2017/18 Loss Factor Report

June 2017

Contents

1 Introduction

This report details the loss factors calculated for the 2017/18 financial year as required by section 2.27 of the Market Rules.

To comply with the obligations under section 2.27 of the Market Rules Western Power has:

- Recalculated all transmission loss factors.
- Recalculated all average distribution loss factors.
- Recalculated all individual distribution loss factors for customers with a CMD greater than 7,000 kVA.
- Recalculated all individual distribution loss factors for customers with a CMD between 1,000 and 7,000 kVA located greater than 10 km from the electrically closest substation.
- Recalculated the individual distribution loss factors for customers with a CMD between 1,000 and 7,000 kVA located less than 10 km from the electrically closest substation, where an individual distribution loss factor has been elected by the associated retailer.
- Recalculated all individual distribution loss factors for distribution connected generation customers.

2 Basis for Calculation

Western Power calculates loss factors in accordance with the Market procedure for determining loss factors. The following sections provide further detail on the methodology used by Western Power in calculating loss factors.

2.1 Transmission loss factors

Western Power has calculated the transmission loss factors in accordance with section 4.1 of the Market procedure for determining loss factors using the software package T-price.

2.2 Average distribution loss factors

The methodology calculates the average distribution loss factors by:

- Determining losses within the zone substation transformers.
- Determining HV feeder losses.
- Determining distribution transformer losses.
- Determining LV feeder losses (allowing separately for residential and commercial losses).

Western Power allocates the average distribution losses based on the usage of the various components of the network. An appropriate basis for this allocation is the reference services (offered in Western Power's access arrangement) and in accordance with the Market procedure for determining loss factors Western Power has determined an average loss factor for relevant reference services.

2.3 Individual distribution loss factors

Western Power calculates the individual distribution loss factors in accordance with section 4.2 of the *Market procedure for determining loss factors*.

The methodology used to calculate the individual distribution loss factors uses the formulae and methodology detailed in Schedule 4 of the Electricity Distribution Regulations 1997.[1] Schedule 4 of the Electricity Distribution Regulations 1997 is reproduced below:

1.	To calculate the loss factor for a distribution connection which is an exit point a corporation must follow the following steps:
(a)	the corporation must determine the line losses assuming the distribution connection was not there and assuming feeder maximum load;
(b)	the corporation must determine the line losses assuming only the distribution connection was there and assuming feeder maximum load;
(c)	the corporation must determine the total line losses assuming all the distribution connections are there (including the distribution connection for which the loss factor is being determined) and assuming feeder maximum load;
(d)	the corporation must allocate a share of the total line losses calculated under step (c) to the distribution connection for which the loss factor is being determined based on the ratio of the result of step (b) and the sum of the results of steps (a) and (b);

[1] For sites supplied from multiple feeders the distribution loss factor has been determined as if the load is evenly split across the feeders. The resultant distribution loss factor is the average of the calculated distribution loss factors.

(e) the corporation must calculate the loss factor for the distribution connection by applying the following formula:

$$\text{LFExit} = 1 + \frac{A}{B}$$

where —

A (in kW) is the share of the total line losses allocated to the distribution connection under step (d);

B (in kW) is the contract maximum demand for the distribution connection.

2. To calculate the loss factor for a distribution connection which is an entry point a corporation must follow the following steps:

(a) the corporation must determine the line losses assuming the distribution connection was not there and assuming feeder maximum load;

(b) the corporation must determine the total line losses assuming all the distribution connections are there (including the distribution connection for which the loss factor is being determined) and assuming feeder maximum load;

(c) the corporation must calculate the loss decrease or increase for the distribution connection for which the loss factor is being determined by subtracting the result of step (b) from the result of step (a);

(d) the corporation must calculate the loss factor for the distribution connection by applying the following formula:

$$\text{LFEntry} = 1 + \frac{A}{B}$$

where —

A (in kW) is the loss increase or decrease calculated for the distribution connection under step (c);

B (in kW) is the declared sent-out capacity for the distribution connection.

3 Transmission Loss Factors

Western Power has calculated the following transmission loss factors for the 2017/18 financial year.

Table 1: Transmission Loss Factors.

TLF Code	Description	Applied in 2016/17	To apply in 2017/18
TAPA	Alcoa Pinjarra (Alcoa)	0.9921	0.9985
TAPL	Alcoa Pinjarra (Alinta)	0.9898	0.9946
TBLB	Bluewaters	0.9998	0.9992
TBLS	Boulder (SCE)	1.1795	1.1549
TKRA	Karara Three Springs	1.0432	1.0436
TLWA	Lanwehr (Alinta)	1.0129	1.0126
TMBA	Mumbida Wind Farm	0.9696	0.9668
TMDP	Merredin Power Station	0.9997	0.9997
TMGS	Greenough River Solar Farm	1.0187	1.0141
TMSK	Mason Road (KPP)	1.0261	1.0246
TOLA	Oakley (Alinta)	1.0146	1.0132
TSAV	Transmission SWIN Average	1.0380	1.0386
TUAV	Transmission Urban Average	1.0394	1.0384
TWKG	West Kalgoorlie GTs	1.1557	1.1339
TWOJ	Worsley (Joint Venture)	0.9821	0.9856
TWOW	Worsley (Worsley)	0.9866	1.0054
WAFM	Australian Fused Materials	1.0282	1.0267
WAKW	Kwinana Alcoa	1.0265	1.0243
WALB	Albany	1.0711	1.0988
WAMT	Amherst	1.0381	1.0365
WAPM	Australian Paper Mills	1.0411	1.0392
WARK	Arkana	1.0400	1.0393
WBCH	Beechboro	1.0404	1.0399
WBCT	Balcatta	1.0418	1.0406
WBDE	Baandee (WC)	1.0578	1.0479
WBDP	Binningup Desalination Plant	1.0127	1.0159
WBEC	Beckenham	1.0327	1.0327
WBEL	Belmont	1.0328	1.0320
WBGM	Boddington Gold Mine	1.0093	1.0091
WBHK	Broken Hill Kwinana	1.0280	1.0258
WBIB	Bibra Lake	1.0342	1.0317
WBKF	Black Flag	1.1619	1.1643

WBLD	Boulder	1.1434	1.1451
WBNP	Beenup	1.0283	1.0298
WBNY	Bounty	1.0710	1.0753
WBOD	Boddington	1.0083	1.0085
WBPM	British Petroleum	1.0287	1.0384
WBSI	Marriott Road Barrack Silicon Smelter	1.0126	1.0153
WBSN	Busselton	1.0458	1.0561
WBTN	Bridgetown	1.0145	1.0134
WBTY	Bentley	1.0353	1.0340
WBUH	Bunbury Harbour	1.0138	1.0193
WBYF	Byford	1.0338	1.0329
WCAP	Capel	1.0348	1.0407
WCAR	Carrabin	1.1042	1.0510
WCBP	Mason Road CSBP	1.0269	1.0237
WCCL	Cockburn Cement Ltd	1.0288	1.0272
WCCT	Cockburn Cement	1.0303	1.0284
WCGW	Collgar Windfarm	0.9923	0.9912
WCKN	Clarkson	1.0413	1.0391
WCKT	Cook Street	1.0430	1.0416
WCLN	Clarence Street	1.0389	1.0380
WCLP	Coolup	1.0484	1.0555
WCOE	Collie	1.0226	1.0215
WCOL	Collier	1.0390	1.0383
WCPN	Chapman	1.0286	1.0272
WCPS	Collie PWS	0.9966	0.9959
WCTE	Cottesloe	1.0414	1.0400
WCUN	Cunderdin	1.0837	1.0963
WCVE	Canning Vale	1.0305	1.0295
WDTN	Darlington	1.0412	1.0407
WDUR	Durlacher	1.0265	1.0237
WEDD	Edmund Street	1.0398	1.0374
WEDG	Edgewater	1.0458	1.0430
WEMD	Emu Downs	1.0148	1.0151
WENB	Eneabba	1.0336	1.0340
WFFD	Forrestfield	1.0405	1.0398
WFRT	Forrest Ave	1.0453	1.0437

WGGV	Golden Grove	1.0629	1.0601
WGNI	Glen Iris	1.0281	1.0266
WGNL	Gosnells	1.0313	1.0306
WGNN	Newgen Neerabup	1.0374	1.0355
WGTN	Geraldton	1.0265	1.0237
WHAY	Hay Street	1.0430	1.0415
WHBK	Henley Brook	1.0401	1.0385
WHEP	Herdsman Parade	1.0483	1.0473
WHFS	Hadfields	1.0418	1.0416
WHIS	Hismelt	1.0219	1.0418
WHZM	Hazelmere	1.0355	1.0350
WJDP	Joondalup	1.0410	1.0402
WJTE	Joel Terrace	1.0422	1.0410
WKAT	Katanning	1.0521	1.0702
WKDA	Kalamunda	1.0423	1.0415
WKDL	Kewdale	1.0320	1.0314
WKDN	Kondinin	1.0375	1.0382
WKDP	Kwinana Desalination Plant	1.0261	1.0241
WKEL	Kellerberrin	1.0706	1.0526
WKEM	Kemerton PWS	1.0101	1.0099
WKMC	Cataby Kerr McGee	1.0349	1.0346
WKMK	Kerr McGee Kwinana	1.0245	1.0221
WKMM	Muchea Kerr McGee	1.0362	1.0361
WKND	Kwinana Donaldson Road (Western Energy)	1.0267	1.0176
WKOJ	Kojonup	1.0284	1.0368
WKPS	Kwinana PWS	1.0236	1.0205
WLDE	Landsdale	1.0429	1.0419
WMAG	Manning Street	1.0490	1.0427
WMBR	Mt Barker	1.0575	1.0783
WMCR	Medical Centre	1.0478	1.0456
WMDN	Maddington	1.0307	1.0299
WMDY	Munday	1.0397	1.0387
WMED	Medina	1.0309	1.0299
WMER	Merredin 66kV	1.0508	1.0479
WMGA	Mungarra GTs	1.0059	1.0118
WMHA	Mandurah	1.0268	1.0299

WMIL	Milligan Street	1.0420	1.0424
WMJP	Manjimup	1.0202	1.0198
WMJX	Midland Junction	1.0368	1.0358
WMLG	Malaga	1.0379	1.0371
WMOR	Moora	1.0488	1.0496
WMOY	Morley	1.0420	1.0424
WMPS	Muja PWS	1.0000	0.9995
WMRR	Marriot Road	1.0106	1.0133
WMRV	Margaret River	1.0982	1.1048
WMSR	Mason Road	1.0260	1.0243
WMSS	Meadow Springs	1.0264	1.0293
WMUC	Muchea	1.0378	1.0371
WMUL	Mullaloo	1.0423	1.0415
WMUR	Murdoch	1.0298	1.0285
WMWR	Mundaring Weir	1.0479	1.0572
WMYR	Myaree	1.0458	1.0445
WNBH	North Beach	1.0431	1.0424
WNED	Nedlands	1.0471	1.0458
WNFL	North Fremantle	1.0384	1.0371
WNGK	NewGen Kwinana	1.0231	1.0221
WNGN	Narrogin	1.0427	1.0254
WNOR	Northam	1.0582	1.0586
WNOW	Nowgerup	1.0370	1.0357
WNPH	North Perth	1.0433	1.0419
WOCN	O'Connor	1.0438	1.0412
WOPK	Osborne Park	1.0421	1.0420
WPBY	Padbury	1.0437	1.0427
WPCY	Piccadilly	1.1528	1.1507
WPIC	Picton 66kv	1.0136	1.0197
WPJR	Pinjar	1.0322	1.0322
WPKS	Parkeston	1.1468	1.1529
WPLD	Parklands	1.0248	1.0272
WPNJ	Pinjarra	1.0167	1.0194
WRAN	Rangeway	1.0275	1.0252
WRGN	Regans	1.0363	1.0357
WROH	Rockingham	1.0314	1.0300

WRTN	Riverton	1.0310	1.0298
WRVE	Rivervale	1.0327	1.0319
WSFT	South Fremantle 66kV	1.0246	1.0246
WSNR	Southern River	1.0304	1.0299
WSPA	Shenton Park	1.0452	1.0439
WSRD	Sutherland	1.0452	1.0449
WSUM	Summer St	1.0431	1.0420
WSVY	Sawyers Valley	1.0458	1.0450
WTLN	Tomlinson Street	1.0300	1.0352
WTSG	Three Springs	1.0382	1.0384
WTST	Three Springs Terminal	1.0499	1.0499
WTTS	Tate Street	1.0330	1.0319
WUNI	University	1.0456	1.0467
WVPA	Victoria Park	1.0352	1.0352
WWAG	Wagin	1.0503	1.0754
WWAI	Waikiki	1.0320	1.0315
WWCL	Western Collieries	0.9956	0.9984
WWDN	Wembley Downs	1.0479	1.0468
WWEL	Welshpool	1.0321	1.0313
WWGA	Wangara	1.0425	1.0415
WWGP	Wagerup	0.9825	0.9968
WWKT	West Kalgoorlie	1.1446	1.1495
WWLN	Willetton	1.0297	1.0289
WWMG	Western Mining	1.0283	1.0264
WWNO	Wanneroo	1.0385	1.0376
WWNT	Wellington Street	1.0460	1.0429
WWSD	Westralian Sands	1.0298	1.0369
WWUN	Wundowie	1.0625	1.0754
WWWF	Walkaway Windfarm	0.9519	0.9487
WYCP	Yanchep	1.0382	1.0378
WYER	Yerbillon	1.1080	1.0525
WYKE	Yokine	1.0421	1.0420
WYLN	Yilgarn	1.0753	1.0795

4 Average Distribution Loss Factors

Western Power has calculated the following average distribution loss factors for the 2017/18 financial year.

Table 1 - Average Distribution Loss Factors

DLF Code	Description	Applied in 2016/17	To apply in 2017/18
QRT1	A1 - Anytime Energy (Residential)	1.0513	1.0482
QRT2	A2 - Anytime Energy (Business)	1.0409	1.0405
QRT3	A3 - Time of Use Energy (Residential)	1.0513	1.0482
QRT4	A4 - Time of Use Energy (Business)	1.0409	1.0405
QRT5	A5 - High Voltage Metered Demand	1.0202	1.0193
QRT6	A6 - Low Voltage Metered Demand	1.0374	1.0379
QR7Z	A7 - High Voltage Contract Maximum Demand (Zone Substation Connected)	1.0055	1.0055
QZSC	Zone Substation Connections	1.0055	1.0055
QNLF	Transmission Connected (No DLF)	1.0000	1.0000
QNWM	Notional Wholesale Meter	1.0497	1.0473
QAVG	Distribution System Wide Average Loss Factor	1.0418	1.0403
QR13	C1 – Anytime Energy (Residential) Bi-directional	1.0513	1.0482
QR14	C2 – Anytime Energy (Business) Bi-directional	1.0409	1.0405
QR15	C3 – Time of Use Energy (Residential) Bi-directional	1.0513	1.0482
QR16	C4 – Time of Use Energy (Business) Bi-directional	1.0409	1.0405

5 Individual Distribution Loss Factors

Western Power has calculated the following individual distribution loss factors for the 2017/18 financial year, where the value for 2017/18 is blank, the reason is given in Appendix C.

Table 2 - Individual Distribution Loss Factors

DLF Code	Description	Applied in 2016/17	To apply in 2017/18
QAAL	AIR LIQUIDE WA PTY LTD	1.0078	1.0089
QAAM	AMP CAPITAL INVESTORS LIMITED (GARDEN CITY SHOPPING CENTRE)	1.0098	
QAMC	AMCOR BEVERAGE CANS	1.0069	1.0076
QANF	ANDERSON WIND FARM	1.0193	1.0615
QARG	ARGENT (BULLANT) PTY LTD	1.0122	1.0062
QAUS	AUSWEST PTY LTD	1.0456	1.0500
QAWF	ALBANY WINFARM	0.9419	0.9725
QBBW	BREMER BAY WINDFARM	1.3675	1.3675
QBGB	BGC (AUSTRALIA) PTY LTD	1.0093	1.0083
QBGC	BGC (AUSTRALIA) PTY LTD	1.0074	1.0074
QBGM	BODDINGTON GOLD MINE	1.0545	1.0552
QBGP	BGC (AUSTRALIA) PTY LTD	1.0057	1.0057
QBGQ	BGC (AUSTRALIA) PTY LTD	1.0289	1.0310
QBLB	AUSTRALBRICKS (WA) PTY LTD (BELLEVUE)		1.0072
QBLM	AUSTRALBRICKS (WA) PTY LTD (MALAGA)		1.0061
QBMA	ST BARBARA MINES (L1)	1.0055	1.0073
QBMB	ST BARBARA MINES (L1 B)	1.0132	1.0132
QBMC	ST BARBARA LIMITED	1.0116	1.0129
QBNB	BGC (AUSTRALIA) PTY LTD	1.0174	1.0175
QBOC	BOC GASES (COMMONWEALTH INDUSTRIAL)	1.0055	1.0061
QBPA	BUNBURY PORT AUTHORITY	1.0064	1.0062
QBRA	BRADKEN RESOURCES PTY LTD	1.0066	1.0063
QBTF	INVESTA PROP & SAS TRUSTEE CORPORATION (QV1)	1.0057	
QBUL	CO-OPERATIVE BULK HANDLING LTD	1.0223	1.0205
QBUR	BURSWOOD RESORT CASINO	1.0066	1.0074
QBWE	BANKWEST	1.0070	
QCAS	CASTELLI NOMINEES PTY LTD		1.0406
QCBC	COCKBURN CEMENT	1.0927	1.0999
QCBH	COOPERATIVE BULK HANDLING LTD	1.0523	1.0535
QCEB	CEBAS PTY LTD	1.0057	1.0058

QCEM	COCKBURN CEMENT LIMITED	1.0062	1.0063
QCMA	CRISTAL MINING AUSTRALIA LIMITED	1.0374	1.0382
QCTE	A RICHARDS PTY LTD	1.0087	1.0141
QDCS	DEPARTMENT OF CORRECTIVE SERVICES	1.0235	1.0235
QDER	DEPT OF ENVIRONMENT REGULATION	1.0173	1.0144
QDMS	DORAL MINERAL SANDS	1.0826	
QDOD	DEPT OF DEFENCE - HMAS STIRLING	1.0123	1.0111
QDPL	DONHAD PTY LTD		1.0186
QDWF	DENMARK WINDFARM	1.1873	1.2166
QFFM	WESTERN AREAS NL - FLYING FOX MINESITE	1.1405	1.1304
QFIE	FLETCHER INTERNATIONAL EXPORTS	1.0770	1.0783
QFLM	LA MANCHA (FROGS LEGS MINE - COOLGARDIE)	1.0221	1.0203
QFPA	FREMANTLE PORT AUTHORITY	1.0060	1.0061
QFUR	FURMANITE AUSTRALIA PTY LTD	1.0119	1.0121
QGES	APF MANAGEMENT AND PERRON INVEST (CENTRAL PARK)	1.0083	1.0070
QGLM	GUNNS LIMITED (MANJIMUP)	1.0334	1.0363
QGRA	GRAND HOTEL MANAGEMENT LIMITED	1.0096	1.0091
QGRI	GRIFFIN COAL MINE	1.0383	1.0358
QHFM	HARVEY FRESH MILK	1.0699	1.0759
QHLG	HENDERSON LANDFILL GAS (WASTE GAS RESOURCES PTY LTD	1.0053	1.0050
QHMP	HIGGINSVILLE MINING PTY LTD	1.0375	1.0384
QHRO	HR OPERATIONS PTY LTD	1.0075	1.0061
QHVI	EG GREEN & SONS PTY LTD/HARVEY INDUSTRIES	1.1265	1.1353
QIRL	ILUKA RESOURCES LIMITED	1.1020	1.1017
QJAN	JANDAKOT AIRPORT HOLDINGS	1.0091	1.0096
QKBG	KANOWNA BELLE GOLD MINES LIMITED	1.0914	1.0691
QKEM	KEMERTON SILICA SAND PTY LTD	1.0721	1.0739
QKEY	KEYSBROOK LEUCOXENE PTY LTD	1.0211	1.0214
QKUD	KUDANA GOLD PTY LTD	1.0064	1.0095
QKWF	KALBARRI WIND FARM	1.2167	1.0853
QLGA	LANDFILL GAS & POWER PTY LTD (RED HILL)	1.0219[2]	1.0072
QLGC	LANDFILL GAS POWER PTY LTD (KALAMUNDA)	1.0303	1.0238
QLGD	LANDFILL GAS POWER PTY LTD (TAMALA PARK)	1.0195	1.0122

[2] The 2016/17 Loss Factor Report reported this value as 1.1332 however this number was reported in error. The correct value is as shown above.

QLJS	ARMSTRONG JONES MANAGEMENT PTY LIMITED (JOONDALUP SHOPPING CENTRE)	1.0091	1.0093
QLMR	LA MANCHA RESOURCES	1.0379	1.0698
QMBW	MT BARKER POWER COMPANY	1.0268	1.0294
QMIC	BORAL BRICKS WESTERN AUSTRALIA PTY LTD	1.0343	1.0353
QNEW	NEWMONT POWER PTY LTD	1.0421	1.0509
QPAG	PADDINGTON GOLD PTY LTD	1.0641	1.0661
QPAN	PAN PACIFIC PERTH		1.0077
QPEA	LMS SOUTH CARDUP	1.0081	1.0027
QPEB	A G L ENERGY SERVICES (ROCKINGHAM)	1.0000	0.9975
QPED	LMS ATLAS	1.0097	1.0094
QPGO	PADDINGTON GOLD PTY LIMITED	1.0066	1.0066
QRPH	ROYAL PERTH HOSPITAL	1.0058	
QRRA	DEPARTMENT OF DEFENCE	1.1254	1.1302
QSER	SERCO AUSTRALIA PTY LTD	1.0243	1.0261
QSIM	SIMS GROUP AUSTRALIA HOLDINGS LTD		1.0067
QSIT	SITA AUSTRALIA PTY LTDY	1.0124	1.0116
QSMP	ST MARTINS PROPERTIES PTY	1.0071	1.0068
QTAL	TALISON MINERALS PTY LTD	1.0726	1.0615
QTCG	TESLA CORPORATION - GERALDTON	1.0076	1.0044
QTCK	TESLA CORPORATION - KEMERTON	1.0055	1.0055
QTCL	TELSTRA	1.0071	1.0070
QTCN	TESLA CORPORATION - NORTHAM	0.9889	0.9551
QTES	TESLA CORPORATION PICTON G1	1.0040	1.0043
QTMH	FOCUS OPERATIONS PTY LTD	1.0242	1.0186
QVEW	VERVE ENERGY - WOOD PROCESS CHARCOAL POWER STN	1.0057	1.0058
QWAC	WESTRALIA AIRPORTS CORPORATION PTY LTD	1.0141	1.0086
QWAN	WESTERN AREAS NL (COSMIC BOY)	1.0766	1.1004
QWBE	WESBEAM PTY LTD	1.0109	1.0103
QWBE	WESBEAM PTY LTD	1.0109	1.0103
QWCA	WATER CORPORATION	1.0094	
QWCB	WATER CORP (BELMONT)	1.0081	1.0082
QWCD	WATER CORPORATION	1.0120	1.0148
QWCE	WATER CORP (BEENYUP WWTP)	1.0070	1.0056
QWCF	WATER CORPORATION	1.0158	1.0135
QWCG	WATER CORPORATION (GHOOLI)	1.0795	1.0298
QWCI	WATER CORPORATION	1.0079	1.0071

QWCJ	WATER CORPORATION	1.0061	1.0058
QWCK	WATER CORPORATION	1.0106	1.0105
QWCL	WATER CORPORATION	1.0074	1.0071
QWCM	WATER CORPORATION	1.0113	1.0121
QWCN	WATER CORPORATION	1.0055	1.0055
QWCO	WATER CORPORATION		1.0055
QWCT	WATER CORPORATION SEWERAGE TREAT	1.0117	1.0160
QWCW	WATER CORP (WANNEROO GS)	1.0301	1.0303
QWFL	WESFARMERS LPG PTY LTD	1.0065	1.0072
QWHF	WEST HILLS FARM	1.0636	1.1457
QWHS	WHITFORD CITY SHOPPING CENTRE	1.0161	1.0128
QWMD	THE LAMINEX GROUP	1.0262	1.0197

6 Explanation for Changes in Loss Factors

In accordance with clause 2.21(b)ii of the Market procedure for determining loss factors Western Power is required to provide an explanation for any changes of more than 0.025 in any transmission or distribution loss factors when compared to the previous year.

In general, loss factors increase with demand at a node and decrease with increasing generation at a node. Loss factors can also be affected by changes in network configuration.

6.1 Transmission loss factors

Loss factors for the transmission network are calculated based on half hour data for the whole system over the whole year. Individual transmission loss factors are not only affected by the quantity of usage at a node but also the time the usage occurs, and being a meshed network they are also affected by usage at other nearby nodes.

Table 3 is a list of the transmission loss factors that moved by more than 0.025 in 2017/18. Exact reasons for the movements are difficult to determine. The changes to Carrrabin and Yerbillon are due to lower load in the area. Albany's loss factor is heavily influenced by the behaviour of wind farms connected to the substation and has been a little volatile historically. Wagin has seen a slight increase in load that has pushed it just above the threshold.

Table 3 - Transmission Loss Factors changed by more than 0.025

TLF Code	Description	Applied in 2016/17	To apply in 2017/18	Change
WALB	Albany	1.0711	1.0988	0.0277
WCAR	Carrabin	1.1042	1.0510	-0.0532
WWAG	Wagin	1.0503	1.0754	0.0251
WYER	Yerbillon	1.1080	1.0525	-0.0555

6.2 Average distribution loss factors

No average distribution loss factors have changed by more than 0.025 when compared to the previous year.

6.3 Individual distribution loss factors

The following individual distribution loss factors have changed by more than 0.025 when compared to the previous year:

Table 4 - Individual Distribution Loss Factors changed by more than 0.025

DLF Code	Description	Applied in 2016/17	To apply in 2017/18	Change
QANF	ANDERSON WIND FARM	1.0193	1.0615	0.0422
QAWF	ALBANY WIND FARM	0.9419	0.9725	0.0306
QDWF	DENMARK WINDFARM	1.1873	1.2166	0.0293
QKWF	KALBARRI WIND FARM	1.2167	1.0853	-0.1314
QLMR	LA MANCHA RESOURCES	1.0379	1.0698	0.0319
QTCN	TESLA CORPORATION - NORTHAM	0.9889	0.9551	-0.0338

QWCG	WATER CORPORATION (GHOOLI)	1.0795	1.0298	-0.0497
QWHF	WEST HILLS FARM	1.0636	1.1457	0.0821

The following table sets out the reasons for the changes in the individual distribution loss factors:

Table 5 – Reason for Individual Distribution Loss Factors change by more than 0.025

DLF Code	Reason for Change in Loss Factor
QANF	Higher generation at peak has contributed to the increase
QAWF	Grasmere windfarm has mistakenly been included in this loss factor in the past. Removing this site has changed the outcome for Albany.
QDWF	Higher generation at peak has contributed to the increase
QKWF	The feeder peak is higher compared to last year, reducing the impact of this customer
QLMR	The feeder peak load is lower compared to last year, increasing the relative share of this customer
QTCN	The feeder peak is higher compared to last year, reducing the impact of this customer
QWCG	The feeder peak is higher compared to last year and the customer load is smaller, reducing the impact of this customer
QWHF	Higher generation at peak has contributed to the increase

Appendix A - Individual Transmission Loss Factors by NMI

The following NMIs are for customers connected directly to the transmission system along with the transmission loss factor code Western Power has assigned.

Table 6 - Transmission Loss Factors by NMI

NMI	TLF Code
8001000116	WBHK
8001000118	WKMK
8001000126	WWMG
8001000127	WWMG
8001000128	WWMG
8001000129	WCCL
8001000279	WPKS
8001000291	WAFM
8001000347	WEDG
8001000499	TMSK
8001000500	TMSK
8001000616	WKMM
8001000640	WWCL
8001000641	WWCL
8001000646	WGGV
8001000659	WKMC
8001000707	WALB
8001000708	WALB
8001000732	TAPA
8001000733	WAKW
8001000736	WCBP
8001000741	TBLS
8001000743	TWOW
8001000744	TWOJ
8001000764	WSUM
8001000776	WWSD
8001000823	WTLN
8001000954	TAPA
8001001007	WWGP
8001001211	WWWF
8001001212	WWWF

8001016070	WBEC
8001018020	WKEM
8001018021	WKEM
8001018932	TAPL
8001019478	TWOW
8001019484	WEMD
8001019485	WEMD
8001019487	WKDP
8001019590	TOLA
8001019784	TLWA
8001019785	TLWA
8001019790	WPLD
8001019791	WGNI
8002013337	TBLB
8002013343	WNGK
8002013364	WMPS
8002013365	WKPS
8002013366	WCPS
8002013368	WPJR
8002013369	WKPS
8002013370	WGTN
8002013371	TWKG
8002013372	WMGA
8002013375	WBGM
8002013379	WKMK
8002013796	TBLB
8002014313	WPKS
8002015326	WGNN
8002016124	WKND
8002016403	WCGW
8002016404	WCGW
8002016407	TWOW
8002016415	WBSI
8002016416	WBSI
8002016417	WBSI
8002016490	TKRA

8002016491	TKRA
8002016504	WKPS
8002016505	WKPS
8002016506	TMGS
8002016510	TMDP
8002016519	TMBA
8002016571	WNOW
8002016585	WSRD
8002112635	WBDP

Appendix B - Individual Distribution Loss Factors by NMI

The individual distribution loss factors calculated for the 2017/18 financial year are associated with the following NMIs.

Table 7 - Individual Distribution Loss Factors by NMI

NMI	DLF Code	Required or Optional[3]
8001000286	QAAL	Optional
8002227231	QAAL	Required
8002227767	QAAL	Required
8001000365	QAMC	Optional
8002148204	QANF	Required
8001000493	QARG	Required
8001002460	QAUS	Required
8001000707	QAWF	Required
8001000708	QAWF	Required
8002016475	QZSC	Required
8002019353	QBGB	Optional
8001000864	QBGC	Optional
8001020092	QBGM	Required
8001000274	QBGP	Optional
8002067264	QBGQ	Required
8001000791	QBLB	Optional
8001000846	QBLM	Optional
8001001009	QBMA	Required
8001000359	QBMB	Required
8001000830	QBMC	Required
8001003787	QBNB	Required
8002206185	QBOC	Required
8001000329	QBPA	Required
8001000414	QBRA	Optional
8001009577	QBUL	Required
8001000652	QBUR	Optional
8001000653	QBUR	Optional

[3] Individual distribution loss factors have been assessed as either required or optional in accordance with section 3.2.5 of the *Market procedure for determining loss factors*. The calculation of optional distribution loss factors is at the cost of the retailer.

8001790061	QCAS	Required
8001000428	QCBC	Required
8001000780	QCBH	Required
8002002527	QCEB	Optional
8001000130	QCEM	Required
8002166160	QCMA	Required
8001012464	QCTE	Required
8001008631	QDCS	Required
8002049183	QDER	Required
8001000333	QDOD	Required
8001000420	QDPL	Optional
8002016529	QDWF	Required
8001000287	QFFM	Required
8001000539	QFIE	Required
8002034918	QFLM	Required
8001000612	QFPA	Optional
8001000613	QFPA	Optional
8001019750	QFPA	Optional
8002221497	QFUR	Required
8001000546	QGES	Optional
8001000547	QGES	Optional
8001011882	QGLM	Required
8001015838	QGRA	Optional
8001017284	QGRI	Required
8002016580	QHFM	Required
8001019433	QHLG	Required
8001000451	QHMP	Required
8001017256	QHRO	Optional
8001000345	QHVI	Required
8002114136	QIRL	Required
8002035499	QJAN	Optional
8002141398	QJAN	Optional
8001000824	QKBG	Required
8001000125	QKEM	Required
8002247735	QKEY	Required
8001000669	QKUD	Required

8001000670	QKUD	Required
8002013336	QKWF	Required
8001000158	QLGA	Required
8001000738	QLGC	Required
8001000234	QLGD	Required
8001000667	QLJS	Optional
8001000668	QLJS	Optional
8002191360	QLMR	Required
8002016408	QMBW	Required
8001000706	QMIC	Required
8001000998	QNEW	Required
8001000745	QPAG	Required
8001000689	QPAN	Optional
8001000690	QPAN	Optional
8001000916	QPEA	Required
8001000122	QPEB	Required
8001018080	QPED	Required
8001000458	QPGO	Optional
8001000863	QRRA	Required
8001006864	QSER	Required
8002203581	QSIM	Optional
8002055189	QSIT	Required
8001000519	QSMP	Optional
8001000520	QSMP	Optional
8001000121	QTAL	Required
8002016507	QTCG	Required
8002016508	QTCK	Required
8001000831	QTCL	Optional
8002016509	QTCN	Required
8002016420	QTES	Required
8001000356	QTMH	Required
8001002378	QVEW	Required
8001000533	QWAC	Optional
8001000534	QWAC	Optional
8001000878	QWAN	Required
8001000650	QWBE	Optional

8001000651	QWBE	Optional
8001000280	QWCB	Optional
8001020053	QWCD	Required
8001000282	QWCE	Optional
8001000529	QWCF	Optional
8001000530	QWCF	Optional
8001000790	QWCG	Required
8001008047	QWCI	Optional
8002109233	QWCJ	Optional
8001000623	QWCK	Optional
8001000624	QWCK	Optional
8002256973	QWCL	Optional
8001006363	QWCM	Optional
8001000614	QWCN	Optional
8001000615	QWCN	Optional
8001000357	QWCO	Required
8001000527	QWCT	Optional
8001000528	QWCT	Optional
8001000284	QWCW	Required
8001000829	QWFL	Optional
8002016499	QWHF	Required
8001000691	QWHS	Optional
8001000692	QWHS	Optional
8001000325	QWMD	Required

Appendix C - Extinct Loss Factor Codes

The following loss factor codes have not been recalculated for the 2017/18 financial year.

Table 8 - Individual Distribution Loss Factors by NMI

Loss Factor Code	Reason not calculated
QAAM	Not requested by retailer
QBTF	Not requested by retailer
QBWE	Not requested by retailer
QDMS	Site no longer active
QRPH	Not requested by retailer
QWCA	Changed tariff so no longer eligible

Appendix D - Alternative Presentation of Average DLFs

To enable comparison with distribution loss factors within the NEM the following table presents the average distribution loss factors based on network level. However, for the purposes of the WA market the average distribution loss factors are as per section 2.2.

Table 9 - Average Distribution Loss Factors by Network Level – For Information Only

Network Level	DLF Applied in 2016/17	DLF to Apply in 2017/18
6.6kV/11kV/22kV/33kV Bus Connected	1.0055	1.0055
6.6kV/11kV/22kV/33kV Line Connected	1.0202	1.0193
LV Bus Connected	1.0374	1.0379
LV Line Connected (Commercial)	1.0409	1.0405
LV Line Connected (Streetlighting/UMS)	1.0497	1.0473
LV Line Connected (Residential)	1.0513	1.0482
Transmission Connected (No DLF)	1.0000	1.0000
Distribution System Wide Average Loss Factor	1.0418	1.0403