

26 July 2007

Ms Dora Guzeleva
Manager Market Administration
Independent Market Operator
Level 22, The Forrest Centre
221 St George's Terrace
Perth, 6000

Dear Dora,

LOSS FACTORS 2007-08

Western Power has provided the IMO with loss factors for the South West Interconnected System (SWIS) for 2007-08 and I am pleased to provide some additional commentary on these.

Firstly, I would like to apologise for not meeting this years' due date for the provision of loss factors to the IMO. The data used for the calculation of loss factors comes from Western Power's SCADA system, and a new transmission SCADA system was commissioned in August 2006. The cutover from the old system necessitated building new databases and disconnecting and reconnecting over 150 Remote Terminal Units. Unfortunately, and despite the substantial controls in place, this resulted in discontinuities in the recording of generation and load data and an extensive effort was required to recover some lost data, necessitating the delay in providing you with the new loss factors.

Transmission Loss Factors

General

Transmission loss factors have again been calculated in accordance with the Market Procedure using the industry standard software package Tprice.

Generally, marginal loss factors at a single node increase with increasing load in the region and decrease with increasing generation in that region and are relative to each other. The loss factors are energy weighted for every half hour of the year so the actual load and generation profiles also have a significant effect on the outcome. On average, transmission loss factors can be expected to reduce slightly over time, but more significant changes at individual nodes can also be expected with changing load and generation patterns.

The outcomes for 2007-08 are generally consistent with these principles and are largely as expected. In particular, the system average and metropolitan average transmission loss factors have reduced by 0.53% and 0.57% respectively, compared with 2006-07. Some of the more significant changes are discussed below. It should be noted it is not possible to quantitatively verify a single loss factor without reference to the whole system over the whole year, and the discussion below is necessarily somewhat qualitative.

Data

Average marginal transmission loss factors were calculated using ½ hour data from 1 April 2006 to 31 March 2007 from the Western Power SCADA master station(s) for

every transmission load and generator in the SWIS. Where system generation and load data failed basic reasonability tests, and could not be reconciled, those ½ hours were excluded from the data. The occurrence of these data errors can never be completely removed in practice.

This year, the data issues stemming from the SCADA system changeover unfortunately resulted in more ½ hours than usual being excluded from the loss factor calculations, with approximately 86% of the data being accepted as fit for purpose. The potential margin for error in the results may consequently be increased slightly. However, standard practice includes establishing a load flow solution for each half hour of the year and energy weighting the results, meaning that the overall outcome should not be materially affected. Western Power is confident the resultant loss factors are reasonable and fit for purpose.

Transmission Exit Points

Generally, loss factors at exit points decreased marginally across the board. All significant changes are due to increases in either load or generation at the node or at nearby nodes.

The more notable outcomes are discussed in more detail below.

Transmission Entry Points

The table below compares the new loss factors with those of the previous year.

Generator (or Substation)	TNI	2006-07	2007-08	Difference
Alcoa Pinjarra (Alcoa)	TAPA	1.0175	0.9869	-3.00%
Alcoa Pinjarra (Alina)	TAPL	0.9865	0.9847	-0.18%
Boulder (SCE)	TBLS	1.0857	1.1093	2.17%
Cockburn PWS	WKPS	1.0262	1.0095	-1.62%
Collie PWS	WCPS	1.0009	0.9989	-0.20%
Emu Downs	WEMD		1.0076	
Geraldton GT	WGTN	1.1059	1.0701	-3.23%
Kemerton PWS	WKEM	1.0165	1.0098	-0.66%
Kwinana Alcoa	WAKW	1.0314	1.0223	-0.88%
Kwinana PWS	WKPS	1.0262	1.0095	-1.62%
Mason Road (KPP)	TMSK	1.0343	1.0210	-1.28%
Muja PWS	WMPS	1.000	1.000	0.00%
Mungarra GTs	WMGA	1.0471	1.0377	-0.90%
Oakley (Alinta)	TOLA		1.0174	
Parkeston	WPKS	1.0406	1.0573	1.60%
Pinjar GTs	WPJR	1.0412	1.0392	-0.19%
Tiwest GT	WKMK	1.0339	1.0203	-1.32%
Wagerup Alcoa	WAWG	1.0005	0.9848	-1.57%
Walkaway Windfarm	WWWF	1.0036	0.9783	-2.52%
West Kalgoorlie GTs	TWKG	0.9705	1.0223	5.34%
Worsley (Joint Venture)	TWOJ	0.9883	0.9837	-0.47%
Worsley (Worsley)	TWOW	0.9913	0.9873	-0.40%

The more notable outcomes from the table above are discussed in more detail below.

Goldfields

- Loss factors at Black Flag, Boulder and Piccadilly substations (and in the Goldfields area generally), all increased largely due to increased energy being transferred over the 220kV interconnector to West Kalgoorlie Terminal.

Mid-West

- Loss factors at Three Springs, Golden Grove, Geraldton, Chapman and Eneabba all decreased, most notably due to the commissioning of the Emu Downs wind farm.

South West

- The loss factor at Albany has decreased approximately 3% whereas last year it increased approximately 4.4%. The Albany wind farm has a significant effect on the loss factor at Albany, and there was a higher correlation between the output of the wind farm and the load at Albany this year compared to last year, resulting in a lower loss factor at Albany.
- The loss factor at Alcoa Pinjarra (Alcoa) has decreased, as a full years' operation of the Alinta generation at the adjoining connection point has been dominant and driven the loss factor lower.

I would like to reiterate that Western Power has followed the IMO's methodology and industry practice for calculating transmission loss factors for 2007-08. Even though there was not a full complement of ½ hourly data throughout the year, the overall results should not have been materially affected and Western Power is confident the loss factors provided to the IMO are appropriate.

Distribution Loss factors

The 2007-08 distribution loss factors remain unchanged from 2006-07 apart from the inclusion of two new individual distribution loss factors.

Western Power was unable to recalculate the average distribution loss factors due to the SCADA data issues outlined above. However, average distribution loss factors are quite static from year to year and it is Western Power's view that the current published average distribution loss factors remain valid for 2007-08.

Individual distribution loss factors for individual customers are based on somewhat theoretical calculations which do not materially change from year to year. It is Western Power's view that the current individual distribution loss factors remain valid for 2007-08.

Should you have any queries or wish to discuss any matter please do not hesitate to call me on 9326 4564.

Yours sincerely,



Neil Gibbney
Pricing and Regulation Engineer

cc: Peter Mattner