

BAL-003-1 Frequency Bias Setting and L₁₀ Values for 2017

March 28, 2017¹

The ERO has validated the Frequency Bias Settings elected by each of the BAs, and has computed the 2017 L₁₀ values for each BA, and the total Bias for each Interconnection. This document transmits the final 2017 Frequency Bias Settings prescribed by Standard BAL-003-1 Requirements R2, R3, and R4.

Implementation Instructions

Balancing Authorities are to implement the 2017 Frequency Bias Settings and L₁₀ Values on Tuesday, April 4, 2017². For the Western interconnection, the Bias and L₁₀ changes should be done at 10:00 a.m. PDT/11:00 a.m. MDT because the Bias settings within the interconnection and the calculations performed for Automatic Time Error Correction (ATEC) need to be coordinated. No specific time is specified for the Eastern Interconnection, but the changes should be implemented no later than close-of-business (5:00 p.m. EDT/4:00 p.m. CDT).

The 2017 Frequency Bias Settings are to remain in effect through the end of March 2018 (when the 2018 settings go into effect), unless otherwise instructed by the ERO.

The Bias settings are prescribed in one decimal point accuracy. If your BA's EMS system is not capable of handling decimal points, please round up in your implementation. It is always better to be over-biased than under-biased.

The 2017 Frequency Bias Settings and L₁₀ values with these instructions have been posted on the Balancing Authority Submittal Site and the Resources Subcommittee website.

For more information or assistance, please contact [Brad Gordon](#), [Elsa Prince](#), or [Bob Cummings](#) via email.

¹ This is a re-issue of the Frequency Bias Settings and L₁₀ Values originally posted on March 24, 2017. Additional instruction details were added with specific implementation time instructions for the Western Interconnection.

² The implementation is being scheduled for Tuesday to avoid implementation on the weekend (April 1st is Saturday) or on a Monday.

2017 Frequency Bias Settings

3/24/2017

Eastern Interconnection

BA	Bias Type	Receive Overlap Reg	Provide Overlap Reg	Elected 2017 FBS	2017 L ₁₀	OY 2017 BA FRO
FMPP	Fixed	N	N	-29.1	37.09	-5.6
FPC	Fixed	N	N	-80.4	61.66	-15.3
FPL	Fixed	N	N	-213.1	100.38	-40.6
GVL	Fixed	N	N	-3.3	12.49	-0.6
HST	Fixed	N	N	-0.5	4.86	-0.1
JEA	Fixed	N	N	-24.0	33.69	-4.1
NSB	Fixed	N	N	-0.4	4.35	-0.1
SEC	Fixed	N	N	-10.7	22.49	-2.0
TAL	Fixed	N	N	-4.7	14.91	-0.9
TEC	Fixed	N	N	-36.4	41.49	-6.9
MHEB	Fixed	N	N	-56.4	51.64	-10.2
SPC	Fixed	N	N	-40.6	43.81	-7.7
IESO	Fixed	N	N	-250.3	108.79	-47.7
ISNE	Fixed	N	N	-200.9	97.46	-38.3
NYIS	Fixed	N	N	-261.7	111.24	-49.9
NBSO	Fixed	N	Y	-27.1	35.80	-5.2
NSPI	Fixed	Y	N	-18.1	29.25	-3.5
MISO	Fixed	N	N	-1,101.3	228.20	-209.9
OVEC	Fixed	N	N	-8.1	19.57	-1.5
PJM	Fixed	N	N	-1,355.2	253.14	-258.2
AEC	Fixed	N	N	-11.5	23.32	-2.2
AECI	Fixed	N	N	-34.6	40.45	-6.6
CHC	Fixed	N	N	-3.0	11.91	-0.1
CPLE	Fixed	N	N	-109.5	71.96	-22.0
CPLW	Fixed	N	N	-5.9	16.70	0.0
DUK	Fixed	N	N	-177.6	91.64	-33.8
EEI	Fixed	N	N	-5.3	15.83	-0.8
LGEE	Fixed	N	N	-64.9	55.40	-12.4
SC	Fixed	N	N	-40.4	43.71	-7.7
SCEG	Fixed	N	N	-43.7	45.46	-8.3
SEPA	Fixed	N	N	-1.4	8.14	-0.3
SOCO	Fixed	N	N	-422.6	141.36	-80.5
TVA	Fixed	N	N	-277.5	114.55	-52.9
SPA	Fixed	N	N	-16.4	27.85	-1.2
SWPP	Fixed	N	N	-409.0	139.07	-77.9

Total EI FBS -5,345.6

IFRO -1,015.0

2017 Frequency Bias Settings

3/24/2017

Western Interconnection

BA	Bias Type	Receive Overlap Reg	Provide Overlap Reg	Elected 2017 FBS	2017 L ₁₀	OY 2017 BA FRO
AVA	Fixed	N	N	-20.6	22.18	-11.8
AZPS	Fixed	N	N	-55.6	36.44	-31.8
BANC	Fixed	N	N	-26.7	25.25	-14.1
BPAT	Var	N	N	-162.0	62.21	-77.6
CHPD	Fixed	N	N	-26.5	25.16	-4.9
CISO	Fixed	N	N	-344.1	90.66	-196.5
DEAA	Fixed	N	N	-1.6	6.18	-0.9
DOPD	Fixed	N	N	-6.6	12.56	-2.0
EPE	Fixed	N	N	-20.7	22.24	-6.2
GCPD	Fixed	N	N	-28.0	25.86	-6.3
GRID	Fixed	N	N	-10.7	15.99	-2.8
GRIF	Fixed	N	N	-1.8	6.56	-1.0
GRMA	Fixed	N	N	-5.6	11.57	-3.2
GWA	Fixed	N	N	-0.5	3.46	-0.3
HGMA	Fixed	N	N	-4.5	10.37	-0.7
IID	Fixed	N	N	-4.9	10.82	-2.8
IPCO	Var	N	N	-40.6	31.14	-16.1
LDWP	Fixed	N	N	-43.7	32.31	-25.0
NEVP	Fixed	N	N	-44.2	32.49	-23.6
NWMT	Fixed	N	N	-19.7	21.69	-11.2
PACE	Fixed	N	N	-85.7	45.25	-48.9
PACW	Fixed	N	N	-34.2	28.58	-19.5
PGE	Fixed	N	N	-29.0	26.32	-16.6
PNM	Fixed	N	N	-24.4	24.14	-13.9
PSCO	Fixed	N	N	-78.0	43.17	-43.8
PSEI	Fixed	N	N	-35.3	29.04	-20.2
SCL	Fixed	N	N	-32.0	27.65	-8.0
SRP	Fixed	N	N	-54.9	36.21	-31.4
TEPC	Fixed	N	N	-24.6	24.24	-14.1
TIDC	Fixed	N	N	-4.1	9.90	-2.3
TPWR	Fixed	N	N	-10.8	16.06	-3.7
WACM	Fixed	N	N	-55.9	36.54	-31.9
WALC	Fixed	N	N	-16.5	19.85	-8.3
WAUW	Fixed	N	N	-1.1	5.13	-0.6
WWA	Fixed	N	N	-0.5	3.46	-0.3
AESO	Fixed	N	N	-138.7	57.56	-79.2
BCHA	Var	N	N	-130.0	55.73	-64.0
CEN	Fixed	N	N	-22.2	23.03	-12.7

Total WI

FBS -1,646.5

IFRO

-858.2

2017 Frequency Bias Settings

3/24/2017

ERCOT Interconnection

BA	Bias Type	Receive Overlap Reg	Provide Overlap Reg	Elected 2017 FBS	2017 L ₁₀	OY 2017 BA FRO
ERCOT	Fixed	N	N	-739.0	N/A	-381.0

Québec Interconnection

BA	Bias Type	Receive Overlap Reg	Provide Overlap Reg	Elected 2017 FBS	2017 L ₁₀	OY 2017 BA FRO
HQT	Var	N	N	N/A	N/A	-179.0

2017 Comparison of Frequency Bias Settings and L₁₀

3/24/2017

Eastern Interconnection

BA	2017 FBS (MW/0.1 Hz)	2016 FBS (MW/0.1 Hz)	Change (MW/0.1 Hz)	% Change	2017 L ₁₀	2016 L ₁₀	Change
FMPP	-29.1	-27.1	-2.03	8%	37.09	35.52	1.58
FPC	-80.4	-75.3	-5.14	7%	61.66	59.22	2.43
FPL	-213.1	-195.2	-17.92	9%	100.38	95.37	5.01
GVL	-3.3	-3.1	-0.18	6%	12.49	12.05	0.44
HST	-0.5	-0.5	-0.05	11%	4.86	4.58	0.28
JEA	-24.0	-21.0	-2.96	14%	33.69	31.31	2.37
NSB	-0.4	-0.3	-0.06	17%	4.35	4.00	0.35
SEC	-10.7	-10.4	-0.28	3%	22.49	22.04	0.46
TAL	-4.7	-4.7	-0.04	1%	14.91	14.73	0.18
TEC	-36.4	-33.6	-2.75	8%	41.49	39.60	1.89
MHEB	-56.4	-58.7	2.33	-4%	51.64	52.32	-0.68
SPC	-40.6	-38.6	-1.97	5%	43.81	42.43	1.38
IESO	-250.3	-245.5	-4.78	2%	108.79	106.97	1.82
ISNE	-200.9	-195.8	-5.11	3%	97.46	95.52	1.94
NYIS	-261.7	-252.0	-9.72	4%	111.24	108.36	2.88
NBSO	-27.1	-35.9	8.77	-24%	35.80	40.88	-5.09
NSPI	-18.1	-18.2	0.11	-1%	29.25	29.13	0.12
MISO	-1,101.3	-1,088.2	-13.05	1%	228.20	225.20	3.00
OVEC	-8.1	-12.3	4.21	-34%	19.57	23.96	-4.38
PJM	-1,355.2	-1,332.5	-22.67	2%	253.14	249.20	3.94
AEC	-11.5	-9.3	-2.17	23%	23.32	23.32	0.00
AECI	-34.6	-34.8	0.20	-1%	40.45	40.27	0.18
CHC	-3.0	-2.0	-0.96	47%	11.91	9.75	2.16
CPLE	-109.5	-106.6	-2.90	3%	71.96	70.48	1.47
CPLW	-5.9	-5.8	-0.06	1%	16.70	16.50	0.21
DUK	-177.6	-171.4	-6.16	4%	91.64	89.38	2.25
EEI	-5.3	-6.1	0.79	-13%	15.83	16.85	-1.02
LGEE	-64.9	-64.1	-0.79	1%	55.40	54.66	0.74
SC	-40.4	-45.7	5.30	-12%	43.71	46.15	-2.44
SCEG	-43.7	-41.4	-2.29	6%	45.46	43.93	1.53
SEPA	-1.4	-1.5	0.10	-7%	8.14	8.36	-0.23
SOCO	-422.6	-407.8	-14.80	4%	141.36	137.86	3.50
TVA	-277.5	-271.6	-5.90	2%	114.55	112.50	2.04
SPA	-16.4	-13.7	-2.75	20%	27.85	25.22	2.63
SWPP	-409.0	-437.7	28.65	-7%	139.07	142.81	-3.75

-5,345.6 -5,268.6 -77.04 1.5%

2017 Comparison of Frequency Bias Settings and L₁₀

3/24/2017

Western Interconnection

BA	2017 FBS (MW/0.1 Hz)	2016 FBS (MW/0.1 Hz)	Change (MW/0.1 Hz)	% Change	2017 L ₁₀	2016 L ₁₀	Change
AVA	-20.6	-20.4	-0.17	1%	22.18	22.02	0.16
AZPS	-55.6	-52.2	-3.35	6%	36.44	35.22	1.22
BANC	-26.7	-28.7	1.96	-7%	25.25	26.08	-0.83
BPAT	-162.0	-159.5	-2.50	2%	62.21	61.54	0.67
CHPD	-26.5	-26.7	0.16	-1%	25.16	25.16	0.00
CISO	-344.1	-344.6	0.45	0%	90.66	90.45	0.22
DEAA	-1.6	-1.0	-0.62	64%	6.18	4.81	1.37
DOPD	-6.6	-5.2	-1.40	27%	12.56	11.11	1.45
EPE	-20.7	-12.7	-7.99	63%	22.24	17.37	4.86
GCPD	-28.0	-19.3	-8.65	45%	25.86	21.43	4.43
GRID	-10.7	-3.2	-7.51	235%	15.99	8.70	7.28
GRIF	-1.8	-2.1	0.29	-14%	6.56	7.04	-0.48
GRMA	-5.6	-3.8	-1.80	48%	11.57	9.49	2.07
GWA	-0.5	-0.5	-0.04	9%	3.46	3.30	0.15
HGMA	-4.5	-1.1	-3.37	297%	10.37	5.19	5.18
IID	-4.9	-8.5	3.60	-42%	10.82	14.21	-3.39
IPCO	-40.6	-36.0	-4.60	13%	31.14	29.24	1.91
LDWP	-43.7	-44.4	0.75	-2%	32.31	32.48	-0.18
NEVP	-44.2	-43.7	-0.53	1%	32.49	32.20	0.30
NWMT	-19.7	-20.0	0.33	-2%	21.69	21.81	-0.11
PACE	-85.7	-87.8	2.06	-2%	45.25	45.65	-0.40
PACW	-34.2	-37.1	2.92	-8%	28.58	29.69	-1.10
PGE	-29.0	-32.5	3.51	-11%	26.32	27.78	-1.46
PNM	-24.4	-25.1	0.69	-3%	24.14	24.41	-0.27
PSCO	-78.0	-85.0	7.00	-8%	43.17	44.92	-1.76
PSEI	-35.3	-34.3	-0.95	3%	29.04	28.56	0.48
SCL	-32.0	-32.0	0.00	0%	27.65	27.56	0.08
SRP	-54.9	-56.3	1.38	-2%	36.21	36.55	-0.34
TEPC	-24.6	-24.2	-0.37	2%	24.24	23.98	0.26
TIDC	-4.1	-3.9	-0.23	6%	9.90	9.59	0.31
TPWR	-10.8	-11.0	0.23	-2%	16.06	16.18	-0.12
WACM	-55.9	-54.0	-1.89	4%	36.54	35.81	0.73
WALC	-16.5	-19.4	2.93	-15%	19.85	21.48	-1.62
WAUW	-1.1	-2.7	1.64	-60%	5.13	8.06	-2.94
WWA	-0.5	-0.5	-0.01	2%	3.46	3.41	0.05
AESO	-138.7	-136.8	-1.92	1%	57.56	56.99	0.57
BCHA	-130.0	-129.0	-1.00	1%	55.73	55.34	0.38
CEN	-22.2	-31.2	8.95	-29%	23.03	27.20	-4.17
	-1,646.5	-1,636.4	10.06	-0.6%			

2017 Comparison of Frequency Bias Settings and L₁₀

3/24/2017

ERCOT Interconnection

BA	2017 FBS (MW/0.1 Hz)	2016 FBS (MW/0.1 Hz)	Change (MW/0.1 Hz)	% Change	2017 L ₁₀	2016 L ₁₀	Change
ERCOT	-764.0	-739.0	-25.00	3%	N/A	N/A	N/A

Québec Interconnection

BA	2017 FBS (MW/0.1 Hz)	2016 FBS (MW/0.1 Hz)	Change (MW/0.1 Hz)	2017 L ₁₀	2016 L ₁₀	Change
HQT	N/A	N/A	N/A	N/A	N/A	N/A