

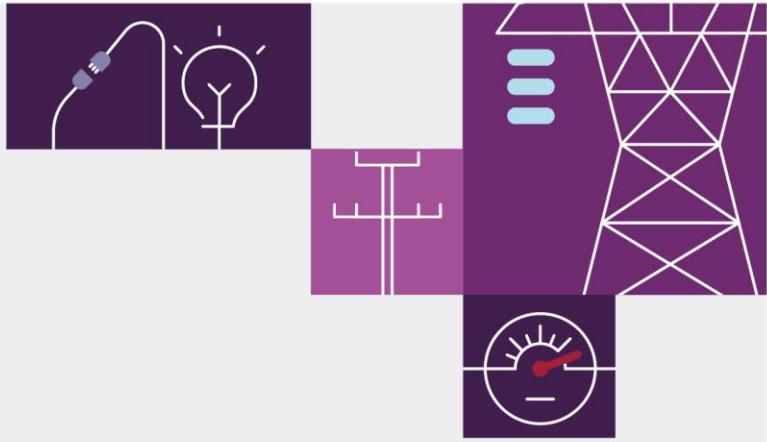


Draft Marginal Loss Factors: Financial Year 2024-25

March 2024

A report for the National Electricity Market





Important notice

Purpose

This document has been prepared by AEMO solely to inform Registered Participants of the draft intra-regional loss factors for financial year (FY) 2024–25 under clause 3.6.2 of the National Electricity Rules (Rules).

The Rules and the National Electricity Law (Law) prevail over this document to the extent of any inconsistency.

Disclaimer

This document contains draft information only, and the data in it will be updated when the FY 2024–25 intra-regional loss factors are finalised. This document does not constitute legal or business advice, and should not be relied on as a substitute for obtaining detailed advice about the Law, the Rules, or any other applicable laws, procedures or policies. AEMO has made every reasonable effort to ensure the quality of the information in this document but cannot guarantee its accuracy or completeness.

Anyone proposing to use the information in this publication should independently verify its suitability for purpose and obtain independent and specific advice from appropriate experts.

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Introduction

This document sets out the **draft** FY 2024-25 National Electricity Market (NEM) intra-regional loss factors, commonly referred to as marginal loss factors (MLFs), calculated under clause 3.6.2 of the National Electricity Rules (NER). The draft MLFs remain subject to changes following modelling of outstanding intra-regional limits, completion of all quality control processes (including consultant review), and any material issues identified in consultation with market participants.

AEMO expects to publish a final report on 1 April 2024 setting out the intra-regional loss factors for FY 2024-25, which will also include the following information:

- Inter-regional loss factor equations and loss equations under NER clause 3.6.1.
- Virtual transmission nodes (VTNs).
- Regions, regional reference nodes (RRNs) and region boundaries under NER clause 2A.1.3.

Improving transparency

In January 2024, AEMO published a preliminary report on MLFs for the FY 2024-25¹, intended to provide an early indication to stakeholders of both the potential direction and extent of movement in MLFs across the NEM between FY 2023-24 and FY 2024-25. The preliminary report was based on a limited study using some inputs from the FY 2023-24 study with generation profiles updated to reflect committed generation as of October 2023.

Structure of the draft report

This document has been structured as follows:

- Section 1 outlines the draft MLFs for loads and generators in FY 2024-25.
- Section 2 summarises the key changes that have been observed in MLFs between FY 2023-24 and FY 2024-25.
- Appendix A outlines the methodology, inputs, and assumptions that have been used to determine the draft MLFs for FY 2024-25.

Feedback

AEMO welcomes feedback on the draft MLFs. Feedback can be provided to mlf_feedback@aemo.com.au, and should be received no later than 11 March 2024 to be considered in preparation of the final report.

¹ At <https://aemo.com.au/en/energy-systems/electricity/national-electricity-market-nem/market-operations/loss-factors-and-regional-boundaries>.

Contents

Introduction	3
1 Draft marginal loss factors by region	6
1.1 Queensland marginal loss factors	6
1.2 New South Wales marginal loss factors	13
1.3 Victoria marginal loss factors	22
1.4 South Australia marginal loss factors	27
1.5 Tasmania marginal loss factors	32
2 Changes in marginal loss factors	36
2.1 Regional summary	37
A1. Methodology, inputs, and assumptions	38
A1.1 Marginal loss factors calculation methodology	38
A1.2 Load data requirements for the MLF calculation	38
A1.3 Generation data requirements for the MLF calculation	39
A1.4 Intra-regional limit management	41
A1.5 Network representation in the marginal loss factors calculation	42
A1.6 Interconnector capacity	45
A1.7 Calculation of MLFs	46
Glossary	47

Tables

Table 1	Queensland loads	6
Table 2	Queensland generation	9
Table 3	New South Wales loads	13
Table 4	New South Wales generation	17
Table 5	ACT loads	21
Table 6	ACT generation	21
Table 7	Victoria loads	22
Table 8	Victoria generation	24
Table 9	South Australia loads	27
Table 10	South Australia generation	29
Table 11	Tasmania loads	32
Table 12	Tasmania generation	34

Table 13	Operational demand	38
Table 14	Inter-regional limits	45

Figures

Figure 1	FY 2023-24 vs FY 2024-25 MLF study interconnector flow (GWh)	36
Figure 2	Project Energy Connect Stage 1 – Boundary configuration for 2024-25	44

1 Draft marginal loss factors by region

This section shows the draft intra-regional loss factors, commonly known as marginal loss factors (MLFs), for FY 2024-25, for every load or generation transmission node (TNI) in each National Electricity Market (NEM) region. At this stage AEMO is finalising the modelling and input data. These draft factors are published for information only and are subject to revision.

AEMO expects to publish final MLFs on 1 April 2024 in accordance with clause 3.6.2(f1) of the National Electricity Rules.

1.1 Queensland marginal loss factors

Table 1 Queensland loads

Location	Voltage (kV)	TNI code	2024-25 MLF	2023-24 MLF
Abermain	33	QABM	1.0001	0.9985
Abermain - Dual MLF (Generation)	110	QABR	0.9994	0.9985
Abermain - Dual MLF (Load)	110	QABR	0.9987	0.9985
Alan Sherriff	132	QASF	0.9881	0.9845
Algester	33	QALG	1.0187	1.0174
Alligator Creek	132	QALH	0.9728	0.9714
Alligator Creek	33	QALC	0.9773	0.9788
Ashgrove West	110	QCBW	1.0123	1.0126
Ashgrove West	33	QAGW	1.0151	1.0154
Belmont	110	QBMH	1.0141	1.0128
Belmont Wecker Road	33	QBBS	1.0161	1.0146
Biloela	66/11	QBIL	0.9293	0.9261
Blackstone	110	QBKS	0.9985	0.9980
Blackwater	132	QBWH	0.9676	0.9655
Blackwater	66/11	QBWL	0.9709	0.9722
Bluff	132	QBLF	0.9707	0.9663
Bolingbroke	132	QBNB	0.9623	0.9571
Bowen North	66	QBNN	0.9650	0.9616
Boyne Island	132	QBOL	0.9550	0.9485
Boyne Island	275	QBOH	0.9571	0.9496
Braemar – Kumbarilla Park	275	QBRE	0.9727	0.9723
Bulli Creek (Essential Energy)	132	QBK2	0.9792	0.9773
Bulli Creek (Waggamba)	132	QBLK	0.9792	0.9773
Bundamba	110	QBDA	1.0001	0.9987
Burton Downs	132	QBUR	0.9844	0.9716
Cairns	22	QCRN	0.9815	0.9760

Location	Voltage (kV)	TNI code	2024-25 MLF	2023-24 MLF
Cairns City	132	QCNS	0.9759	0.9684
Callemondah (Rail)	132	QCMD	0.9479	0.9395
Calliope River	132	QCAR	0.9448	0.9386
Cardwell	22	QCDW	0.9802	0.9818
Chinchilla	132	QCHA	0.9649	0.9692
Clare	66	QCLR	1.0087	0.9878
Collinsville Load	33	QCOL	0.9556	0.9503
Columboola	132	QCBL	0.9738	0.9774
Columboola 132 (Bellevue LNG load)	132	QCBB	0.9746	0.9784
Coppabella (Rail)	132	QCOP	0.9895	0.9844
Dan Gleeson	66	QDGL	0.9877	0.9881
Duarิงا	132	QDRG	0.9534	0.9627
Dysart	132	QDYS	0.9887	0.9779
Eagle Downs Mine	132	QECD	0.9858	0.9750
Edmonton	22	QEEMT	0.9932	0.9878
Egans Hill	66	QEGN	0.9354	0.9318
El Arish	22	QEELA	0.9858	0.9822
Garbutt	66	QGAR	0.9864	0.9883
Gin Gin	132	QGNG	0.9664	0.9621
Gladstone South	66/11	QGST	0.9460	0.9411
Goodna	33	QGDA	1.0054	1.0042
Goonyella Riverside Mine	132	QGYR	1.0050	0.9885
Grantleigh (Rail)	132	QGRN	0.9309	0.9264
Greenland 132	132	QGLD	0.9890	0.9735
Gregory (Rail)	132	QGRE	0.9490	0.9469
Ingham	66	QING	1.0015	0.9903
Innisfail	22	QINF	0.9919	0.9841
Invicta Load	132	QINV	0.9217	0.9317
Kamerunga	22	QKAM	0.9863	0.9837
Kemmis	66	QEEMS	0.9817	0.9704
King Creek	132	QKCK	0.9596	0.9569
Larcom Creek	275	QLCH	0.9590	0.9261
Lilyvale	66	QLIL	0.9517	0.9486
Lilyvale (Barcaldine)	132	QLCM	0.9567	0.9564
Loganlea	110	QLGH	1.0121	1.0118
Loganlea	33	QLGL	1.0147	1.0144
Mackay	33	QMKA	0.9751	0.9735
Middle Ridge (Energex)	110	QMRX	0.9800	0.9886

Location	Voltage (kV)	TNI code	2024-25 MLF	2023-24 MLF
Middle Ridge (Ergon)	110	QMRG	0.9800	0.9886
Mindi (Rail)	132	QMND	0.9575	0.9527
Molendinar	110	QMAR	1.0119	1.0132
Molendinar	33	QMAL	1.0115	1.0127
Moranbah (Mine)	66	QMRN	1.0033	0.9898
Moranbah (Town)	11	QMRL	0.9963	0.9852
Moranbah Substation	132	QMRH	0.9970	0.9853
Moura	66/11	QMRA	0.9493	0.9443
Mt McLaren (Rail)	132	QMTC	0.9977	0.9835
Mudgeeraba	110	QMGB	1.0112	1.0126
Mudgeeraba	33	QMGL	1.0125	1.0137
Murarrie (Belmont)	110	QMRE	1.0142	1.0129
Nebo	11	QNED	0.9543	0.9515
Newlands	66	QNLD	0.9992	0.9809
North Goonyella	132	QNGY	1.0005	0.9859
Norwich Park (Rail)	132	QNOR	0.9744	0.9631
Oakey	110	QOKT	0.9801	0.9883
Oonooie (Rail)	132	QOON	0.9741	0.9743
Orana LNG	275	QORH	0.9697	0.9715
Palmwoods	132	QPWD	1.0145	1.0130
Pandoon	132	QPAN	0.9309	0.9267
Pandoon	66	QPAL	0.9304	0.9294
Peak Downs (Rail)	132	QPKD	1.0007	0.9878
Pioneer Valley	66	QPIV	0.9892	0.9886
Proserpine	66	QPRO	0.9886	0.9878
Queensland Alumina Ltd (Gladstone South)	132	QQAH	0.9524	0.9445
Queensland Nickel (Yabulu)	132	QQNH	0.9729	0.9716
Raglan	275	QRGL	0.9389	0.9311
Redbank Plains	11	QRPN	1.0043	1.0054
Richlands	33	QRLD	1.0167	1.0158
Rockhampton	66	QROC	0.9495	0.9325
Rocklea (Archerfield)	110	QRLE	1.0057	1.0054
Ross	132	QROS	0.9711	0.9716
Runcorn	33	QRBS	1.0192	1.0180
South Pine	110	QSPN	1.0049	1.0045
Stony Creek	132	QSYC	0.9803	0.9727
Sumner	110	QSUM	1.0069	1.0064
Tangkem (Dalby)	110	QTKM	0.9804	0.9892

Location	Voltage (kV)	TNI code	2024-25 MLF	2023-24 MLF
Tarong	66	QTRL	0.9712	0.9712
Teebar Creek	132	QTBC	0.9860	0.9816
Tennyson	33	QTNS	1.0105	1.0101
Tennyson (Rail)	110	QTNN	1.0080	1.0078
Townsville East	66	QTVE	0.9775	0.9772
Townsville South	66	QTVS	0.9807	0.9778
Townsville South (KZ)	132	QTZS	1.0088	0.9979
Tully	22	QTLL	1.0169	1.0063
Turkinje	66	QTUL	1.0078	1.0029
Turkinje (Craiglie)	132	QTUH	1.0110	1.0068
Wandoan South	132	QWSH	0.9879	0.9897
Wandoan South (NW Surat)	275	QWST	0.9863	0.9890
Wandoor (Rail)	132	QWAN	0.9611	0.9554
Wivenhoe Pump	275	QWIP	1.0000	0.9994
Woolooga (Energex)	132	QWLG	0.9840	0.9800
Woolooga (Ergon)	132	QWLN	0.9840	0.9800
Woree	132	QWRE	0.9840	0.9777
Wotonga (Rail)	132	QWOT	0.9941	0.9818
Wycarbah	132	QWCB	0.9294	0.9249
Yarwun – Boat Creek (Ergon)	132	QYAE	0.9444	0.9369
Yarwun – Rio Tinto	132	QYAR	0.9440	0.9363

Table 2 Queensland generation

Generator	Voltage (kV)	DUID	Connection Point ID	TNI code	2024-25 MLF	2023-24 MLF
Baking Board Solar Farm (Chinchilla Solar Farm)	132	BAKING1	QCHS1C	QCHS	0.9403	0.9598
Barcaldine PS – Lilyvale	132	BARCALDN	QBCG	QBCG	0.9290	0.9380
Barcaldine Solar at Lilyvale (132)	132	BARCSF1	QLL1B	QLL1V	0.9303	0.9150
Barron Gorge Power Station Unit 1	132	BARRON-1	QBGH1	QBGH	0.9539	0.9590
Barron Gorge Power Station Unit 2	132	BARRON-2	QBGH2	QBGH	0.9539	0.9590
Bluegrass Solar Farm	132	BLUEGSF1	QCBS1B	QCBS	0.9394	0.9546
Bouldercombe BESS (Generation)	132	BBATTERY	QBCB1B	QBCB	0.9137	0.9198
Bouldercombe BESS (Load)	132	BBATRYL1	QBCB2B	QBCB	0.9416	0.9271
Braemar PS Unit 1	275	BRAEMAR1	QBRA1	QBRA	0.9596	0.9617
Braemar PS Unit 2	275	BRAEMAR2	QBRA2	QBRA	0.9596	0.9617
Braemar PS Unit 3	275	BRAEMAR3	QBRA3	QBRA	0.9596	0.9617
Braemar Stage 2 PS Unit 5	275	BRAEMAR5	QBRA5B	QBRA	0.9596	0.9617
Braemar Stage 2 PS Unit 6	275	BRAEMAR6	QBRA6B	QBRA	0.9596	0.9617
Braemar Stage 2 PS Unit 7	275	BRAEMAR7	QBRA7B	QBRA	0.9596	0.9617

Generator	Voltage (kV)	DUID	Connection Point ID	TNI code	2024-25 MLF	2023-24 MLF
Browns Plains Landfill Gas PS	110	BPLANDF1	QLGH3B	QLGH	1.0121	1.0118
Callide A PS Unit 4	132	CALL_A_4	QCAA4	QCAA	0.9246	0.9138
Callide A PS Unit 4 Load	132	CALLNL4	QCAA2	QCAA	0.9246	0.9138
Callide B PS Unit 1	275	CALL_B_1	QCAB1	QCAB	0.9172	0.9149
Callide B PS Unit 2	275	CALL_B_2	QCAB2	QCAB	0.9172	0.9149
Callide C PS Unit 3	275	CPP_3	QCAC3	QCAC	0.9143	0.9096
Callide C PS Unit 4	275	CPP_4	QCAC4	QCAC	0.9143	0.9096
Callide PS Load	132	CALLNL1	QCAX	QCAX	0.9227	0.9181
Childers Solar Farm	132	CHILDSF1	QTBS1C	QTBS	0.9789	0.9704
Chinchilla BESS (Generation)	275	CHBESSG1	QWDB1C	QWDB	0.9721	0.9588
Chinchilla BESS (Load)	275	CHBESSL1	QWDB2C	QWDB	0.9619	0.9750
Clare Solar Farm	132	CLARESF1	QCLA1C	QCLA	0.9056	0.8981
Clermont Solar Farm	132	CLERMSF1	QLLV3C	QLLV	0.9303	0.9150
Collinsville Solar Farm	33	CSPVPS1	QCOS1C	QCOS	0.9288	0.9132
Columboola Solar Farm	132	COLUMSF1	QCBR1C	QCBR	0.9680	0.9746
Columboola – Condamine PS	132	CPSA	QCND1C	QCND	0.9699	0.9731
Coopers Gap Wind Farm	275	COOPGWF1	QCPG1C	QCPG	0.9663	0.9658
Darling Downs PS	275	DDPS1	QBRA8D	QBRA	0.9596	0.9617
Darling Downs Solar Farm	275	DDSF1	QBRS1D	QBRS	0.9735	0.9762
Daydream Solar Farm	33	DAYDSF1	QCCK1D	QCCK	0.9238	0.9098
Dulacca Wind Farm	132	DULAWF1	QCBF1D	QCBF	0.9747	0.9776
Edenvale Solar Park	275	EDENVSF1	QORS1E	QORS	0.9679	0.9720
Emerald Solar Farm	66	EMERASF1	QLIS1E	QLIS	0.9270	0.9111
Gangarri Solar Farm	132	GANGARR1	QWSS1G	QWSS	0.9768	0.9837
German Creek Generator	66	GERMCRK	QLIL2	QLIL	0.9517	0.9486
Gladstone PS (132 kV) Unit 3	132	GSTONE3	QGLD3	QGLL	0.9387	0.9323
Gladstone PS (132 kV) Unit 4	132	GSTONE4	QGLD4	QGLL	0.9387	0.9323
Gladstone PS (132kV) Load	132	GLADNL1	QGLL	QGLL	0.9387	0.9323
Gladstone PS (275 kV) Unit 1	275	GSTONE1	QGLD1	QGLH	0.9381	0.9329
Gladstone PS (275 kV) Unit 2	275	GSTONE2	QGLD2	QGLH	0.9381	0.9329
Gladstone PS (275 kV) Unit 5	275	GSTONE5	QGLD5	QGLH	0.9381	0.9329
Gladstone PS (275 kV) Unit 6	275	GSTONE6	QGLD6	QGLH	0.9381	0.9329
Grosvenor PS At Moranbah 66 No 1	66	GROSV1	QMNRN2G	QMVR	0.9939	0.9821
Grosvenor PS At Moranbah 66 No 2	66	GROSV2	QMVR1G	QMVR	0.9939	0.9821
Hamilton Solar Farm	33	HAMISF1	QSLD1H	QSLD	0.9236	0.9060
Haughton Solar Farm	275	HAUGHT11	QHAR1H	QHAR	0.9272	0.9151
Hayman Solar Farm	33	HAYMSF1	QCCK2H	QCCK	0.9238	0.9098
Hughenden Solar Farm	132	HUGSF1	QROG2H	QROG	0.9327	0.9222

Generator	Voltage (kV)	DUID	Connection Point ID	TNI code	2024-25 MLF	2023-24 MLF
Invicta Sugar Mill	132	INVICTA	QINV1I	QINV	0.9217	0.9317
Isis CSM	132	ICSM	QGNG1I	QTBC	0.9860	0.9816
Kaban Wind Farm	275	KABANWF1	QTMW1K	QTMW	0.9552	0.9575
Kareeya PS Unit 1	132	KAREEYA1	QKAH1	QKYH	0.9610	0.9559
Kareeya PS Unit 2	132	KAREEYA2	QKAH2	QKYH	0.9610	0.9559
Kareeya PS Unit 3	132	KAREEYA3	QKAH3	QKYH	0.9610	0.9559
Kareeya PS Unit 4	132	KAREEYA4	QKAH4	QKYH	0.9610	0.9559
Kennedy Energy Park Battery (Generation)	132	KEPBG1	QROW3K	QROW	0.9638	0.9667
Kennedy Energy Park Battery (Load)	132	KEPBL1	QROW4K	QROW	0.9638	0.9667
Kennedy Energy Park Solar Farm	132	KEPSF1	QROW2K	QROW	0.9638	0.9667
Kennedy Energy Park Wind Farm	132	KEPWF1	QROW1K	QROW	0.9638	0.9667
Kidston Solar Farm	132	KSP1	QROG1K	QROG	0.9327	0.9222
Kogan Creek PS	275	KPP_1	QBRA4K	QWDN	0.9675	0.9673
Koombooloomba	132	KAREEYA5	QKYH5	QKYH	0.9610	0.9559
Lilyvale Solar Farm	33	LILYSF1	QBDR1L	QBDR	0.9227	0.9064
Longreach Solar Farm	132	LRSF1	QLLV2L	QLLV	0.9303	0.9150
Maryrorough Solar Farm (Brigalow Solar Farm)	110	MARYRSF1	QMRY2M	QMRY	0.9815	0.9914
Middlemount Sun Farm	66	MIDLDSF1	QLIS2M	QLIS	0.9270	0.9111
Millmerran PS Unit 1	330	MPP_1	QBCK1	QMLN	0.9770	0.9763
Millmerran PS Unit 2	330	MPP_2	QBCK2	QMLN	0.9770	0.9763
Moranbah Generation	11	MORANBAH	QMRL1M	QMRL	0.9963	0.9852
Moranbah North PS	66	MBAHNTH	QMNRN1P	QMNR	1.0033	0.9898
Mount Emerald Wind farm	275	MEWF1	QWKIM1M	QWKIM	0.9467	0.9472
Moura Solar Farm	132	MOUSF1	QMRR1M	QMRR	0.9257	0.9081
Mt Stuart PS Unit 1	132	MSTUART1	QMSP1	QMSP	0.9415	0.9164
Mt Stuart PS Unit 2	132	MSTUART2	QMSP2	QMSP	0.9415	0.9164
Mt Stuart PS Unit 3	132	MSTUART3	QMSP3M	QMSP	0.9415	0.9164
Oakey 1 Solar Farm	110	OKEY1SF	QTKS1O	QTKS	0.9781	0.9869
Oakey 2 Solar Farm	110	OKEY2SF	QTKS2O	QTKS	0.9781	0.9869
Oakey PS Unit 1	110	OKEY1	QOKY1	QOKY	0.9463	0.9628
Oakey PS Unit 2	110	OKEY2	QOKY2	QOKY	0.9463	0.9628
Oaky Creek 2	66	OAKY2	QLIL3O	QLIL	0.9517	0.9486
Oaky Creek Generator	66	OAKYCREEK	QLIL1	QLIL	0.9517	0.9486
Rocky Point Gen (Loganlea 110kV)	110	RPCG	QLGH2	QLGH	1.0121	1.0118
Roma PS Unit 7 – Columboola	132	ROMA_7	QRMA7	QRMA	0.9566	0.9643
Roma PS Unit 8 – Columboola	132	ROMA_8	QRMA8	QRMA	0.9566	0.9643
Ross River Solar Farm	132	RRSF1	QROG3R	QROG	0.9327	0.9222
Rugby Run Solar Farm	132	RUGBYR1	QMPL1R	QMPL	0.9396	0.9185

Generator	Voltage (kV)	DUID	Connection Point ID	TNI code	2024-25 MLF	2023-24 MLF
Stanwell PS Load	132	STANNL1	QSTX	QSTX	0.9263	0.9265
Stanwell PS Unit 1	275	STAN-1	QSTN1	QSTN	0.9196	0.9181
Stanwell PS Unit 2	275	STAN-2	QSTN2	QSTN	0.9196	0.9181
Stanwell PS Unit 3	275	STAN-3	QSTN3	QSTN	0.9196	0.9181
Stanwell PS Unit 4	275	STAN-4	QSTN4	QSTN	0.9196	0.9181
Stapylton	110	STAPYLTON_1	QLGH4S	QLGH	1.0121	1.0118
Sun Metals Solar Farm	132	SMCSF1	QTZS1S	QTZS	1.0088	0.9979
Sunshine Coast Solar Farm	132	VALDORA1	QPWD1S	QPWD	1.0145	1.0130
Susan River Solar Farm	132	SRSF1	QTBS2S	QTBS	0.9789	0.9704
Swanbank E GT	275	SWAN_E	QSWE	QSWE	0.9990	0.9987
Tarong North PS	275	TNPS1	QTNT	QTNT	0.9713	0.9712
Tarong PS Unit 1	275	TARONG#1	QTRN1	QTRN	0.9707	0.9707
Tarong PS Unit 2	275	TARONG#2	QTRN2	QTRN	0.9707	0.9707
Tarong PS Unit 3	275	TARONG#3	QTRN3	QTRN	0.9707	0.9707
Tarong PS Unit 4	275	TARONG#4	QTRN4	QTRN	0.9707	0.9707
Ti Tree BioReactor	33	TITREE	QABM1T	QABM	1.0001	0.9985
Wandoan BESS (Generation)	132	WANDBG1	QWSB1W	QWSB	0.9829	0.9751
Wandoan BESS (Load)	132	WANDBL1	QWSB2W	QWSB	0.9876	1.0020
Wandoan South Solar Farm 1	275	WANDSF1	QWSR1W	QWSR	0.9765	0.9832
Warwick Solar Farm 1	110	WARWSF1	QMRY3W	QMRY	0.9815	0.9914
Warwick Solar Farm 2	110	WARWSF2	QMRY4W	QMRY	0.9815	0.9914
Western Downs Green Power Hub	275	WDGPH1	QWDR1W	QWDR	0.9675	0.9712
Whitsunday Solar Farm	33	WHITSF1	QSLS1W	QSLS	0.9141	0.9010
Windy Hill Wind Farm	66	WHILL1	QTUL	QTUL	1.0078	1.0029
Wivenhoe Generation Unit 1	275	W/HOE#1	QWIV1	QWIV	0.9904	0.9900
Wivenhoe Generation Unit 2	275	W/HOE#2	QWIV2	QWIV	0.9904	0.9900
Wivenhoe Pump 1	275	PUMP1	QWIP1	QWIP	1.0000	0.9994
Wivenhoe Pump 2	275	PUMP2	QWIP2	QWIP	1.0000	0.9994
Woolooga Solar Farm	132	WOOLGSF1	QWLS1W	QWLS	0.9818	0.9736
Yabulu PS	132	YABULU	QTYP	QTYP	0.9475	0.9519
Yabulu Steam Turbine (Garbutt 66kV)	66	YABULU2	QGAR1	QYST	0.9548	0.9417
Yarranlea Solar Farm	110	YARANSF1	QMRY1Y	QMRY	0.9815	0.9914
Yarwun PS	132	YARWUN_1	QYAG1R	QYAG	0.9429	0.9349

1.2 New South Wales marginal loss factors²

Table 3 New South Wales loads

Location	Voltage (kV)	TNI code	2024-25 MLF	2023-24 MLF
Albury	132	NALB	0.9335	0.9464
Alexandria	33	NALX	1.0024	1.0024
Armidale	66	NAR1	0.9233	0.9224
Australian Newsprint Mill	132	NANM	0.9098	0.9446
BHP (Waratah)	132	NWR1	0.9937	0.9931
Balranald	22	NBAL	0.8699	0.9017
Beaconsfield North	132	NBFN	1.0018	1.0021
Beaconsfield South	132	NBFS	1.0019	1.0021
Belmore Park	132	NBM1	1.0022	1.0024
Belmore Park 11	11	NBMP	1.0036	1.0042
Beryl	66	NBER	0.9726	0.9851
Boambee South	132	NWST	0.9599	0.9566
Boggabri East	132	NBGE	0.9534	0.9463
Boggabri North	132	NBGN	0.9538	0.9457
Brandy Hill	11	NBHL	0.9995	0.9971
Brandy Hill (Essential Energy)	11	NBHX	0.9995	0.9971
Broken Hill	22	NBKG	0.8504	0.8844
Broken Hill	220	NBKH	0.8272	0.8710
Bunnerong	132	NBG1	1.0018	1.0025
Bunnerong	33	NBG3	1.0044	1.0047
Buronga	220	NBRG	0.8494	0.8982
Burrinjuck	132	NBU2	0.9414	0.9458
Campbell Street	11	NCBS	1.0022	1.0025
Campbell Street	132	NCS1	1.0023	1.0023
Canterbury	33	NCTB	1.0045	1.0047
Carlingford	132	NCAR	1.0009	1.0010
Casino	132	NCSN	0.9549	0.9532
Charmhaven	11	NCHM	0.9952	0.9942
Coffs Harbour	66	NCH1	0.9500	0.9488
Coleambally	132	NCLY	0.9012	0.9266
Cooma	66	NCMA	0.9591	0.9679
Cooma (AusNet Services)	66	NCM2	0.9591	0.9679
Cowra - Dual MLF (Generation)	66	NCW8	0.9800	0.9378

² The New South Wales region includes the Australian Capital Territory (ACT). ACT generation and load are detailed separately for ease of reference.

Location	Voltage (kV)	TNI code	2024-25 MLF	2023-24 MLF
Cowra - Dual MLF (Load)	66	NCW8	0.9800	0.9713
Dapto (Endeavour Energy)	132	NDT1	0.9895	0.9888
Dapto (Essential Energy)	132	NDT2	0.9895	0.9895
Darlington Point	132	NDNT	0.9078	0.9371
Deniliquin	66	NDN7	0.9465	0.9720
Dorriga	132	NDOR	0.9421	0.9336
Dunoon	132	NDUN	0.9626	0.9632
Finley	66	NFNY	0.9497	0.9687
Finley - Dual MLF (Generation)	132	NFN2	0.9598	0.9797
Finley - Dual MLF (Load)	132	NFN2	0.8451	0.9320
Forbes	66	NFB2	0.9890	1.0125
Gadara	132	NGAD	0.9468	0.9580
Glen Innes	66	NGLN	0.9219	0.9061
Gosford	33	NGSF	1.0034	1.0029
Gosford	66	NGF3	1.0028	1.0023
Grafton East 132	132	NGFT	0.9413	0.9329
Green Square	11	NGSQ	1.0043	1.0048
Griffith	33	NGRF	0.9177	0.9467
Gunnedah	66	NGN2	0.9616	0.9572
Haymarket	132	NHYM	1.0021	1.0022
Heron's Creek	132	NHNC	1.0239	1.0176
Holroyd	132	NHLD	1.0017	1.0018
Holroyd (Ausgrid)	132	NHLX	1.0017	1.0018
Homebush Bay	11	NHBB	1.0144	1.0150
Hurstville North	11	NHVN	1.0016	1.0020
Ilford	132	NLFD	0.9636	0.9622
Ingleburn	66	NING	0.9953	0.9958
Inverell	66	NNVL	0.9363	0.9157
Kemps Creek	330	NKCK	0.9938	0.9937
Kempsey	33	NKS3	0.9901	0.9871
Kempsey	66	NKS2	0.9755	0.9708
Kogarah	11	NKOG	1.0035	1.0040
Koolkhan	66	NKL6	0.9728	0.9733
Kurnell	132	NKN1	1.0004	1.0006
Lake Munmorah	132	NMUN	0.9865	0.9838
Lane Cove	132	NLCV	1.0111	1.0112
Liddell	33	NLD3	0.9695	0.9661
Lismore	132	NLS2	0.9802	0.9814

Location	Voltage (kV)	TNI code	2024-25 MLF	2023-24 MLF
Liverpool	132	NLP1	0.9997	0.9999
Macarthur	132	NMC1	0.9924	0.9929
Macarthur	66	NMC2	0.9927	0.9947
Macksville	132	NMCV	0.9751	0.9722
Macquarie Park	11	NMQP	1.0135	1.0221
Macquarie Park	33	NMQS	1.0102	1.0110
Manildra	132	NMLD	1.0010	1.0250
Marrickville	11	NMKV	1.0070	1.0071
Marulan (Endeavour Energy)	132	NMR1	1.0077	1.0095
Marulan (Essential Energy)	132	NMR2	1.0077	1.0095
Mason Park	132	NMPK	1.0116	1.0123
Meadowbank	11	NMBK	1.0148	1.0154
Molong	132	NMOL	1.0127	1.0428
Moree	66	NMRE	0.9563	0.9563
Morven	132	NMVN	0.9257	0.9476
Mt Piper	66	NMP6	0.9750	0.9752
Mudgee	132	NMDG	0.9744	0.9853
Mullumbimby	11	NML1	0.9722	0.9533
Mullumbimby	132	NMLB	0.9549	0.9471
Munmorah STS 33	33	NMU3	0.9920	0.9907
Munyang	11	NMY1	0.9795	0.9838
Munyang	33	NMYG	0.9795	0.9838
Murrumbateman	132	NMBM	0.9494	0.9545
Murrumburrah	66	NMRU	0.9537	0.9648
Muswellbrook	132	NMRK	0.9806	0.9774
Nambucca Heads	132	NNAM	0.9676	0.9685
Narrabri	66	NNB2	0.9808	0.9799
Newcastle	132	NNEW	0.9931	0.9926
Newcastle (Essential Energy)	132	NNEX	0.9931	0.9926
Orange	66	NRGE	1.0236	1.0645
Orange North	132	NONO	1.0187	1.0589
Ourimbah	33	NORB	0.9999	0.9991
Ourimbah	66	NOR6	0.9995	0.9987
Ourimbah	132	NOR1	1.0004	0.9998
Panorama	66	NPMA	1.0174	1.0398
Parkes	132	NPKS	0.9833	1.0022
Parkes	66	NPK6	1.0158	1.0442
Peakhurst	33	NPHT	1.0009	1.0013

Location	Voltage (kV)	TNI code	2024-25 MLF	2023-24 MLF
Potts Hill 11	11	NPHL	1.0022	1.0056
Potts Hill 132	132	NPO1	1.0024	1.0030
Pt Macquarie	33	NPMQ	1.0121	1.0105
Queanbeyan 132	132	NQBY	0.9733	0.9861
Raleigh	132	NRAL	0.9595	0.9611
Ravine	330	NRVN	0.9319	0.9507
Regentville	132	NRGV	0.9987	0.9986
Riverina 415V	0.42	NRVA	0.9064	0.9376
Rockdale (Ausgrid)	11	NRKD	1.0037	1.0040
Rookwood Road	132	NRWR	1.0022	1.0028
Rose Bay	11	NRSB	1.0050	1.0053
Snowy Adit	132	NSAD	0.9731	0.9771
Somersby	11	NSMB	1.0037	1.0033
St Peters	11	NSPT	1.0052	1.0056
Strathfield South	11	NSFS	1.0041	1.0034
Stroud	132	NSRD	1.0100	1.0084
Sydney East	132	NSE2	1.0057	1.0063
Sydney North (Ausgrid)	132	NSN1	1.0026	1.0028
Sydney North (Endeavour Energy)	132	NSN2	1.0026	1.0028
Sydney South	132	NSYS	0.9984	0.9988
Sydney West (Ausgrid)	132	NSW1	1.0009	1.0010
Sydney West (Endeavour Energy)	132	NSW2	1.0009	1.0010
Tamworth	66	NTA2	0.9533	0.9516
Taree (Essential Energy)	132	NTR2	1.0298	1.0305
Tenterfield	132	NTTF	0.9349	0.9341
Terranora	110	NTNR	0.9486	0.9623
Tomago	330	NTMG	0.9944	0.9932
Tomago (Ausgrid)	132	NTME	0.9992	0.9965
Tomago (Essential Energy)	132	NTMC	0.9992	0.9965
Top Ryde	11	NTPR	1.0135	1.0142
Tuggerah	132	NTG3	0.9967	0.9956
Tumut	66	NTU2	0.9497	0.9559
Tumut 66 (AusNet DNSP)	66	NTUX	0.9497	0.9559
Upper Tumut 11kV (Essential Energy)	11	NUT4	0.9286	0.9480
Vales Pt.	132	NVP1	0.9883	0.9871
Vineyard	132	NVYD	0.9999	0.9998
Wagga	66	NWG2	0.9230	0.9459
Wagga North	132	NWGN	0.9203	0.9446

Location	Voltage (kV)	TNI code	2024-25 MLF	2023-24 MLF
Wagga North	66	NWG6	0.9202	0.9453
Wallerawang (Endeavour Energy)	132	NWW6	0.9752	0.9754
Wallerawang (Essential Energy)	132	NWW5	0.9752	0.9754
Wallerawang 330 PS Load	330	NWWP	0.9736	0.9748
Wallerawang 66	66	NWW7	0.9756	0.9759
Wallerawang 66 (Essential Energy)	66	NWW4	0.9756	0.9759
Waverley	11	NWAV	1.0048	1.0050
Wellington	132	NWL8	0.9801	0.9897
West Gosford	11	NGWF	1.0044	1.0039
Williamsdale (Essential Energy) (Bogong)	132	NWD1	0.9577	0.9407
Wyong	11	NWYG	0.9979	0.9972
Yanco	33	NYA3	0.9261	0.9504
Yass	66	NYS6	0.9510	0.9568
Yass	132	NYS1	0.9283	0.9437

Table 4 New South Wales generation

Generator	Voltage (kV)	DUID	Connection Point ID	TNI code	2024-25 MLF	2023-24 MLF
Appin Power Station	66	APPIN	NAPP1A	NAPP	0.9930	0.9950
Avonlie Solar Farm	132	AVLSF1	NNRN1A	NNRN	0.8308	0.8881
Bango 973 Wind Farm	132	BANGOWF1	NBA21B	NBA2	0.9031	0.9159
Bango 999 Wind Farm	132	BANGOWF2	NBB21B	NBB2	0.9167	0.9288
Bayswater PS Unit 1	330	BW01	NBAY1	NBAY	0.9672	0.9646
Bayswater PS Unit 2	330	BW02	NBAY2	NBAY	0.9672	0.9646
Bayswater PS Unit 3	500	BW03	NBAY3	NBYW	0.9667	0.9651
Bayswater PS Unit 4	500	BW04	NBAY4	NBYW	0.9667	0.9651
Beryl Solar Farm	66	BERYLSF1	NBES1B	NBES	0.9170	0.9339
Blowering	132	BLOWERNG	NBLW8	NBLW	0.9095	0.9241
Boco Rock Wind Farm	132	BOCORWF1	NCMA3B	NBCO	0.9339	0.9444
Bodangora Wind Farm	132	BODWF1	NBOD1B	NBOD	0.9507	0.9622
Bomen Solar Farm	132	BOMENSF1	NWGS1B	NWGS	0.8551	0.9110
Broadwater PS	132	BWTR1	NLS21B	NLS2	0.9802	0.9814
Broken Hill BESS (Generation)	22	BHBG1	NBKB1B	NBKB	0.8572	0.8671
Broken Hill BESS (Load)	22	BHBL1	NBKB2B	NBKB	0.8202	0.8919
Broken Hill GT 1	22	GB01	NBKG1	NBKG	0.8504	0.8844
Broken Hill Solar Farm	22	BROKENH1	NBK11B	NBK1	0.7577	0.8324
Brown Mountain	66	BROWNMT	NCMA1	NCMA	0.9591	0.9679
Burrendong Hydro PS	132	BDONGHYD	NWL81B	NWL8	0.9801	0.9897
Burrinjuck PS	132	BURRIN	NBUK	NBUK	0.9345	0.9454

Generator	Voltage (kV)	DUID	Connection Point ID	TNI code	2024-25 MLF	2023-24 MLF
Campbelltown WSLC	66	WESTCBT1	NING1C	NING	0.9953	0.9958
Capital Battery (Generation)	132	CAPBES1G	NQBC1C	NQBC	0.9373	0.9704
Capital Battery (Load)	132	CAPBES1L	NQBC2C	NQBC	0.9972	1.0260
Capital Wind Farm	330	CAPTL_WF	NCWF1R	NCWF	0.9460	0.9575
Coleambally Solar Farm	132	COLEASF1	NCLS1C	NCLS	0.8214	0.8894
Collector Wind Farm	330	COLWF01	NCLW1C	NCLW	0.9479	0.9576
Colongra PS Unit 1	330	CG1	NCLG1D	NCLG	0.9826	0.9831
Colongra PS Unit 2	330	CG2	NCLG2D	NCLG	0.9826	0.9831
Colongra PS Unit 3	330	CG3	NCLG3D	NCLG	0.9826	0.9831
Colongra PS Unit 4	330	CG4	NCLG4D	NCLG	0.9826	0.9831
Condong PS	110	CONDONG1	NTNR1C	NTNR	0.9486	0.9623
Copeton Hydro PS	66	COPTNHYD	NNVL1C	NNVL	0.9363	0.9157
Corowa Solar Farm	132	CRWASF1	NAL11C	NAL1	0.8750	0.9365
Crookwell 2 Wind Farm	330	CROOKWF2	NCKW1C	NCKW	0.9505	0.9608
Crudine Ridge Wind Farm	132	CRURWF1	NCDS1C	NCDS	0.9273	0.9260
Cullerin Range Wind Farm	132	CULLRGWF	NYS11C	NYS1	0.9283	0.9437
Darlington Point ESS (Generation)	33	DPNTBG1	NRDP1D	NRDP	0.9117	0.9089
Darlington Point ESS (Load)	33	DPNTBL1	NRDP2D	NRDP	0.8596	0.9024
Darlington Point Solar Farm	132	DARLSF1	NDNS1D	NDNS	0.8285	0.8958
Eastern Creek	132	EASTCRK	NSW21	NSW2	1.0009	1.0010
Eastern Creek 2	132	EASTCRK2	NSW23L	NSW2	1.0009	1.0010
Eraring 330 BS UN (GT)	330	ERGT01	NEP35B	NEP3	0.9863	0.9848
Eraring 330 PS Unit 1	330	ER01	NEPS1	NEP3	0.9863	0.9848
Eraring 330 PS Unit 2	330	ER02	NEPS2	NEP3	0.9863	0.9848
Eraring 500 PS Unit 3	500	ER03	NEPS3	NEPS	0.9860	0.9856
Eraring 500 PS Unit 4	500	ER04	NEPS4	NEPS	0.9860	0.9856
Eraring PS Load	132	ERNL1	NEPSL	NNEW	0.9931	0.9926
Finley Solar Farm	132	FINLYSF1	NFNS1F	NFNS	0.8461	0.9255
Flyers Creek Wind Farm	132	FLYCRKWF	NONF1F	NONF	1.0042	1.0266
Glenbawn Hydro PS	132	GLBNHYD	NMRK2G	NMRK	0.9806	0.9774
Glenn Innes (Pindari PS)	66	PINDARI	NGLN1	NGLN	0.9219	0.9061
Glennies Creek PS	132	GLENNCRK	NMRK3T	NMRK	0.9806	0.9774
Goonumbria Solar Farm	66	GOONSF1	NPG12G	NPG1	0.8900	0.9000
Grange Avenue	132	GRANGEAV	NVYD1	NVYD	0.9999	0.9998
Griffith Solar Farm	33	GRIFSF1	NGG11G	NGG1	0.8287	0.8894
Gullen Range 1 Wind Farm	330	GULLRWF1	NGUR1G	NGUR	0.9486	0.9580
Gullen Range 2 Wind Farm	330	GULLRWF2	NGUR3G	NGUR	0.9486	0.9580
Gullen Range Solar Farm	330	GULLRSF1	NGUR2G	NGUR	0.9486	0.9580

Generator	Voltage (kV)	DUID	Connection Point ID	TNI code	2024-25 MLF	2023-24 MLF
Gunnedah Solar Farm	132	GNNDHSF1	NGNE1G	NGNE	0.8413	0.8273
Gunning Wind Farm	132	GUNNING1	NYS12A	NYS1	0.9283	0.9437
Guthega	132	GUTHEGA	NGUT8	NGUT	0.8921	0.8930
Guthega Auxiliary Supply	11	GUTHNL1	NMY11	NMY1	0.9795	0.9838
Hillston Solar Farm	132	HILLSTN1	NDNH1H	NDNH	0.8331	0.8979
Hume (New South Wales Share)	132	HUMENSW	NHUM	NHUM	0.8895	0.9205
Hunter Economic Zone	132	HEZ1	NNEE1H	NNEE	0.9890	0.9899
Jemalong Solar Farm	66	JEMALNG1	NFBS1J	NFBS	0.8892	0.8964
Jindabyne Generator	66	JNDABNE1	NCMA2	NCMA	0.9591	0.9679
Jounama PS	66	JOUNAMA1	NTU21J	NTU2	0.9497	0.9559
Junee Solar Farm	132	JUNEESF1	NWGJ1J	NWGJ	0.8586	0.9108
Kangaroo Valley (Shoalhaven) Pumps – Dual MLF (Load)	330	SHPUMP	NSHP1	NSHN	0.9838	0.9905
Kangaroo Valley – Bendeela (Shoalhaven) – Dual MLF (Generation)	330	SHGEN	NSHL	NSHN	0.9698	0.9732
Keepit	66	KEEPIT	NKPT	NKPT	0.9616	0.9572
Liddell 330 PS Load	330	LIDDLNL1	NLDPL	NLDP	0.9686	0.9660
Limondale Solar Farm 1	220	LIMOSF11	NBSF1L	NBSF	0.7582	0.8255
Limondale Solar Farm 2	22	LIMOSF21	NBL21L	NBL2	0.7592	0.8310
Liverpool 132 (Jacks Gully)	132	JACKSGUL	NLP11	NMC1	0.9924	0.9929
Lower Tumut Pipeline Auxiliary	66	TUMT3NL3	NTU2L3	NTU2	0.9497	0.9559
Lower Tumut Pumps – Dual MLF (Load)	330	SNOWYP	NLTS3	NLTS	0.9341	0.9696
Lower Tumut T2 Auxiliary	66	TUMT3NL1	NTU2L1	NTU2	0.9497	0.9559
Lower Tumut T4 Auxiliary	66	TUMT3NL2	NTU2L2	NTU2	0.9497	0.9559
Lower Tumut – Dual MLF (Generation)	330	TUMUT3	NLTS8	NLTS	0.9047	0.9080
Lucas Heights II Power Plant	132	LUCASHGT	NSYS2G	NSYS	0.9984	0.9988
Lucas Heights Stage 2 Power Station	132	LUCAS2S2	NSYS1	NSYS	0.9984	0.9988
Manildra Solar Farm	132	MANSLR1	NMLS1M	NMLS	0.9445	0.9557
Metz Solar Farm	132	METZSF1	NMTZ1M	NMTZ	0.8638	0.8486
Molong Solar Farm	66	MOLNGSF1	NMOS1M	NMOS	0.9516	0.9733
Moree Solar Farm	66	MOREESF1	NMR41M	NMR4	0.8210	0.7977
Mt Piper PS Load	330	MPNL1	NMPPL	NMTP	0.9702	0.9717
Mt Piper PS Unit 1	330	MP1	NMTP1	NMTP	0.9702	0.9717
Mt Piper PS Unit 2	330	MP2	NMTP2	NMTP	0.9702	0.9717
Narromine Solar Farm	132	NASF1	NWLS1N	NWLS	0.9264	0.9439
Nevertire Solar Farm	132	NEVERSF1	NWLS3N	NWLS	0.9264	0.9439
New England Solar Farm 1	330	NEWENSF1	NURR1N	NURR	0.8858	0.8718
New England Solar Farm 2	330	NEWENSF2	NURR2N	NURR	0.8858	0.8718
Nyngan Solar Farm	132	NYNGAN1	NWL82N	NWL8	0.9801	0.9897
Parkes Solar Farm	66	PARSF1	NPG11P	NPG1	0.8900	0.9000

Generator	Voltage (kV)	DUID	Connection Point ID	TNI code	2024-25 MLF	2023-24 MLF
Queanbeyan BESS (Generation)	66	QBYNBG1	NQBB1Q	NQBB	0.9597	0.9790
Queanbeyan BESS (Load)	66	QBYNBL1	NQBB2Q	NQBB	0.9716	0.9910
Riverina ESS 1 (Generation)	33	RESS1G	NRBB1R	NRBB	0.8812	0.9089
Riverina ESS 1 (Load)	33	RESS1L	NRBB2R	NRBB	0.8453	0.9024
Riverina ESS 2 (Generation)	33	RIVNBG2	NRB21R	NRB2	0.9117	0.9106
Riverina ESS 2 (Load)	33	RIVNBL2	NRB22R	NRB2	0.8596	0.9073
Rye Park Wind Farm	330	RYEPARK1	NRPK1R	NRPK	0.9413	0.9544
Sapphire Wind Farm	330	SAPHWF1	NSAP1S	NSAP	0.9044	0.9086
Sebastopol Solar Farm	132	SEBSF1	NWGJ2S	NWGJ	0.8586	0.9108
Silverton Wind Farm	220	STWF1	NBKW1S	NBKW	0.8021	0.8101
Sithe (Holroyd Generation)	132	SITHE01	NSYW1	NHD2	1.0016	1.0015
South Keswick Solar Farm	132	SKSF1	NWLS2S	NWLS	0.9264	0.9439
St George Leagues Club	33	STGEORG1	NPHT1E	NPHT	1.0009	1.0013
Sunraysia Solar farm	220	SUNRSF1	NBSF2S	NBSF	0.7582	0.8255
Suntop Solar Farm	132	SUNTPSF1	NWLW1S	NWLW	0.9064	0.9224
Tahmoor PS	132	TAHMOOR1	NLP12T	NLP1	0.9997	0.9999
Tallawarra B PS	132	TALWB1	NDTB1T	NDTB	0.9848	0.9845
Tallawarra PS	132	TALWA1	NDT13T	NTWA	0.9868	0.9856
Taralga Wind Farm	132	TARALGA1	NMR22T	NMR2	1.0077	1.0095
The Drop Power Station	66	THEDROP1	NFNY1D	NFNY	0.9497	0.9687
Tower Power Plant	132	TOWER	NLP11T	NLP1	0.9997	0.9999
Upper Tumut	330	UPPTUMUT	NUTS8	NUTS	0.9244	0.9318
Uranquinty PS Unit 11	132	URANQ11	NURQ1U	NURQ	0.8471	0.8383
Uranquinty PS Unit 12	132	URANQ12	NURQ2U	NURQ	0.8471	0.8383
Uranquinty PS Unit 13	132	URANQ13	NURQ3U	NURQ	0.8471	0.8383
Uranquinty PS Unit 14	132	URANQ14	NURQ4U	NURQ	0.8471	0.8383
Vales Point 330 PS Load	330	VPNL1	NVPPL	NVPP	0.9880	0.9869
Vales Point 330 PS Unit 5	330	VP5	NVPP5	NVPP	0.9880	0.9869
Vales Point 330 PS Unit 6	330	VP6	NVPP6	NVPP	0.9880	0.9869
Wagga North Solar Farm	66	WAGGNSF1	NWGG1W	NWGG	0.8549	0.9070
Wallgrove BESS (Generation)	132	WALGRVG1	NSWB1W	NSWG	1.0010	1.0010
Wallgrove BESS (Load)	132	WALGRVL1	NSWB2W	NSWB	1.0009	1.0009
Wellington Solar Farm	132	WELLSF1	NWLS4W	NWLS	0.9264	0.9439
West Wyalong Solar Farm	132	WSTWYSF1	NWGX3W	NWGX	0.8586	0.9108
Wests Illawarra Leagues Club	132	WESTILL1	NDT14E	NDT1	0.9895	0.9888
White Rock Solar Farm	132	WRSF1	NWRK2W	NWRK	0.8730	0.8289
White Rock Wind Farm	132	WRWF1	NWRK1W	NWRK	0.8730	0.8289
Wilga Park A	66	WILGAPK	NNB21W	NNB2	0.9808	0.9799

Generator	Voltage (kV)	DUID	Connection Point ID	TNI code	2024-25 MLF	2023-24 MLF
Wilga Park B	66	WILGB01	NNB22W	NNB2	0.9808	0.9799
Woodlawn Bioreactor	132	WDLNGN01	NMR21W	NMR2	1.0077	1.0095
Woodlawn Wind Farm	330	WOODLWN1	NCWF2W	NCWF	0.9460	0.9575
Wyalong Solar Farm	132	WYASF1	NWGJ4W	NWGJ	0.8586	0.9108
Wyangala A PS - Dual MLF (Generation)	66	WYANGALA	NCW81A	NCW8	0.9800	0.9378
Wyangala A PS - Dual MLF (Load)	66	WYANGALA	NCW81A	NCW8	0.9800	0.9713
Wyangala B PS - Dual MLF (Generation)	66	WYANGALB	NCW82B	NCW8	0.9800	0.9378
Wyangala B PS - Dual MLF (Load)	66	WYANGALB	NCW82B	NCW8	0.9800	0.9713

Table 5 ACT loads

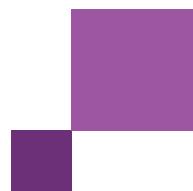
Location	Voltage (kV)	TNI code	2024-25 MLF	2023-24 MLF
Angle Crossing	132	AAXG	0.9407	0.9645
Belconnen	132	ABCN	0.9538	0.9655
City East	132	ACTE	0.9558	0.9684
Civic	132	ACVC	0.9539	0.9667
East lake	132	AELK	0.9558	0.9687
Gilmore	132	AGLM	0.9549	0.9665
Gold Creek	132	AGCK	0.9558	0.9643
Latham	132	ALTM	0.9549	0.9640
Queanbeyan (ACTEW)	66	AQB1	0.9728	0.9867
Queanbeyan (Essential Energy)	66	AQB2	0.9728	0.9867
Telopea Park	132	ATLP	0.9554	0.9683
Theodore	132	ATDR	0.9571	0.9639
Wanniassa	132	AWSA	0.9559	0.9660
Woden	132	AWDN	0.9548	0.9658

The Regional Reference Node (RRN) for ACT load and generation is the Sydney West 330 kV node.

Table 6 ACT generation

Generator	Voltage (kV)	DUID	Connection Point ID	TNI code	2024-25 MLF	2023-24 MLF
Capital East Solar Farm	66	CESF1	AQB21C	AQB2	0.9728	0.9867
Mugga Lane Landfill	132	MLLFGEF1	AGLM1M	AAVT	0.9552	0.9663
Mugga Lane Solar Farm	132	MLSP1	ACA12M	AMS1	0.9444	0.9674
Royalla Solar Farm	132	ROYALLA1	ACA11R	ARS1	0.9436	0.9668

The Regional Reference Node (RRN) for ACT load and generation is the Sydney West 330 kV node.



1.3 Victoria marginal loss factors

Table 7 Victoria loads

Location	Voltage (kV)	TNI code	2024-25 MLF	2023-24 MLF
Altona	220	VAT2	0.9984	0.9979
Altona	66	VATS	1.0065	1.0046
BHP Western Port	220	VJLA	0.9943	0.9945
Ballarat	66	VBAT	0.9707	0.9759
Bendigo	22	VBE2	1.0097	1.0169
Bendigo	66	VBE6	1.0070	1.0165
Brooklyn (Jemena)	22	VBL2	1.0037	1.0020
Brooklyn (Jemena)	66	VBL6	1.0046	1.0032
Brooklyn (Powercor)	22	VBL3	1.0037	1.0020
Brooklyn (Powercor)	66	VBL7	1.0046	1.0032
Brunswick (CitiPower)	22	VBT2	1.0006	1.0007
Brunswick (Jemena)	22	VBTS	1.0006	1.0007
Brunswick 66 (CitiPower)	66	VBT6	0.9995	0.9997
Cranbourne	220	VCB2	0.9929	0.9931
Cranbourne (AusNet Services)	66	VCBT	0.9954	0.9956
Cranbourne (United Energy)	66	VCB5	0.9954	0.9956
Deer Park	66	VDPT	1.0024	1.0024
East Rowville (AusNet Services)	66	VER2	0.9952	0.9957
East Rowville (United Energy)	66	VERT	0.9952	0.9957
Fishermens Bend (CitiPower)	66	VFBT	1.0019	1.0016
Fishermens Bend (Powercor)	66	VFB2	1.0019	1.0016
Fosterville	220	VFVT	0.9960	1.0108
Geelong	66	VGT6	0.9925	0.9939
Glenrowan	66	VGNT	1.0155	1.0233
Heatherton	66	VHTS	1.0010	1.0010
Heywood	22	VHY2	0.9883	0.9947
Horsham	66	VHOT	0.9060	0.9139
Keilor (Jemena)	66	VKT2	1.0014	1.0005
Keilor (Powercor)	66	VKTS	1.0014	1.0005
Kerang	66	VKG6	1.0145	1.0282
Kerang - Dual MLF (Generation)	22	VKG2	0.8847	1.0203
Kerang - Dual MLF (Load)	22	VKG2	1.0193	1.0203
Khancoban	330	NKHN	1.0286	1.0386
Loy Yang Substation	66	VLY6	0.9848	0.9828
Malvern	22	VMT2	0.9992	0.9986

Location	Voltage (kV)	TNI code	2024-25 MLF	2023-24 MLF
Malvern	66	VMT6	0.9981	0.9975
Malvern (CitiPower)	66	VMT7	0.9981	0.9975
Morwell PS (G4&5)	11	VMWP	0.9832	0.9805
Morwell Power Station Units 1 to 3	66	VMWG	0.9848	0.9829
Morwell TS	66	VMWT	0.9837	0.9825
Mt Beauty	66	VMBT	1.0266	1.0335
Portland	500	VAPD	0.9935	0.9983
Red Cliffs	22	VRC2	0.9602	0.9845
Red Cliffs	66	VRC6	0.9710	0.9907
Red Cliffs (Essential Energy)	66	VRCA	0.9710	0.9907
Richmond	22	VRT2	0.9990	0.9992
Richmond (CitiPower)	66	VRT7	0.9999	1.0000
Richmond (United Energy)	66	VRT6	0.9999	1.0000
Ringwood (AusNet Services)	22	VRW3	1.0008	1.0005
Ringwood (AusNet Services)	66	VRW7	1.0002	1.0001
Ringwood (United Energy)	22	VRW2	1.0008	1.0005
Ringwood (United Energy)	66	VRW6	1.0002	1.0001
Shepparton	66	VSHT	1.0438	1.0410
South Morang (AusNet Services)	66	VSMT	0.9973	0.9975
South Morang (Jemena)	66	VSM6	0.9973	0.9975
Springvale (CitiPower)	66	VSVT	0.9983	1.0001
Springvale (United Energy)	66	VSV2	0.9983	1.0001
Templestowe (AusNet Services)	66	VTS3	1.0005	1.0007
Templestowe (CitiPower)	66	VTS2	1.0005	1.0007
Templestowe (Jemena)	66	VTST	1.0005	1.0007
Templestowe (United Energy)	66	VTS4	1.0005	1.0007
Terang	66	VTGT	0.9989	0.9933
Thomastown (AusNet Services)	66	VTT2	1.0000	1.0000
Thomastown (Jemena)	66	VTTS	1.0000	1.0000
Tyabb	66	VTBT	0.9955	0.9960
Wemen 66 (Essential Energy)	66	VWEA	0.9424	0.9782
Wemen TS	66	VWET	0.9424	0.9782
West Melbourne	22	VWM2	0.9995	1.0000
West Melbourne (CitiPower)	66	VWM7	1.0007	1.0004
West Melbourne (Jemena)	66	VWM6	1.0007	1.0004
Wodonga	22	VWO2	1.0273	1.0333
Wodonga	66	VWO6	1.0194	1.0246
Yallourn	11	VYP1	0.9645	0.9660

Table 8 Victoria generation

Generator	Voltage (kV)	DUID	Connection Point ID	TNI code	2024-25 MLF	2023-24 MLF
Ararat Wind Farm	220	ARWF1	VART1A	VART	0.8889	0.8899
Bairnsdale Power Station	66	BDL01	VMWT2	VBDL	0.9803	0.9804
Bairnsdale Power Station Generator Unit 2	66	BDL02	VMWT3	VBDL	0.9803	0.9804
Bald Hills Wind Farm	66	BALDHWF1	VMWT9B	VMWT	0.9837	0.9825
Ballarat BESS (Generation)	22	BALBG1	VBA21B	VBA2	0.9713	0.9756
Ballarat BESS (Load)	22	BALBL1	VBA22B	VBA2	0.9604	0.9691
Ballarat Health Services	66	BBASEHOS	VBAT1H	VBAT	0.9707	0.9759
Banimboola	220	BAPS	VDPS2	VDPS	0.9749	0.9622
Bannerton Solar Farm	66	BANN1	VWES1B	VWES	0.8631	0.8947
Basslink (Loy Yang Power Station Switchyard) Tasmania to Victoria	500	BLNKVIC	VLYP13	VTBL	0.9774	0.9755
Basslink (Loy Yang Power Station Switchyard) Victoria to Tasmania	500	BLNKVIC	VLYP13	VTBL	0.9851	0.9826
Berrybank Wind Farm	220	BRYB1WF1	VBBT1B	VBBT	0.9310	0.9397
Berrybank Wind Farm 2	220	BRYB2WF2	VBBT2B	VBBT	0.9310	0.9397
Broadmeadows Power Plant	66	BROADMDW	VTTS2B	VTTS	1.0000	1.0000
Brooklyn Landfill & Recycling Facility	66	BROOKLYN	VBL61	VBL6	1.0046	1.0032
Bulgana BESS (Generation)	220	BULBESG1	VBGT2B	VBGT	0.8784	0.8821
Bulgana BESS (Load)	220	BULBESL1	VBGT3B	VBGT	0.8784	0.8821
Bulgana Green Power Hub	220	BULGANAA1	VBGT1B	VBGT	0.8784	0.8821
Challicum Hills Wind Farm	66	CHALLHWF	VHOT1	VBAT	0.9707	0.9759
Chepstowe Wind Farm	66	CHPSTWF1	VBAT3C	VBAT	0.9707	0.9759
Cherry Tree Wind Farm	66	CHYTWF1	VSM71C	VSM7	0.9972	0.9974
Clayton Landfill Gas Power Station	66	CLAYTON	VSV21B	VSV2	0.9983	1.0001
Clover PS	66	CLOVER	VMBT1	VMBT	1.0266	1.0335
Codrington Wind Farm	66	CODRNGTON	VTGT2C	VTGT	0.9989	0.9933
Cohuna Solar Farm	66	COHUNSF1	VKGS2C	VKGS	0.8990	0.9413
Coonooer Bridge Wind Farm	66	CBWF1	VBE61C	VBE6	1.0070	1.0165
Corio LFG PS	66	CORIO1	VGT61C	VGT6	0.9925	0.9939
Crowlands Wind Farm	220	CROWLWF1	VCWL1C	VCWL	0.8869	0.8904
Dartmouth PS	220	DARTM1	VDPS	VDPS	0.9749	0.9622
Diapur Wind Farm	66	DIAPURWF1	VHOG2D	VHOG	0.8773	0.8827
Dundonnell Wind Farm 1	500	DUNDWF1	VM051D	VM05	0.9811	0.9870
Dundonnell Wind Farm 2	500	DUNDWF2	VM052D	VM05	0.9811	0.9870
Dundonnell Wind Farm 3	500	DUNDWF3	VM053D	VM05	0.9811	0.9870
Eildon Hydro PS	66	EILDON3	VTT22E	VSMT	0.9973	0.9975
Eildon PS Unit 1	220	EILDON1	VEPS1	VEPS	0.9889	0.9920
Eildon PS Unit 2	220	EILDON2	VEPS2	VEPS	0.9889	0.9920
Elaine Wind Farm	220	ELAINWF1	VELT3E	VELT	0.9472	0.9576

Generator	Voltage (kV)	DUID	Connection Point ID	TNI code	2024-25 MLF	2023-24 MLF
Ferguson North Wind Farm	66	FNWF1	VTGT6F	VTGT	0.9989	0.9933
Ferguson South Wind Farm	66	FSWF1	VTGT7F	VTGT	0.9989	0.9933
Gannawarra BESS (Generation)	66	GANNBG1	VKGBC1G	VKGB	1.0173	1.0290
Gannawarra BESS (Load)	66	GANNBL1	VKGBC2G	VKGL	0.9613	0.9849
Gannawarra Solar Farm	66	GANNSF1	VKGSC1G	VKGS	0.8990	0.9413
Glenmaggie Hydro PS	66	GLENMAG1	VMWT8G	VMWT	0.9837	0.9825
Glenrowan Solar Farm	220	GLENSF1	VGN21G	VGN2	0.9669	0.9627
Glenrowan West Sun Farm	66	GLRWNSF1	VGNS1G	VGNS	0.9496	0.9675
Hallam Mini Hydro	66	HLMSEW01	VER21H	VCBT	0.9954	0.9956
Hallam Road Renewable Energy Facility	66	HALAMRD1	VER22L	VER2	0.9952	0.9957
Hazelwood BESS (Generation)	220	HBESSG1	VHW21H	VHW2	0.9793	0.9789
Hazelwood BESS (Load)	220	HBESSL1	VHW22H	VHW2	0.9861	0.9828
Hepburn Community Wind Farm	66	HEPWIND1	VBAT2L	VBAT	0.9707	0.9759
Hume (Victorian Share)	66	HUMEV	VHUM	VHUM	0.9372	0.9389
Jeeralang A PS Unit 1	220	JLA01	VJLGA1	VJLG	0.9773	0.9764
Jeeralang A PS Unit 2	220	JLA02	VJLGA2	VJLG	0.9773	0.9764
Jeeralang A PS Unit 3	220	JLA03	VJLGA3	VJLG	0.9773	0.9764
Jeeralang A PS Unit 4	220	JLA04	VJLGA4	VJLG	0.9773	0.9764
Jeeralang B PS Unit 1	220	JLB01	VJLGB1	VJLG	0.9773	0.9764
Jeeralang B PS Unit 2	220	JLB02	VJLGB2	VJLG	0.9773	0.9764
Jeeralang B PS Unit 3	220	JLB03	VJLGB3	VJLG	0.9773	0.9764
Jindabyne pump at Guthega	132	SNOWYGJP	NGJP	NGJP	1.0987	1.0783
Karadoc Solar Farm	66	KARSF1	VRCS1K	VRCS	0.8569	0.8877
Kiamal Solar Farm	220	KIAMSF1	VKMT1K	VKMT	0.8417	0.8775
Kiata Wind Farm	66	KIATAWF1	VHOG1K	VHOG	0.8773	0.8827
Laverton PS (LNGS1)	220	LNGS1	VAT21L	VAT2	0.9984	0.9979
Laverton PS (LNGS2)	220	LNGS2	VAT22L	VAT2	0.9984	0.9979
Longford	66	LONGFORD	VMWT6	VMWT	0.9837	0.9825
Loy Yang A PS Load	500	LYNL1	VLYPL	VLYP	0.9807	0.9782
Loy Yang A PS Unit 1	500	LYA1	VLYP1	VLYP	0.9807	0.9782
Loy Yang A PS Unit 2	500	LYA2	VLYP2	VLYP	0.9807	0.9782
Loy Yang A PS Unit 3	500	LYA3	VLYP3	VLYP	0.9807	0.9782
Loy Yang A PS Unit 4	500	LYA4	VLYP4	VLYP	0.9807	0.9782
Loy Yang B PS Unit 1	500	LOYYB1	VLYP5	VLYP	0.9807	0.9782
Loy Yang B PS Unit 2	500	LOYYB2	VLYP6	VLYP	0.9807	0.9782
MacArthur Wind Farm	500	MACARTH1	VRTT1M	VRTT	0.9780	0.9849
Maroona Wind Farm	66	MAROOWF1	VBAT5M	VBAT	0.9707	0.9759
McKay Creek / Bogong PS	220	MCKAY1	VMKP1	VT14	0.9606	0.9819

Generator	Voltage (kV)	DUID	Connection Point ID	TNI code	2024-25 MLF	2023-24 MLF
Moorabool Wind Farm	220	MOORAWF1	VELT2M	VELT	0.9472	0.9576
Mortlake South Wind Farm	220	MRTLSWF1	VTG21M	VTG2	0.9419	0.9528
Mortlake Unit 1	500	MORTLK11	VM0P1O	VM0P	0.9906	0.9927
Mortlake Unit 2	500	MORTLK12	VM0P2O	VM0P	0.9906	0.9927
Mortons Lane Wind Farm	66	MLWF1	VTGT4M	VTGT	0.9989	0.9933
Mt Gellibrand Wind Farm	66	MTGELWF1	VGTW1M	VGTW	0.9858	0.9896
Mt Mercer Wind Farm	220	MERCER01	VELT1M	VELT	0.9472	0.9576
Murra Warra Wind Farm	220	MUWAWF1	VMRT1M	VMRT	0.8657	0.8768
Murra Warra Wind Farm Stage 2	220	MUWAWF2	VMRT2M	VMRT	0.8657	0.8768
Murray	330	MURRAY	NMUR8	NMUR	0.9774	0.9850
Murray (Geehi Tee off Auxiliary)	330	MURAYNL3	NMURL3	NMUR	0.9774	0.9850
Murray Power Station M1 Auxiliary	330	MURAYNL1	NMURL1	NMUR	0.9774	0.9850
Murray Power Station M2 Auxiliary	330	MURAYNL2	NMURL2	NMUR	0.9774	0.9850
Newport PS	220	NPS	VNPS	VNPS	0.9937	0.9937
Numurkah Solar Farm	66	NUMURSF1	VSHS1N	VSHS	0.9494	0.9738
Oaklands Hill Wind Farm	66	OAKLAND1	VTGT3A	VTGT	0.9989	0.9933
Phillip Island BESS (Generation)	66	PIBESSG1	VMWT10	VMWT	0.9837	0.9825
Phillip Island BESS (Load)	66	PIBESSL1	VMWT11	VMWT	0.9837	0.9825
Rubicon Mountain Streams Station	66	RUBICON	VTT21R	VSMT	0.9973	0.9975
Salt Creek Wind Farm	66	SALTCRK1	VTG61S	VTG6	0.9378	0.9476
Shepparton Waste Gas	66	SHEP1	VSHT2S	VSHT	1.0438	1.0410
Somerton Power Station	66	AGLSOM	VTTS1	VSOM	0.9955	0.9960
Stockyard Hill Wind Farm	500	STOCKYD1	VHGT1S	VHGT	0.9805	0.9869
Tatura	66	TATURA01	VSHT1	VSHT	1.0438	1.0410
Timboon West Wind Farm	66	TIMWEST	VTGT5T	VTGT	0.9989	0.9933
Toora Wind Farm	66	TOORAWF	VMWT5	VMWT	0.9837	0.9825
Traralgon NSS	66	TGNSS1	VMWT1T	VMWT	0.9837	0.9825
Valley Power Unit 1	500	VPGS1	VLYP07	VLYP	0.9807	0.9782
Valley Power Unit 2	500	VPGS2	VLYP08	VLYP	0.9807	0.9782
Valley Power Unit 3	500	VPGS3	VLYP09	VLYP	0.9807	0.9782
Valley Power Unit 4	500	VPGS4	VLYP010	VLYP	0.9807	0.9782
Valley Power Unit 5	500	VPGS5	VLYP011	VLYP	0.9807	0.9782
Valley Power Unit 6	500	VPGS6	VLYP012	VLYP	0.9807	0.9782
Victorian Big Battery (Generation)	220	VBBG1	VMLB1V	VMLB	0.9878	0.9885
Victorian Big Battery (Load)	220	VBBL1	VMLB2V	VMLB	0.9857	0.9895
Wauba Wind Farm	220	WAUBRAWF	VWBT1A	VWBT	0.9159	0.9240
Wemen Solar Farm	66	WEMENSF1	VWES2W	VWES	0.8631	0.8947
West Kiewa PS Unit 1	220	WKIEWA1	VWKP1	VWKP	0.9975	1.0110

Generator	Voltage (kV)	DUID	Connection Point ID	TNI code	2024-25 MLF	2023-24 MLF
West Kiewa PS Unit 2	220	WKIEWA2	VWKP2	VWKP	0.9975	1.0110
William Hovell Hydro PS	66	WILLHOV1	VW061W	VGNT	1.0155	1.0233
Winton Solar Farm	66	WINTSF1	VGNS2W	VGNS	0.9496	0.9675
Wollert Renewable Energy Facility	66	WOLLERT1	VSMT1W	VSMT	0.9973	0.9975
Wonthaggi Wind Farm	66	WONWP	VMWT7	VMWT	0.9837	0.9825
Yallourn W PS 220 Load	220	YWNL1	VYP2L	VYP2	0.9611	0.9624
Yallourn W PS 220 Unit 1	220	YWPS1	VYP21	VYP3	0.9624	0.9696
Yallourn W PS 220 Unit 2	220	YWPS2	VYP22	VYP2	0.9611	0.9624
Yallourn W PS 220 Unit 3	220	YWPS3	VYP23	VYP2	0.9611	0.9624
Yallourn W PS 220 Unit 4	220	YWPS4	VYP24	VYP2	0.9611	0.9624
Yaloak South Wind Farm	66	YSWF1	VBAT4Y	VBAT	0.9707	0.9759
Yambuk Wind Farm	66	YAMBUKWF	VTGT1	VTGT	0.9989	0.9933
Yarrawonga Hydro PS	66	YWNGAHYD	VSHT3Y	VSHT	1.0438	1.0410
Yatpool Solar Farm	66	YATSF1	VRCS2Y	VRCS	0.8569	0.8877
Yawong Wind Farm	66	YAWWF1	VBE62Y	VBE6	1.0070	1.0165
Yendon Wind Farm	66	YENDWF1	VBAW1Y	VBAW	0.9421	0.9522

1.4 South Australia marginal loss factors

Table 9 South Australia loads

Location	Voltage (kV)	TNI code	2024-25 MLF	2023-24 MLF
Angas Creek	33	SANC	1.0086	1.0095
Ardrossan West	33	SARW	0.9368	0.9332
Back Callington	11	SBAC	1.0064	1.0069
Baroota - Dual MLF (Generation)	33	SBAR	0.9722	0.9733
Baroota - Dual MLF (Load)	33	SBAR	0.9860	0.9868
Berri	66	SBER	0.9658	0.9709
Berri (POWERCOR)	66	SBE1	0.9658	0.9709
Blanche	33	SBLA	1.0206	1.0201
Blanche (POWERCOR)	33	SBL1	1.0206	1.0201
Brinkworth	33	SBRK	0.9839	0.9868
Bungama Industrial	33	SBUN	0.9746	0.9797
Bungama Rural	33	SBUR	0.9835	0.9888
City West	66	SACR	1.0053	1.0069
Clare North	33	SCLN	0.9777	0.9813
Dalrymple - Dual MLF (Generation)	33	SDAL	0.8863	0.9012
Dalrymple - Dual MLF (Load)	33	SDAL	0.8951	0.9012

Location	Voltage (kV)	TNI code	2024-25 MLF	2023-24 MLF
Davenport	275	SDAV	0.9743	0.9779
Davenport	33	SDAW	0.9774	0.9799
Dorrien	33	SDRN	1.0032	1.0049
East Terrace	66	SETC	1.0009	1.0013
Happy Valley	66	SHVA	1.0056	1.0041
Hummocks - Dual MLF (Generation)	33	SHUM	0.9291	0.9537
Hummocks - Dual MLF (Load)	33	SHUM	0.9455	0.9537
Kadina East	33	SKAD	0.9551	0.9672
Kanmantoo	11	SKAN	1.0134	1.0113
Keith	33	SKET	1.0168	1.0175
Kilburn	66	SKLB	1.0022	1.0022
Kincraig	33	SKNC	1.0172	1.0180
Lefevre	66	SLFE	1.0002	1.0002
Leigh Creek South	11	SLCS	1.0085	1.0026
Magill	66	SMAG	1.0021	1.0023
Mannum	33	SMAN	1.0176	1.0169
Mannum – Adelaide Pipeline 1	3.3	SMA1	1.0100	1.0153
Mannum – Adelaide Pipeline 2 - Dual MLF (Generation)	3.3	SMA2	0.9919	0.9943
Mannum – Adelaide Pipeline 2 - Dual MLF (Load)	3.3	SMA2	1.0115	1.0151
Mannum – Adelaide Pipeline 3 - Dual MLF (Generation)	3.3	SMA3	0.9811	0.9946
Mannum – Adelaide Pipeline 3 - Dual MLF (Load)	3.3	SMA3	0.9811	1.0149
Middleback	132	SMBK	0.9889	0.9924
Middleback	33	SMDL	0.9866	0.9893
Millbrook	132	SMLB	1.0007	1.0017
Mobilong	33	SMLB	1.0099	1.0108
Morgan - Whyalla Pipeline 1	3.3	SMW1	0.9770	0.9847
Morgan - Whyalla Pipeline 2	3.3	SMW2	0.9771	0.9880
Morgan - Whyalla Pipeline 3	3.3	SMW3	0.9788	0.9847
Morgan - Whyalla Pipeline 4	3.3	SMW4	0.9749	0.9796
Morphett Vale East	66	SMVE	1.0044	1.0039
Mount Barker South	66	SMBS	1.0049	1.0052
Mt Barker	66	SMBA	1.0040	1.0039
Mt Gambier	33	SMGA	1.0169	1.0240
Mt Gunson	33	SMGU	0.9925	0.9882
Mt Gunson South	132	SMGS	0.9748	0.9781
Munno Para	66	SMUP	1.0004	0.9991
Murray Bridge – Hahndorf Pipeline 1	11	SMH1	1.0103	1.0132
Murray Bridge – Hahndorf Pipeline 2 - Dual MLF (Generation)	11	SMH2	0.9986	1.0006

Location	Voltage (kV)	TNI code	2024-25 MLF	2023-24 MLF
Murray Bridge – Hahndorf Pipeline 2 - Dual MLF (Load)	11	SMH2	1.0140	1.0151
Murray Bridge – Hahndorf Pipeline 3	11	SMH3	1.0105	1.0116
Neurooda	33	SNEU	0.9918	0.9939
New Osborne	66	SNBN	1.0002	0.9999
North West Bend	66	SNWB	0.9796	0.9805
Northfield	66	SNFD	1.0019	1.0024
Para	66	SPAR	0.9990	0.9998
Parafield Gardens West	66	SPGW	1.0010	0.9995
Penola West 33	33	SPEN	1.0125	1.0162
Pimba	132	SPMB	1.0030	1.0700
Playford	132	SPAA	0.9733	0.9766
Port Lincoln	33	SPLN	0.9667	0.9779
Port Pirie	33	SPPR	0.9825	0.9835
Roseworthy	11	SRSW	1.0066	1.0062
Snuggery Industrial	33	SSNN	1.0683	1.0526
Snuggery Rural	33	SSNR	0.9862	0.9901
Stony Point	11	SSPN	0.9804	0.9823
Tailem Bend	33	STAL	1.0089	1.0087
Templers	33	STEM	1.0085	1.0164
Torrens Island	66	STSY	1.0000	1.0000
Waterloo	33	SWAT	0.9733	0.9775
Whyalla Central Substation	33	SWYC	0.9798	0.9836
Whyalla Terminal BHP	33	SBHP	0.9805	0.9836
Woomera	132	SWMA	0.9942	0.9902
Wudina	66	SWUD	0.9905	0.9934
Yadnarie	66	SYAD	0.9690	0.9786

Table 10 South Australia generation

Generator	Voltage (kV)	DUID	Connection Point ID	TNI code	2024-25 MLF	2023-24 MLF
Adelaide Desalination Plant Battery (Generation)	66	ADPBA1G	SMVE4D	SMVE	1.0044	1.0039
Adelaide Desalination Plant Battery (Load)	66	ADPBA1L	SMVE5D	SMVE	1.0044	1.0039
Adelaide Desalination Plant Hydro	66	ADPMH1	SMVE9D	SMVE	1.0044	1.0039
Adelaide Desalination Plant PV1	66	ADPPV1	SMVE6D	SMVE	1.0044	1.0039
Adelaide Desalination Plant PV2	66	ADPPV2	SMVE7D	SMVE	1.0044	1.0039
Adelaide Desalination Plant PV3	66	ADPPV3	SMVE8D	SMVE	1.0044	1.0039
Angaston Power Station	33	ANGAST1	SDRN1	SANG	1.0066	1.0048
Barker Inlet PS	275	BARKIPS1	SBPS1B	SBPS	1.0002	1.0000
Bolivar Power Station	66	BOLIVPS1	SPGG1B	SPGG	1.0006	0.9949

Generator	Voltage (kV)	DUID	Connection Point ID	TNI code	2024-25 MLF	2023-24 MLF
Bolivar WWT Plant	66	BOLIVAR1	SPGW1B	SPGW	1.0010	0.9995
Bolivar Wastewater Treatment Plant PV	66	BOWWPV1	SPGW2B	SPGW	1.0010	0.9995
Bolivar Wastewater Treatment Plant Reserve BESS (Generation)	66	BOWWBA1G	SPGW3B	SPGW	1.0010	0.9995
Bolivar Wastewater Treatment Plant Reserve BESS (Load)	66	BOWWBA1L	SPGW4B	SPGW	1.0010	0.9995
Bolivar Wastewater Treatment Plant Reserve Diesel	66	BOWWDG1	SPGW5B	SPGW	1.0010	0.9995
Bungala One Solar Farm	132	BNGSF1	SBEM1B	SBEM	0.9540	0.9601
Bungala Two Solar Farm	132	BNGSF2	SBEM2B	SBEM	0.9540	0.9601
Canunda Wind Farm	33	CNUNDAWF	SSNN1	SCND	0.9706	0.9671
Cathedral Rocks Wind Farm	132	CATHROCK	SCRK	SCRK	0.9270	0.9319
Christies Beach BESS (Generation)	66	CBWWBA1G	SMVE7C	SMVE	1.0044	1.0039
Christies Beach BESS (Load)	66	CBWWBA1L	SMVE8C	SMVE	1.0044	1.0039
Christies Beach Biogas	66	CBWWBG1	SMVE11	SMVE	1.0044	1.0039
Christies Beach Diesel 1	66	CBWWDG1	SMVE12	SMVE	1.0044	1.0039
Christies Beach Diesel 2	66	CBWWDG2	SMVE13	SMVE	1.0044	1.0039
Christies Beach Solar Farm 1	66	CBWWPV1	SMVE9C	SMVE	1.0044	1.0039
Christies Beach Solar Farm 2	66	CBWWPV2	SMVE10	SMVE	1.0044	1.0039
Clements Gap Wind Farm	132	CLEMGPF	SCGW1P	SCGW	0.9471	0.9522
Cummins Lonsdale PS	66	LONSDALE	SMVE1	SMVE	1.0044	1.0039
Dalrymple North BESS (Generation)	33	DALNTH01	SDAN1D	SDAM	0.9015	0.8954
Dalrymple North BESS (Load)	33	DALNTHL1	SDAN2D	SDAN	0.8892	0.8790
Dry Creek PS Unit 1	66	DRYCGT1	SDCA1	SDPS	0.9997	0.9992
Dry Creek PS Unit 2	66	DRYCGT2	SDCA2	SDPS	0.9997	0.9992
Dry Creek PS Unit 3	66	DRYCGT3	SDCA3	SDPS	0.9997	0.9992
Goyder South Wind Farm 1A	275	GSWF1A	SROB1G	SROB	0.9632	0.9702
Goyder South Wind Farm 1B	275	GSWF1B1	SRAB1G	SRAB	0.9628	0.9728
Hallett 1 Wind Farm	275	HALLWF1	SHPS2W	SHPS	0.9536	0.9599
Hallett 2 Wind Farm	275	HALLWF2	SMOK1H	SMOK	0.9513	0.9570
Hallett PS	275	AGLHAL	SHPS1	SHPS	0.9536	0.9599
Happy Valley BESS (Generation)	66	HVWWBA1G	SHVA1H	SHVA	1.0056	1.0041
Happy Valley BESS (Load)	66	HVWWBA1L	SHVA2H	SHVA	1.0056	1.0041
Happy Valley Solar Farm	66	HVWWPC1	SHVA3H	SHVA	1.0056	1.0041
Hornsdale Battery (Generation)	275	HPRG1	SMTL1H	SMTL	0.9642	0.9653
Hornsdale Battery (Load)	275	HPRL1	SMTL2H	SMTL	0.9611	0.9682
Hornsdale Wind Farm Stage 1	275	HDWF1	SHDW1H	SHDW	0.9407	0.9467
Hornsdale Wind Farm Stage 2	275	HDWF2	SHDW2H	SHDW	0.9407	0.9467
Hornsdale Wind Farm Stage 3	275	HDWF3	SHDW3H	SHDW	0.9407	0.9467
Ladbroke Grove PS Unit 1	132	LADBROK1	SPEW1	SPEW	0.9641	0.9736
Ladbroke Grove PS Unit 2	132	LADBROK2	SPEW2	SPEW	0.9641	0.9736

Generator	Voltage (kV)	DUID	Connection Point ID	TNI code	2024-25 MLF	2023-24 MLF
Lake Bonney BESS (Generation)	33	LBBG1	SLBB1L	SLBB	0.9761	0.9790
Lake Bonney BESS (Load)	33	LBBL1	SLBB2L	SLBB	1.0333	1.0290
Lake Bonney Wind Farm	33	LKBONNY1	SMAY1	SMAY	0.9663	0.9656
Lake Bonney Wind Farm Stage 2	33	LKBONNY2	SMAY2	SMAY	0.9663	0.9656
Lake Bonney Wind Farm Stage 3	33	LKBONNY3	SMAY3W	SMAY	0.9663	0.9656
Lincoln Gap Wind Farm	275	LGAPWF1	SLGW1L	SLGW	0.9553	0.9601
Lincoln Gap Wind Farm Stage 2	275	LGAPWF2	SLGW4L	SLGW	0.9553	0.9601
Mannum Solar Farm 2	33	MANNSF2	SMAE1M	SMAE	0.9932	0.9893
Mannum-Adelaide Pipeline Pumping Station No 2 Solar Farm – Dual MLF (Generation)	3.3	MAPS2PV1	SMA21M	SMA2	0.9919	0.9943
Mannum-Adelaide Pipeline Pumping Station No 2 Solar Farm – Dual MLF (Load)	3.3	MAPS2PV1	SMA21M	SMA2	1.0115	1.0151
Mannum-Adelaide Pipeline Pumping Station No 3 Solar Farm – Dual MLF (Generation)	3.3	MAPS3PV1	SMA31M	SMA3	0.9811	0.9946
Mannum-Adelaide Pipeline Pumping Station No 3 Solar Farm – Dual MLF (Load)	3.3	MAPS3PV1	SMA31M	SMA3	0.9811	1.0149
Mintaro PS	132	MINTARO	SMPS	SMPS	0.9658	0.9746
Morgan Whyalla 1 SF	3.3	MWPS1PV1	SMW11M	SMW1	0.9770	0.9847
Morgan Whyalla 2 SF	3.3	MWPS2PV1	SMW21M	SMW2	0.9771	0.9880
Morgan Whyalla 3 SF	3.3	MWPS3PV1	SMW31M	SMW3	0.9788	0.9847
Morgan Whyalla 4 SF	3.3	MWPS4PV1	SMW41M	SMW4	0.9749	0.9796
Morphett Vale East 66	66	SATGS1	SMVG1L	SMVG	1.0034	1.0020
Mt Millar Wind Farm	33	MTMILLAR	SMTM1	SMTM	0.9128	0.9259
Murray Bridge - Hahndorf Pipeline SF 2 - Dual MLF (Generation)	11	MBPS2PV1	SMH21M	SMH2	0.9986	1.0006
Murray Bridge - Hahndorf Pipeline SF 2 - Dual MLF (Load)	11	MBPS2PV1	SMH21M	SMH2	1.0140	1.0151
North Brown Hill Wind Farm	275	NBHWF1	SBEL1A	SBEL	0.9453	0.9508
O.C.P.L. Unit 1	66	OSB-AG	SNBN1	SOCP	0.9993	0.9992
Para 66 Generation	66	SATGN1	SPAG1E	SPAG	0.9984	0.9991
Pelican Point PS	275	PPCCGT	SPPT	SPPT	0.9989	0.9984
Port Augusta Renewable Energy Park - Solar	275	PAREPS1	SDAP2P	SDAP	0.9586	0.9654
Port Augusta Renewable Energy Park - Wind	275	PAREPW1	SDAP1P	SDAP	0.9586	0.9654
Port Lincoln 3	33	POR03	SPL31P	SPL3	0.9643	0.9799
Port Lincoln PS	132	POR01	SPLN1	SPTL	0.9656	0.9822
Pt Stanvac PS	66	PTSTAN1	SMVE3P	SMVE	1.0044	1.0039
Quarantine PS Unit 1	66	QPS1	SQPS1	SQPS	0.9949	0.9946
Quarantine PS Unit 2	66	QPS2	SQPS2	SQPS	0.9949	0.9946
Quarantine PS Unit 3	66	QPS3	SQPS3	SQPS	0.9949	0.9946
Quarantine PS Unit 4	66	QPS4	SQPS4	SQPS	0.9949	0.9946
Quarantine PS Unit 5	66	QPS5	SQPS5Q	SQPS	0.9949	0.9946
Snapper Point PS	275	SNAPPER1	SNPT1S	SNPT	0.9996	0.9993
Snowtown Wind Farm	33	SNOWTWN1	SNWF1T	SNWF	0.8892	0.8968

Generator	Voltage (kV)	DUID	Connection Point ID	TNI code	2024-25 MLF	2023-24 MLF
Snowtown Wind Farm Stage 2 – North	275	SNOWNTH1	SBLWS1	SBLW	0.9603	0.9638
Snowtown Wind Farm Stage 2 – South	275	SNOWSTH1	SBLWS2	SBLW	0.9603	0.9638
Snuggery PS Units 1 to 3	132	SNUG1	SSGA1	SSPS	0.9440	0.9877
Starfish Hill Wind Farm	66	STARHLWF	SMVE2	SMVE	1.0044	1.0039
Tailem Bend BESS 2 (Generation)	132	TB2BG1	STBB2T	STBB	1.0101	1.0079
Tailem Bend BESS 2 (Load)	132	TB2BL1	STBB3T	STBB	1.0101	1.0079
Tailem Bend Solar Farm	132	TBSF1	STBS1T	STBS	1.0069	1.0030
Tailem Bend Solar Farm 2	132	TB2SF1	STBB1T	STBB	1.0101	1.0079
Tatiara Meat Co	33	TATIARA1	SKET1E	SKET	1.0168	1.0175
The Bluff Wind Farm	275	BLUFF1	SBEL2P	SBEL	0.9453	0.9508
Torrens Island BESS (Generation)	275	TIBG1	STPB1T	STPB	0.9998	0.9996
Torrens Island BESS (Load)	275	TIBL1	STPB2T	STPB	0.9998	0.9997
Torrens Island PS B Unit 1	275	TORRB1	STSB1	STPS	0.9999	0.9997
Torrens Island PS B Unit 2	275	TORRB2	STSB2	STPS	0.9999	0.9997
Torrens Island PS B Unit 3	275	TORRB3	STSB3	STPS	0.9999	0.9997
Torrens Island PS B Unit 4	275	TORRB4	STSB4	STPS	0.9999	0.9997
Torrens Island PS Load	66	TORNL1	STSYL	STSY	1.0000	1.0000
Waterloo Wind Farm	132	WATERLWF	SWLE1R	SWLE	0.9532	0.9599
Wattle Point Wind Farm	132	WPWF	SSYP1	SSYP	0.8090	0.8073
Willogoleche Wind Farm	275	WGWF1	SWGL1W	SWGL	0.9484	0.9534
Wingfield 1 LFG PS	66	WINGF1_1	SKLB1W	SKLB	1.0022	1.0022
Wingfield 2 LFG PS	66	WINGF2_1	SNBN2W	SNBN	1.0002	0.9999

1.5 Tasmania marginal loss factors

Table 11 Tasmania loads

Location	Voltage (kV)	TNI code	2024-25 MLF	2023-24 MLF
Arthurs Lake	6.6	TAL2	0.9875	0.9726
Avoca	22	TAV2	1.0208	1.0032
Boyer SWA	6.6	TBYA	1.0218	1.0026
Boyer SWB	6.6	TBYB	1.0311	1.0116
Bridgewater	11	TBW2	1.0380	1.0266
Burnie	22	TBU3	0.9831	0.9846
Chapel St.	11	TCS3	1.0236	1.0128
Comalco	220	TCO1	1.0006	1.0007
Creek Road	33	TCR2	1.0235	1.0124
Derby	22	TDE2	0.9646	0.9581

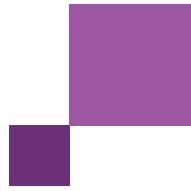
Location	Voltage (kV)	TNI code	2024-25 MLF	2023-24 MLF
Derwent Bridge	22	TDB2	0.9358	0.8965
Devonport	22	TDP2	0.9840	0.9817
Electrona	11	TEL2	1.0397	1.0289
Emu Bay	11	TEB2	0.9809	0.9836
Emu Bay 22	22	TEB3	0.9823	0.9836
Fisher (Rowallan)	220	TFI1	0.9626	0.9557
Fisher 220 DNSP	220	TFI2	0.9626	0.9557
George Town	22	TGT3	1.0024	1.0025
George Town (Basslink)	220	TGT1	1.0000	1.0000
Gordon	22	TGO2	0.9971	0.9930
Hadspen	22	THA3	0.9965	0.9878
Hampshire	110	THM2	0.9796	0.9818
Huon River	11	THR2	1.0398	1.0286
Kermandie	11	TKE2	1.0446	1.0326
Kingston	11	TKI2	1.0356	1.0249
Kingston	33	TK13	1.0304	1.0195
Knights Road	11	TKR2	1.0418	1.0301
Lindisfarne	33	TLF2	1.0256	1.0145
Meadowbank	22	TMB2	1.0002	0.9771
Mornington	33	TMT2	1.0270	1.0160
Mowbray	22	TMY2	0.9962	0.9867
New Norfolk	22	TNN2	1.0170	0.9988
Newton	11	TNT3	0.9477	0.9373
Newton	22	TNT2	0.9623	0.9635
North Hobart	11	TNH2	1.0228	1.0123
Norwood	22	TNW2	0.9957	0.9863
Palmerston	22	TPM3	0.9778	0.9633
Port Latta	22	TPL2	0.9568	0.9745
Que	22	TQU2	0.9601	0.9685
Queenstown	11	TQT3	0.9474	0.9424
Queenstown	22	TQT2	0.9506	0.9508
Railton	22	TRA2	0.9843	0.9814
Risdon	11	TRI3	1.0266	1.0150
Risdon	33	TRI4	1.0267	1.0151
Rokeby	11	TRK2	1.0310	1.0204
Rosebery	44	TRB2	0.9572	0.9599
Savage River	22	TSR2	0.9583	0.9965
Scottsdale	22	TSD2	0.9771	0.9670

Location	Voltage (kV)	TNI code	2024-25 MLF	2023-24 MLF
Sheffield	22	TSH3	0.9744	0.9796
Smithton	22	TST2	0.9468	0.9645
Sorell	22	TSO2	1.0494	1.0361
St Leonard	22	TSL2	0.9953	0.9867
St Leonards 22kV - Scheduled Load	22	TSL3	0.9949	0.9857
St. Marys	22	TSM2	1.0496	1.0251
Starwood	110	TSW1	1.0008	1.0011
Temco	110	TTE1	1.0040	1.0041
Trevallyn	22	TTR2	0.9971	0.9878
Triabunna	22	TTB2	1.0583	1.0439
Tungatinah	22	TTU2	0.9370	0.8976
Ulverstone	22	TUL2	0.9822	0.9810
Waddamana	22	TWA2	0.9475	0.9295
Wayatinah	11	TWY2	0.9974	0.9819
Wesley Vale	22	TWV2	0.9786	0.9781

Table 12 Tasmania generation

Generator description	Voltage (kV)	DUID	Connection Point ID	TNI code	2024-25 MLF	2023-24 MLF
Basslink (George Town)	220	BLNKTAS	TGT11	TGT1	1.0000	1.0000
Bastyan	220	BASTYAN	TFA11	TFA1	0.9259	0.9202
Bell Bay Three No.1	110	BBTHREE1	TBB11	TBB1	0.9977	0.9968
Bell Bay Three No.2	110	BBTHREE2	TBB12	TBB1	0.9977	0.9968
Bell Bay Three No.3	110	BBTHREE3	TBB13	TBB1	0.9977	0.9968
Bluff Point and Studland Bay Wind Farms	110	WOOLNTH1	TST11	TST1	0.8938	0.9112
Butlers Gorge	110	BUTLERSG	TBG11	TBG1	0.9302	0.8911
Catagunya	220	LI_WY_CA	TLI11	TLI1	0.9956	0.9809
Cethana	220	CETHANA	TCE11	TCE1	0.9560	0.9504
Cluny	220	CLUNY	TCL11	TCL1	0.9984	0.9857
Devils Gate	110	DEVILS_G	TDG11	TDG1	0.9613	0.9537
Fisher	220	FISHER	TFI11	TFI1	0.9626	0.9557
Gordon	220	GORDON	TGO11	TGO1	0.9700	0.9731
Granville Harbour Wind Farm	220	GRANWF1	TGH11G	TGH1	0.9425	0.9388
John Butters	220	JBUTTERS	TJB11	TJB1	0.9192	0.9208
Lake Echo	110	LK_ECHO	TLE11	TLE1	0.9322	0.8888
Lemonthyme	220	LEM_WIL	TSH11	TSH1	0.9662	0.9567
Liapootah	220	LI_WY_CA	TLI11	TLI1	0.9956	0.9809
Mackintosh	110	MACKNTSH	TMA11	TMA1	0.9130	0.9059
Meadowbank	110	MEADOWBK	TMB11	TMB1	0.9920	0.9688

Generator description	Voltage (kV)	DUID	Connection Point ID	TNI code	2024-25 MLF	2023-24 MLF
Musselroe	110	MUSSELR1	TDE11M	TDE1	0.9223	0.9119
Paloona	110	PALOONA	TPA11	TPA1	0.9645	0.9572
Poatina	110	POAT110	TPM21	TPM2	0.9670	0.9555
Poatina	220	POAT220	TPM11	TPM1	0.9835	0.9733
Reece No.1	220	REECE1	TRCA1	TRCA	0.9160	0.9052
Reece No.2	220	REECE2	TRCB1	TRCB	0.9150	0.9068
Repulse	220	REPULSE	TCL12	TCL1	0.9984	0.9857
Rowallan	220	ROWALLAN	TFI12	TFI1	0.9626	0.9557
Tamar Valley CCGT	220	TVCC201	TTV11A	TTV1	1.0000	1.0000
Tamar Valley OCGT	110	TVPP104	TBB14A	TBB1	0.9977	0.9968
Tarraleah	110	TARRALEA	TTA11	TTA1	0.9351	0.8977
Trevallyn	110	TREVALLN	TTR11	TTR1	0.9929	0.9825
Tribute	220	TRIBUTE	TTI11	TTI1	0.9191	0.9089
Tungatinah	110	TUNGATIN	TTU11	TTU1	0.9113	0.8782
Wayatinah	220	LI_WY_CA	TLI11	TLI1	0.9956	0.9809
Wild Cattle Hill Wind Farm	220	CTHLWF1	TWC11C	TWC1	0.9956	0.9836
Wilmot	220	LEM_WIL	TSH11	TSH1	0.9662	0.9567



2. Changes in marginal loss factors

Year-on-year changes in MLFs are driven by projected changes in the NEM. These changes fall into two main categories:

1. Changes to the impedance of the transmission network caused by augmentation of the transmission network, such as building new transmission lines.
 - If augmentations decrease the impedance of the transmission network between a connection point and the RRN, then the MLF for the connection point will move closer to 1.0.
2. Changes to projected power flows over the transmission network that are caused by projected changes to power system demand and generation, including building new power stations, retirement of power stations, and revised electricity consumption forecasts.
 - If the projected power flow from a connection point to the RRN increases, then the MLF for that connection point will decrease. If the projected power flow from a connection point to the RRN decreases, then the MLF for that connection point will increase.

Changes between the FY 2023-24 MLFs and the FY 2024-25 MLFs are due to changes in projected power flow over the transmission network. The key drivers for these changes are shifts in the location of generation capacity, variations in availability of existing generation and variation in network congestion.

The graph at Figure 1 shows the projected changes in interconnector flows from FY 2023-24 to FY 2024-25.

Figure 1 FY 2023-24 vs FY 2024-25 MLF study interconnector flow (GWh)



2.1 Regional summary

Changes between the FY 2023-24 MLFs and the draft FY 2024-25 MLFs on an average basis for each region are summarised below. AEMO's final report will provide further detail.

Queensland

- Increases in MLF outcomes in northern and central Queensland, primarily driven by a decrease in the forecast output of generation in both sub regions.

New South Wales

- Decreases in MLF outcomes within south-west New South Wales, primarily driven by a forecast reduction in the levels of congestion local to the area.

Victoria

- Decreases in MLF outcomes in north-west Victoria, primarily driven by an increase in local generation.
 - Note: The addition of constraint (V[^]V_NIL_KGTS) has resulted in a reduction to the observed decreases between the preliminary and draft determinations for the FY 2024-25 within north-west Victoria.

South Australia

- Decreases in MLF outcomes in south-east South Australia, primarily driven by an increase in exports to Victoria.

Tasmania

- Increases in MLF outcomes in majority of Tasmania driven by an increase in Basslink imports.

A1. Methodology, inputs, and assumptions

This section outlines the principles underlying the MLF calculation, the load and generation data inputs AEMO obtains and uses for the calculation, and how AEMO checks the quality of this data. It also explains how networks and interconnectors are modelled in the MLF calculation.

A1.1 Marginal loss factors calculation methodology

AEMO uses a forward-looking loss factor (FLLF) methodology (Methodology)³ for calculating MLFs. The Methodology uses the principle of “minimal extrapolation”, the high level steps in this can be summarised as:

- Develop a load flow model of the transmission network that includes committed augmentations for the year that the MLFs will apply.
- Obtain connection point demand forecasts for the year that the MLFs will apply.
- Estimate the dispatch of committed new generating units.
- Adjust the dispatch of new and existing generating units to restore the supply-demand balance in accordance with section 5.5 of the Methodology.
- Calculate the MLFs using the resulting power flows in the transmission network.

A1.2 Load data requirements for the MLF calculation

The annual energy targets used in load forecasting for the FY 2024-25 MLF calculation are in the table below.

Table 13 Operational demand

Region	2024-25 forecast operational energy (GWh) ^A
Queensland	50,161
New South Wales	63,748
Victoria	39,917
South Australia	11,367
Tasmania	10,763

A. Forecasting operational energy – as sent out energy was sourced from the most recent (2023) published Electricity Statement of Opportunities (for 2024-25), available at: <http://www.aemo.com.au/Electricity/National-Electricity-Market-NEM/Planning-and-forecasting/NEM-Electricity-Statement-of-Opportunities>.

³ Forward Looking Transmission Loss Factors (Version 8), at https://aemo.com.au/-/media/files/electricity/nem/security_and_reliability/loss_factors_andRegional_boundaries/forward-looking-loss-factor-methodology.pdf?la=en.

A1.2.1 Historical data accuracy and due diligence of the forecast data

AEMO regularly verifies the accuracy of historical connection point data. AEMO calculates the losses using this historical data, by adding the summated generation values to the interconnector flow and subtracting the summated load values. These transmission losses are used to verify that no large errors occur in the data.

AEMO also performs and will continue to perform due diligence checks of connection point load traces to ensure that:

- The demand forecast is consistent with the latest Electricity Statement of Opportunities (ESOO).
- Load profiles are reasonable, and the drivers for load profiles that have changed from the historical data are identifiable.
- The forecast for connection points is inclusive of any relevant embedded generators, where the embedded generators are not considered as part of operational demand⁴.
- Industrial and auxiliary type loads are not scaled with residential drivers.

A1.3 Generation data requirements for the MLF calculation

AEMO obtains historical real power (MW) and reactive power (MVA_R) data for each trading interval (half-hour) covering every generation connection point in the NEM from 1 July 2022 to 30 June 2023 from its settlements database.

AEMO also obtains the following data:

- Generation capacity data from AEMO's Generation Information Page published on its website as of 7 February 2024.
- Historical generation availability, as well as on-line and off-line status data from AEMO's Market Management System (MMS).
- Future generation availability based on most recent medium term projected assessment of system adequacy (MT PASA) data, as of 1 January 2024, as a trigger to use an adjusted generation profile for the loss factor calculation.

A1.3.1 New generation

The new generation included is taken from the Generation Information Page as published on 7 February 2024. Projects listed as committed (Committed/Committed*) and with a target commercial operation date that implies generation in the target year are included. These generating systems are incorporated into the network model and forecast generation profiles are created.

For new solar and wind projects, AEMO created half-hourly profiles based on nameplate capacity and the Full Commercial Use Date indicated on the Generation Information Page, using the reference year FY 2022-23 weather data. Default hold point schedules were applied to these profiles prior to their full commercial operating

⁴ Demand Terms in EMMS Data Model, at <https://www.aemo.com.au/energy-systems/electricity/national-electricity-market-nem/system-operations/dispatch-information/policy-and-process-documentation#demandterms>.

A1. Methodology, inputs, and assumptions

date. Historical data from the previous FY was incorporated into the profile if available. Relevant proponents/participants for each project were consulted during the process.

Economic curtailment was factored into the solar and wind forecast generation profiles to align them with historical generation data (ensuring equitable treatment between existing and future generation). AEMO calculated the time-of-day average curtailment by region for the reference year FY 2022-23.

For new thermal generation, the relevant proponents/participants were requested to provide forecasts. For new storage projects, the relevant proponents/participants were requested to provide forecasts.

The following committed generation was included in the modelling, but AEMO does not publish MLFs for connections that are not yet registered:

Queensland new generation

- Clarke Creek Wind Farm
- Kidston Pumped Hydro
- Wambo Wind Farm

New South Wales and Australian Capital Territory new generation

- Crookwell 3 Wind Farm
- Kurri Kurri OCGT
- Riverina Solar Farm
- Stubbo Solar Farm
- Walla Walla Solar Farm
- Waratah Super Battery
- Wellington North Solar Farm
- Wollar Solar Farm

Victoria new generation

- Girgarre Solar Farm
- Golden Plains Wind Farm
- Hawkesdale Wind Farm
- Range Bank BESS
- Ryan Corner Wind Farm
- Wungnchu Solar Farm

South Australia new generation

- None

Tasmania new generation

- None

A1.3.2 Abnormal generation patterns

AEMO replaced a number of historical generation profiles with adjusted profiles as an input to the FY 2024-25 MLF calculation process.

In accordance with section 5.5.7 of the Methodology, AEMO used adjusted generation profiles based on verifiable information, where it was satisfied that the reference year profile was clearly unrepresentative of the expected generation for FY 2024-25. Historical generation patterns were adjusted to backfill historical outages and incorporate future outages identified through MT PASA data submitted as of 1 January 2024. This was performed where outages longer than 30 days have been identified, and only if deemed practicable. For example, highly variable sources of generation such as ‘peakers’ would not be backfilled due to the inconsistent nature of the generation.

A1.4 Intra-regional limit management

When performing MLF calculations, AEMO has identified several high impact system normal intra-regional limits that are likely to have a material impact on MLFs for the target year. To minimise deviations between the MLF calculations and actual market outcomes, AEMO incorporated these limits by reducing local generation levels to ensure the limits are not exceeded. The intra-regional limits that were incorporated include:

- North-west Victoria voltage collapse limit (simplified to reflect previously invoked V^V_NIL_ARWBBA).
- Balranald to Darlington Point voltage collapse limit (N^^N_NIL_X5_BEKG and N^^N_NIL_X5_BESH, previously N^^N_NIL_3).
- Darlington Point to Wagga Wagga voltage collapse limit (N::N_NIL_63).
- Liddell to Tamworth transfer limit (N>>NIL_88_84_S)
- Molong to Orange North transfer limit (N>NIL_94T)
- Waubra to Ballarat transfer limit (V>>NIL_WBBA_KGBE, previously V>>V_NIL_9).
- Murray to Dederang transfer limit (V>>NIL_MSDD1_MSDD2 and V>>NIL_MSDD2_MSDD1, previously V>>V_NIL_1A and V>>V_NIL_1B).
- Horsham – Murra Warra – Kiamal voltage collapse limit (V^^V_NIL_KGTS)

AEMO continuously monitors and assesses the impact of other system normal limits. The following lists the limits which have been considered but **not** modelled for the FY 2024-25 draft MLFs:

- Yarranlea and Middle Ridge transfer limit (Q>NIL_YLMR)
- Emerald to Comet transfer limit (Q>NIL_EMCM_6056)
- Parkes to Suntop transfer limit (N>94K2_94T_NIL)
- Port Macquarie to Herron Creek transfer limit (N>>NIL_964_84_S)
- Suntop to Wellington transfer limit (N>NIL_94K_1)

- Gunnedah to Tamworth transfer limit (N>NIL_969)
- Corowa to Albury transfer limit (N>NIL_997_99A)
- Wagga North to Wagga transfer limit (N>NIL_9R6_9R5)
- Parkes 132kV/66kV transformer transfer limit (N>NIL_PKTX_LV)
- Ararat to Waubra transfer limit (V>>NIL_ARWB_KGBE, previously V>>V_NIL_18)
- Wemen 220kV/22kV transformer transfer limit (V>V_NIL_17)
- Snowtown – Bungama transfer limit (S>NIL_HUWT_STBG3)
- Upper limit for Cathedral Rocks Wind Farm and Mt Millar Wind Farm for voltage stability limit (S^NIL_CRK+MTM_95)

The inclusion of these limits will be reviewed prior to the publication of the final MLF report, subject to the finalisation of limit advice from relevant TNSPs.

A1.5 Network representation in the marginal loss factors calculation

An actual network configuration recorded by AEMO's Energy Management System (EMS) is used to prepare the NEM interconnected power system load flow model for the MLF calculation. This recording is referred to as a 'snapshot'. AEMO reviews the snapshot and modifies it where necessary to represent all normally connected equipment. AEMO also checks switching arrangements for the Victorian Latrobe Valley's 220 kilovolt (kV) and 500 kV networks to ensure they reflect normal operating conditions.

AEMO adds relevant network augmentations that are scheduled to occur in FY 2024-25. The snapshot is thus representative of the anticipated normally operating power system in FY 2024-25.

A1.5.1 Network augmentation for 2024-25

Relevant Transmission Network Service Providers (TNSPs) advised of the following network augmentations to be completed within or prior to FY 2024-25.

Queensland network augmentations

Powerlink provided the following list of planned network augmentations in FY 2024-25 in Queensland:

- Replacement of CP.02371 H010 Bouldercombe - Transformer 1 and 2
 - Replace Transformers 1 and 2 at Bouldercombe
- Establishment of CP.02883 Ross Woree Third 275kV Circuit second stage
 - Updated 275/132 kV transformer parameters
- Establishment of CP.02706 Fitzroy Ironbark 1 Mine Connection (T256 Greenland)
 - Moranbah - Burton Downs Tee circuit
- Establishment of CP.02905 Aldoga Green Load connection (Larcom Creek Factory)
- Replacement of CP.02369 Blackwater – Transformer 1 and 2

A1. Methodology, inputs, and assumptions

- Replace transformers 1 and 2 at Blackwater

New South Wales network augmentations

New South Wales NSPs provided the following list of planned network augmentations in FY 2024-25 in New South Wales:

- Project Energy Connect stage 1:
 - Establishment of Buronga to Red Cliffs 220 kV double circuit line

Victoria network augmentations

AEMO's Victorian Planning Group provided the following list of planned network augmentations in FY 2024-25 in Victoria:

- Replacement of East Rowville (ERTS) existing transformer B3
- Replacement of Sprigvale (SVTS) existing B1, B2 and B3 transformers
- Replacement of Fishermans Bend (FBTS) existing B2 transformer
- East Rowville (ERTS) Redevelopment - Stage 2
 - Replacement of B1 and B4 transformers
- Project Energy Connect stage 1:
 - Establishment of new Buronga to Red Cliffs 220 kV double circuit line

South Australia network augmentations

ElectraNet provided the following list of planned network augmentations in FY 2024-25 in South Australia:

- Replacement of Leigh Creek South transformer
- Project Energy Connect stage 1- Establishment of followings:
 - A new Robertstown to Bunley 275 kV double circuit line.
 - A new Bunley to Buronga 330 kV double circuit line
 - A new 330/275 kV substation and 3x400 MVA 275/330 kV transformers at Bunley.
 - A new 330/220 kV substation, 1x200 MVA 330/220 kV transformer and 1x200 MVA 330 kV phase shifting transformer at Buronga.

Tasmania network augmentations

TasNetworks provided the following list of planned network augmentations in FY 2024-25 in Tasmania:

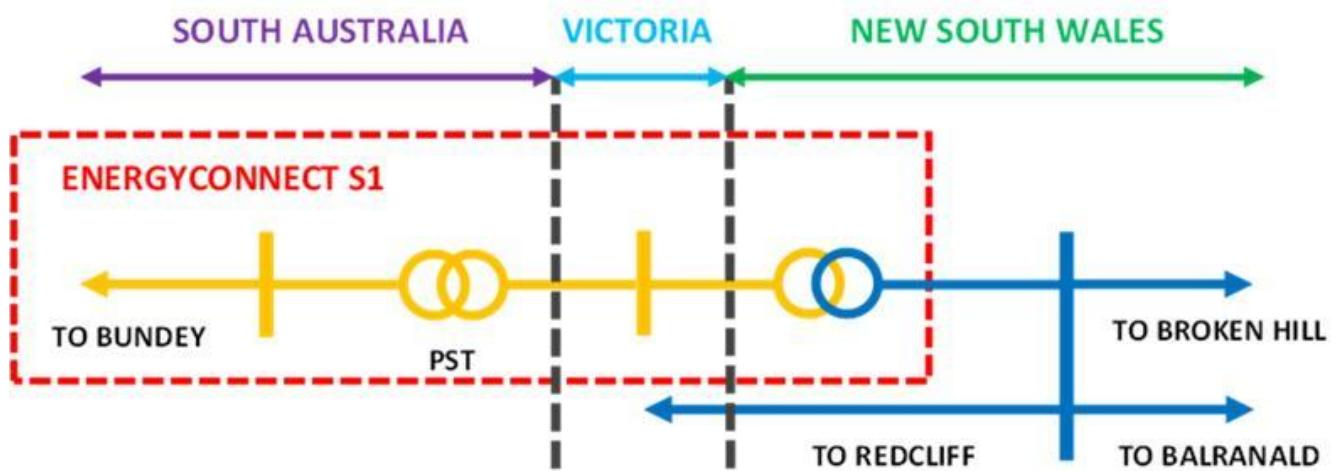
- None

A1.5.2 Treatment of Project Energy Connect interconnector

Stage 1 of Project Energy Connect (PEC) has been implemented with the configuration below, this configuration is referred to as a micro-slice due to the isolated slice of Victoria between New South Wales and South Australia, this

is consistent with how Stage 1 of PEC will be managed by the NEM dispatch systems. For further information on the market implementation of PEC please refer to the Project Energy Connect Market Integration Papers⁵.

Figure 2 Project Energy Connect Stage 1 – Boundary configuration for 2024-25



A1.5.3 Treatment of Basslink interconnector

Basslink consists of a controllable network element that transfers power between Tasmania and Victoria.

In accordance with sections 5.3.1 and 5.3.2 of the Methodology, AEMO calculates the Basslink connection point MLFs using historical data, adjusted to reflect any change in forecast generation in Tasmania.

The inter-regional loss factor equation for Basslink will be published on 1 April 2024.

A1.5.4 Treatment of Terranora interconnector

The Terranora interconnector is a regulated interconnector.

The boundary between Queensland and New South Wales between Terranora and Mudgeeraba is north of Directlink. The Terranora interconnector is in series with Directlink and, in the MLF calculation, AEMO manages the Terranora interconnector limit by varying the Directlink limit when necessary.

For the FY 2024-25 MLFs, the relationship between Terranora and QNI has been derived from historical system normal (excludes data where limits applied that were related to network outages) observations from the FY 2022-23.

As Directlink resides entirely within NSW, considerations were made for load between Directlink and Terranora to ensure that the intended relationship between QNI and Terranora was achieved.

The inter-regional loss factor equation for Terranora will be published on 1 April 2024.

A1.5.5 Treatment of the Murraylink interconnector

The Murraylink interconnector is a regulated interconnector.

⁵ At <https://aemo.com.au/en/consultations/current-and-closed-consultations/project-energy-connect-market-integration-paper>

In accordance with section 5.3 of the Methodology, AEMO treats the Murraylink interconnector as a controllable network element in parallel with the regulated Heywood interconnector.

For the FY 2024-25 MLFs, the relationship between Murraylink and Heywood has been derived from historical system normal (excludes data where limits applied that were related to network outages) observations from the FY 2022-23.

Further information on the treatment of Murraylink for FY 2024-25 will be provided in the final MLF report. The inter-regional loss factor equation for Murraylink will be published on 1 April 2024.

A1.5.6 Treatment of Yallourn unit 1

Yallourn Power Station Unit 1 can be connected to either the 220 kV or 500 kV network in Victoria.

AEMO modelled Yallourn Unit 1 at the two connection points (one at 220 kV and the other one at 500 kV) and calculated loss factors for each connection point. AEMO then calculated a single volume-weighted loss factor for Yallourn Unit 1 based on the individual loss factors at 220 kV and at 500 kV, and the output of the unit.

A1.6 Interconnector capacity

In accordance with section 5.5.4 of the Methodology, AEMO estimates nominal interconnector limits for summer peak, summer off-peak, winter peak, and winter off-peak periods. These values are in the table below. AEMO also sought feedback from the relevant TNSPs as to whether there were any additional factors that might influence these limits.

Table 14 Inter-regional limits

From region	To region	Summer day (MW) ^A	Summer night (MW) ^A	Winter day (MW) ^A	Winter night (MW) ^A
Queensland	NSW^B	1,350	1,350	1,350	1,350
NSW	Queensland^B	800	800	800	800
NSW	Victoria	1,700	1,700	1,700	1,700
Victoria	NSW	1,670	1,670	1,670	1,670
Victoria^C	South Australia^C	800	800	800	800
South Australia^C	Victoria^C	750	750	750	750
Victoria (Murraylink)	South Australia (Murraylink)	220	220	220	220
South Australia (Murraylink)	Victoria (Murraylink)	188 minus Northwest Bend & Berri loads	198 minus Northwest Bend & Berri loads	215 minus Northwest Bend & Berri loads	215 minus Northwest Bend & Berri loads
Queensland (Terranora)	NSW (Terranora)	224	224	224	224
NSW (Terranora)	Queensland (Terranora)	107	107	107	107
Tasmania (Basslink)	Victoria (Basslink)^D	594	594	594	594
Victoria (Basslink)	Tasmania (Basslink)^D	478	478	478	478

A. The peak interconnector capability does not necessarily correspond to the network capability at the time of the maximum regional demand; it refers to average capability during daytime, which corresponds to 6.00 am to 6.00 pm (AEST) in MLF studies.

- B. The “QNI minor” upgrade is modelled with an additional headroom of 100MW in the northward day flow.
- C. Stage 1 of PEC has been implemented as per the micro-slice option, which has resulted in an increase of 150MW to VIC-SA limits in both directions for the 2024-25 FY.
- D. Limit referring to the receiving end.

A1.7 Calculation of MLFs

AEMO uses the TPRICE⁶ software to calculate MLFs using the following method:

- Convert the half-hourly forecast load and historical generation data, generating unit capacity and availability data together with interconnector data into a format suitable for input to TPRICE.
- Adjust the load flow case to ensure a reasonable voltage profile in each region at times of high demand.
- Convert the load flow case into a format suitable for use in TPRICE.
- Feed into TPRICE, one trading interval at a time, the half-hourly generation and load data for each connection point, generating unit capacity and availability data, with interconnector data. TPRICE allocates the load and generation values to the appropriate connection points in the load flow case.
- TPRICE iteratively dispatches generation to meet forecast demand and solves each half-hourly load flow case subject to the rules in section 5.5.2 of the Methodology, and calculates the loss factors appropriate to the load flow conditions.
- Refer the loss factors at each connection point in each region are referred to the RRN.
- Average the loss factors for each trading interval and for each connection point using volume weighting.

In accordance with section 5.6.1 of the Methodology, AEMO calculates dual MLF values at connection points where one MLF does not satisfactorily represent active power generation and consumption.

A1.7.1 MLF calculation quality control

As with previous years, AEMO has engaged consultants to review the quality and accuracy of the MLF calculation. The consultants will perform the following work:

- An independent verification of AEMO’s data inputs to the MLF calculation.
- A verification study using AEMO’s input data to independently validate AEMO’s calculation results. AEMO will utilise the verification study to ensure that AEMO’s MLF calculation methods and results are accurate.

⁶ TPRICE is a transmission pricing software package. It is capable of running a large number of consecutive load flow cases quickly. The program outputs loss factors for each trading interval as well as averaged over a financial year using volume weighting.

Glossary

Term	Definition
AC	Alternating current
ACT	Australian Capital Territory
AEMO	Australian Energy Market Operator
AER	Australian Energy Regulator
BESS	Battery Energy Storage System
DC	Direct current
ESOO	Electricity Statement Of Opportunities
FLLF	Forward Looking Loss Factor
FY	Financial Year
GWh	Gigawatt-hour
km	Kilometre
kV	Kilovolt
LNG	Liquefied natural gas
MLF	Marginal Loss Factor
Methodology	Forward-looking Loss Factor Methodology
MNSP	Market Network Service Provider
MVar	Megavolt-ampere-reactive
MW	Megawatt
NEFR	National Energy Forecasting Report
NEM	National Electricity Market
NEMDE	National Electricity Market Dispatch Engine
NSP	Network Service Provider
NSW	New South Wales
PS	Power station
PV	Photovoltaic
QNI	Queensland to New South Wales Interconnector
RRN	Regional Reference Node
Rules	National Electricity Rules
TNI	Transmission Node Identity
TNSP	Transmission Network Service Provider
VTN	Virtual Transmission Node