditor/consultant has assumed in putting together his or her report and the basis for those assumptions.

In light of the acceptance by AER of Certification Report prepared by the ESC for the past two years, the Victorian DNSPs are of the view that a report similar to the ESC's report should be acceptable to the AER.

11. Timetable

AER requires DNSPs DLF calculations and independent certification report of these calculations be submitted in electronic form by COB Friday 12 March 2010. Accordingly, the proposed timeline is as follows:

- Friday 26 February 2010 DNSPs provide auditor/consultant with DLF calculation for certification. The information will be in the same format as those provided to the ESC in previous years.
- Friday 5 March 2010 Auditor/consultant provides draft certification report to DNSPs.
- Wednesday 10 March 2010 Auditor/consultant provides final certification report to DNSPs.

Please note that all information submitted to the AER including the certification report will be published on the AER's website unless confidential.