

# BAL-003-1 Frequency Response Obligation Allocation and Minimum Frequency Bias Settings for Operating Year 2018

## Introduction

Compliance with Requirement R1 on Frequency Response performance of NERC Standard BAL-003-1 – Frequency Response and Frequency Bias Setting went into effect on December 1, 2017. The official Frequency Response Obligations (FRO) and Minimum Frequency Bias Settings (FBS) for each Balancing Authority (BA) for Operating Year 2018<sup>1</sup> are attached.

This document outlines the procedure for setting Frequency Bias Settings for 2018 and publishes the Frequency Response Obligations and minimum Frequency Bias Settings for BAL-003 operating year 2018 in accordance with BAL-003-1.

## Frequency Response Obligation Allocations

Interconnection Frequency Response Obligations (IFROs) are annually calculated for each of the four Interconnections and published in the *Frequency Response Annual Analysis* (FRAA) report. Through annual approval of that report the NERC Operating Committee sanctions the IFROs for allocation by the ERO through the methods put forth in Standard BAL-003-1.

In accordance with the recommendations from the *2017 Frequency Response Annual Analysis* report that were approved by the NERC Resources Subcommittee and Operating Committee the IFRO values for operating year 2018 (December 2017 through November 2018) shall remain the same values as calculated in the 2016 FRAA report for operating year 2017, shown in Table 1:

**Table 1: Recommended IFROs for Operating Year 2018**

	Eastern (EI)	Western (WI)	Texas (TI)	Québec (QI)	Units
IFRO	-1,015	-858	-381	-179	MW/0.1Hz

## Allocation Methodology

The ERO annually allocates the approved IFROs to the individual registered BAs of record (as of July 1<sup>st</sup>) and other non-registered entities performing BA functions for the upcoming BAL-003 operating year (December 1<sup>st</sup> through November 30<sup>th</sup>) in accordance with the allocation methodology defined in BAL-003-1.

<sup>1</sup> Operating Year 2018 is from December 1, 2017 through November 30, 2018

## Frequency Bias Setting Procedure for 2018 Bias Year

Note: Each year there will be a short lag period between receipt of the FRO for December implementation and its use in the implementation the Variable FBS by BAs using it in Requirement R3 of BAL-003-1.

BAs utilizing Variable Bias Settings should use the Operating Year 2018 FRO provided for implementation on December 1, 2017 for the purpose of compliance with Requirement R3 starting on April 1, 2018. That FRO shall remain constant through the entire FBS year (April 1, 2018 through March 31, 2019).

### ***Minimum Frequency Bias Settings***

In accordance with BAL-003-1 a BA using a fixed Frequency Bias Setting sets its Frequency Bias Setting to the greater of (in absolute value) any number the BA chooses between 100% and 125% of its Frequency Response Measure as calculated on FRS Form 1 or the BA minimum Frequency Bias Setting allocated from the Interconnection Minimum as determined by the ERO. This document provides the minimum FBS for each Balancing Authority.

### ***2018 Frequency Performance Data Submittal***

BAs will submit their 2017 data on FRS Forms FR-1 and FR-2 through the Balancing Authority Submittal Site (BAS Site) no later than March 7, 2018. The ERO will then publish the final Frequency Bias Settings in time for implementation on or about April 1, 2018.

### ***L10 Calculations***

The BA L<sub>10</sub> values, previously used for CPS2, are still calculated for information purposes and for use with the Western Interconnection Automatic Time Error Correction (ATEC). The BA L<sub>10</sub> values can only be calculated after all of the Frequency Bias Settings for the interconnections are known. Therefore, after all the Frequency Bias Setting are submitted, the ERO will calculate L<sub>10</sub> values and distribute the data along with the final FBS for implementation on or about April 1, 2018.

## Frequency Bias Setting Schedule for 2018

The FBS to be used for Bias Setting year 2018 (April 1, 2018 through March 31, 2019) for compliance with Requirements R2, R3, and R4 of Standard BAL-003-1 will be implemented using the following process:

1. Prior to the 2<sup>nd</sup> business day in February 2018 the final FRS Form 1s will be posted for each interconnection pre-populated with frequency events for all four quarters of operating year 2017 (December 1, 2016 through November 30, 2017).
2. By March 7, 2018 all BAs complete their frequency response analysis using the frequency events selected by the ERO for all four quarters of operating year 2017 and their desired Frequency Bias Setting for the 2018 operating year. BAs submit their FRS Form 1 and FRS Form 2s to the ERO via the BAS Site. The final BA FBSs and L<sub>10</sub> values cannot be calculated until completed and accurate Form 1s are received for *all* BAs in that interconnection. *It is therefore essential that all BAs submit their FRS forms no later than March 7<sup>th</sup> in accordance with BAL-003-1.*
3. By March 24 the ERO validates FBS, computes the sum of FBS for each Interconnection, and determines L<sub>10</sub> values for each BA. The ERO will post that report on the BAS Site and the RS website.

4. During the first three business days of April 2018, unless specified otherwise by the ERO, BAs will implement the 2018 Frequency Bias Settings in their Area Control Error (ACE) calculation. In March of each year the ERO will announce a target date for implementation.

	A	B	C	D	E	F	G	H	I	J	M	N	O	P
1	<b>Balancing Authority Frequency Response Obligations (FROs) and Minimum Frequency Bias Settings (FBS) for Operating Year 2018</b>											For Comparison Only		
2	BA Name	NCR Number	BA Acronym	Region	Monthly Peak Demand (2016 MW)	Net Generation (2016 MWh)	Net Energy for Load (NEL) (2016 MWh)	Net Generation + NEL (2016 MWh)	2018 OY % Ratio	2018 Operating Year BA FROs [MW/0.1 Hz]	2018 Minimum Frequency Bias Settings		2017 OY % Ratio	2017 Operating Year BA FROs [MW/0.1 Hz]
3	Non-FERC Form 714 data =													
5	<b>ERCOT Interconnection</b>				71,109	350,730,858	351,559,302	702,290,160	100%	-381	N/A			-381
6	Electric Reliability Council of Texas, Inc.	NCR04056	ERCO	TRE	71,109	350,730,858	351,559,302	702,290,160	100%	-381.0			100%	-381.00
8	<b>Québec Interconnection</b>				-	-	-	-	100%	-179	N/A			-179
9	Hydro-Québec TransEnergie	NCR07112	HQT	NPCC	0	0	0	0	100%	-179.0			100%	-179.00
11	<b>Eastern Interconnection</b>				564,733	3,057,278,181	3,093,684,723	6,150,962,904	100%	-1,015	-5,083		100%	-1,015
12	Duke Energy Florida, Inc. (Progress Energy (Florida Power Corp.))	NCR00063	FPC	FRCC	11,186	40,197,734	53,858,338	94,056,072	1.53%	-15.5	-77.7		1.51%	-15.3
13	Florida Municipal Power Pool	NCR00023	FMPP	FRCC	3,549	16,668,949	17,472,994	34,141,943	0.56%	-5.6	-28.2		0.55%	-5.6
14	Florida Power & Light Co.	NCR00024	FPL	FRCC	23,725	125,032,593	120,976,413	246,009,006	4.00%	-40.6	-203.3		4.00%	-40.6
15	Gainesville Regional Utilities	NCR00032	GVL	FRCC	429	1,601,643	2,065,359	3,667,002	0.06%	-0.6	-3.0		0.06%	-0.6
16	Homestead, City of	NCR00037	HST	FRCC	105	6,312	548,314	554,626	0.01%	-0.1	-0.5		0.01%	-0.1
17	JEA	NCR00040	JEA	FRCC	2,763	11,475,408	12,936,966	24,412,374	0.40%	-4.0	-20.2		0.40%	-4.1
18	New Smyrna Beach, Utilities Commission of	NCR00052	NSB	FRCC	101	(100)	441,351	441,251	0.01%	-0.1	-0.4		0.01%	-0.1
19	Seminole Electric Cooperative	NCR00068	SEC	FRCC	359	11,479,227	1,237,561	12,716,788	0.21%	-2.1	-10.5		0.20%	-2.0
20	Tallahassee, City of	NCR00073	TAL	FRCC	597	2,583,195	2,776,110	5,359,305	0.09%	-0.9	-4.4		0.09%	-0.9
21	Tampa Electric Company	NCR00074	TEC	FRCC	4,101	21,380,416	20,173,056	41,553,472	0.68%	-6.9	-34.3		0.68%	-6.9
22	Midcontinent Independent System Operator, Inc.	NCR00826	MISO	MRO/RF/SERC/SPP	115,510	612,311,792	659,014,017	1,271,325,809	20.67%	-209.8	-1,050.5		20.68%	-209.9
23	Manitoba Hydro	NCR01003	MHEB	MRO	4,654	36,848,548	26,222,852	63,071,400	1.03%	-10.4	-52.1		1.01%	-10.2
24	Saskatchewan Power Corporation	NCR01029	SPC	MRO	3,740	23,696,568	23,908,305	47,604,873	0.77%	-7.9	-39.3		0.76%	-7.7
25	ISO-NE	NCR07124	ISNE	NPCC	25,596	103,612,682	124,415,580	228,028,262	3.71%	-37.6	-188.4		3.77%	-38.3
26	New York Independent System Operator	NCR07160	NYIS	NPCC	4,426	137,581,394	160,798,155	298,379,549	4.85%	-49.2	-246.6		4.91%	-49.9
27	New Brunswick Power Corporation	NCR07155	NBPSO	NPCC	3,384	16,025,394	15,976,030	32,001,424	0.52%	-5.3	-26.4		0.51%	-5.2
28	Nova Scotia Power Inc.	NCR07178	NSPI	NPCC	1,999	10,068,301	10,460,478	20,528,779	0.33%	-3.4	-17.0		0.34%	-3.5
29	Ontario IESO	NCR07184	IESO	NPCC	23,213	150,281,600	136,105,366	286,386,966	4.66%	-47.3	-236.6		4.70%	-47.7
30	Ohio Valley Electric Corporation	NCR00857	OVEC	RF	98	9,946,877	399,352	10,346,229	0.17%	-1.7	-8.5		0.15%	-1.5
31	PJM Interconnection, LLC	NCR00879	PJM	RF/SERC	152,170	783,314,477	774,443,300	1,557,757,777	25.33%	-257.1	-1,287.2		25.44%	-258.2
32	Cube Hydro Carolinas (Previously Yadkin)	NCR01169	CHC	SERC	10	742,561	16,951	759,512	0.01%	-0.1	-0.6		0.01%	-0.1
33	Associated Electric Cooperative, Inc.	NCR01177	AECI	SERC	4,521	21,145,881	19,629,817	40,775,698	0.66%	-6.7	-33.7		0.65%	-6.6
34	Duke Energy Carolinas	NCR01219	DUK	SERC	20,671	106,366,779	104,981,845	211,348,624	3.44%	-34.9	-174.6		3.33%	-33.8
35	Duke Energy Progress, Inc. (CPLE & CPLW)	NCR01298	CPLE	SERC	13,298	67,917,554	66,877,587	134,795,141	2.19%	-22.2	-111.4		2.17%	-22.0
36	Electric Energy, Inc.	NCR11399	EEL	SERC	-	3,132,878	22,007	3,154,885	0.05%	-0.5	-2.6		0.08%	-0.8
37	LG&E and KU Services Company as agent for LGE-KU	NCR01223	LGEE	SERC	7,068	38,211,713	36,449,141	74,660,854	1.21%	-12.3	-61.7		1.22%	-12.4
38	PowerSouth Energy Cooperative (Alabama Electric Cooperative Inc.)	NCR10203	AEC	SERC	1,916	5,654,041	6,765,897	12,419,938	0.20%	-2.0	-10.3		0.22%	-2.2
39	South Carolina Electric & Gas Company	NCR00915	SCEG	SERC	4,807	26,832,238	24,625,629	51,457,867	0.84%	-8.5	-42.5		0.82%	-8.3
40	South Carolina Public Service Authority	NCR01312	SC	SERC	4,794	18,253,366	24,834,725	43,088,091	0.70%	-7.1	-35.6		0.76%	-7.7
41	Southeastern Power Administration	NCR00070	SEPA	SERC	-	1,814,889	-	1,814,889	0.03%	-0.3	-1.5		0.03%	-0.3
42	Southern Company Services, Inc. - Trans	NCR01320	SOCO	SERC	45,488	227,302,572	220,321,327	447,623,899	7.28%	-73.9	-369.9		7.93%	-80.5
43	Tennessee Valley Authority	NCR01151	TVA	SERC	29,824	160,679,484	163,709,610	324,389,094	5.27%	-53.5	-268.0		5.21%	-52.9
44	Southwestern Power Administration	NCR01144	SPA	SPP	132	6,429,921	635,352	7,065,273	0.11%	-1.2	-5.8		0.12%	-1.2
45	Southwest Power Pool (includes WAUE)	NCR01143	SWPP	SPP	50,499	258,681,294	260,584,738	519,266,032	8.44%	-85.7	-429.1		7.68%	-77.9

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2	BA Name	NCR Number	BA Acronym	Region	Monthly Peak Demand (2016 MW)	Net Generation (2016 MWh)	Net Energy for Load (NEL) (2016 MWh)	Net Generation + NEL (2016 MWh)	2018 OY % Ratio	2018 Operating Year BA FROs [MW/0.1 Hz]	2018 Minimum Frequency Bias Settings		2017 OY % Ratio	2017 Operating Year BA FROs [MW/0.1 Hz]
3	Non-FERC Form 714 data =													
47	<b>Western Interconnection</b>				<b>170,862</b>	<b>853,166,440</b>	<b>877,674,426</b>	<b>1,730,840,866</b>	<b>100%</b>	<b>-858</b>	<b>-1,538</b>		<b>100%</b>	<b>-858</b>
48	Arizona Public Service Company	NCR05016	AZPS	WECC	7,275	31,378,156	30,659,115	62,037,271	3.58%	-30.8	-55.1		3.70%	-31.8
49	Arlington Valley, LLC - AVBA (Duke Energy Control Area Services LLC)	NCR03049	DEAA	WECC	-	35,734	-	35,734	0.00%	0.0	0.0		0.11%	-0.9
50	Avista Corporation	NCR05020	AVA	WECC	2,273	11,238,365	12,604,170	23,842,535	1.38%	-11.8	-21.2		1.37%	-11.8
51	Balancing Authority of Northern California (Sacramento Municipal Utility District & City of Redding Electric Utility)	NCR11118	BANC	WECC	4,426	13,308,200	17,464,253	30,772,453	1.78%	-15.3	-27.3		1.64%	-14.1
52	Bonneville Power Administration	NCR05032	BPAT	WECC	9,739	108,907,200	53,955,190	162,862,390	9.41%	-80.7	-144.7		9.05%	-77.6
53	California Independent System Operator	NCR05048	CISO	WECC	46,008	163,543,446	228,149,060	391,692,506	22.63%	-194.2	-348.0		22.90%	-196.5
54	City of Tacoma, Department of Public Utilities, Light Division	NCR05097	TPWR	WECC	912	3,443,103	4,812,562	8,255,665	0.48%	-4.1	-7.3		0.43%	-3.7
55	El Paso Electric Company	NCR05140	EPE	WECC	1,877	3,828,424	8,431,656	12,260,080	0.71%	-6.1	-10.9		0.72%	-6.2
56	Gila River Power, LLC	NCR05169	GRMA	WECC	-	1,761,425	-	1,761,425	0.10%	-0.9	-1.6		0.37%	-3.2
57	Gridforce Energy Management, LLC (GRID)	NCR11393	GRID	WECC	-	7,009,483	-	7,009,483	0.40%	-3.5	-6.2		0.25%	-2.2
58	Griffith Energy, LLC	NCR03050	GRIF	WECC	-	608,247	-	608,247	0.04%	-0.3	-0.5		0.12%	-1.0
59	Idaho Power Company	NCR05191	IPCO	WECC	3,657	15,445,427	17,146,830	32,592,257	1.88%	-16.2	-29.0		1.88%	-16.1
60	Imperial Irrigation District	NCR05195	IID	WECC	1,060	1,555,020	3,601,362	5,156,382	0.30%	-2.6	-4.6		0.32%	-2.8
61	Los Angeles Department of Water and Power	NCR05223	LDWP	WECC	6,692	23,807,948	28,569,092	52,377,040	3.03%	-26.0	-46.5		2.91%	-25.0
62	NaturEner Power Watch, LLC (Glacier Wind Balancing Authority)	NCR10395	GWA	WECC	-	576,640	-	576,640	0.03%	-0.3	-0.5		0.03%	-0.3
63	NaturEner Wind Watch, LLC	NCR11382	WWA	WECC	-	656,915	-	656,915	0.04%	-0.3	-0.6		0.04%	-0.3
64	Nevada Power Company	NCR05261	NEVP	WECC	9,059	30,375,426	36,428,240	66,803,666	3.86%	-33.1	-59.4		2.75%	-23.6
65	New Harquahala Generating Company LLC - HGBA	NCR02552	HGMA	WECC	-	3,374,375	-	3,374,375	0.19%	-1.7	-3.0		0.09%	-0.7
66	NorthWestern Corporation (NorthWestern Energy)	NCR05282	NWMT	WECC	1,808	10,566,612	10,802,594	21,369,206	1.23%	-10.6	-19.0		1.31%	-11.2
67	PacifiCorp_East	NCR05304	PACE	WECC	8,628	47,795,113	49,260,694	97,055,807	5.61%	-48.1	-86.2		5.70%	-48.9
68	PacifiCorp_West	NCR05304	PACW	WECC	3,700	18,555,411	20,663,027	39,218,438	2.27%	-19.4	-34.8		2.34%	-20.1
69	Portland General Electric Company	NCR05325	PGE	WECC	3,713	13,165,109	20,264,288	33,429,397	1.93%	-16.6	-29.7		1.93%	-16.6
70	Public Service Company of Colorado	NCR05521	PSCO	WECC	7,980	38,082,204	43,319,545	81,401,749	4.70%	-40.4	-72.3		5.10%	-43.8
71	Public Service Company of New Mexico	NCR05333	PNM	WECC	2,608	14,632,763	14,409,788	29,042,551	1.68%	-14.4	-25.8		1.65%	-14.1
72	Public Utility District No. 1 of Chelan County	NCR05338	CHPD	WECC	437	5,846,982	1,702,674	7,549,656	0.44%	-3.7	-6.7		0.57%	-4.9
73	Public Utility District No. 2 of Grant County Washington	NCR05342	GCPD	WECC	779	8,458,678	4,718,649	13,177,327	0.76%	-6.5	-11.7		0.74%	-6.3
74	PUD No. 1 of Douglas County	NCR05343	DOPD	WECC	386	2,440,774	1,591,767	4,032,541	0.23%	-2.0	-3.6		0.23%	-2.0
75	Puget Sound Energy, Inc.	NCR05344	PSEI	WECC	4,574	15,644,261	24,050,996	39,695,257	2.29%	-19.7	-35.3		2.35%	-20.2
76	Salt River Project Agricultural Improvement and Power District	NCR05372	SRP	WECC	6,954	27,438,903	29,547,087	56,985,990	3.29%	-28.2	-50.6		3.66%	-31.4
77	Seattle City Light	NCR05382	SCL	WECC	1,783	7,125,009	9,687,942	16,812,951	0.97%	-8.3	-14.9		0.93%	-8.0
78	Tucson Electric Power	NCR05434	TEPC	WECC	3,200	14,358,938	14,805,219	29,164,157	1.60%	-14.5	-25.9		1.61%	-13.8
79	Turlock Irrigation District	NCR05435	TIDC	WECC	619	1,562,099	2,618,163	4,180,262	0.24%	-2.1	-3.7		0.26%	-2.3
80	Western Area Power Administration - Desert Southwest Region	NCR05461	WALC	WECC	1,363	7,216,868	8,045,526	15,262,394	0.88%	-7.6	-13.6		0.97%	-8.3
81	Western Area Power Administration - Rocky Mountain Region	NCR05464	WACM	WECC	4,057	38,087,501	24,610,584	62,698,085	3.62%	-31.1	-55.7		3.72%	-31.9
82	Western Area Power Administration - Upper Great Plains Region	NCR05467	WAUW	WECC	147	454,627	775,783	1,230,410	0.07%	-0.6	-1.1		0.07%	-0.6
83	Alberta Electric System Operator	N/A	AESO	WECC	11,536	79,999,606	79,557,917	159,557,523	9.22%	-79.1	-141.8		9.23%	-79.2
84	British Columbia Hydro and Power Authority	N/A	BCHA	WECC	10,991	67,714,805	62,325,587	130,040,392	7.51%	-64.5	-115.5		7.45%	-64.0
85	Comision Federal de Electricidad	N/A	CFE	WECC	2,621	12,995,781	13,095,066	26,090,848	1.51%	-12.9	-23.2		1.48%	-12.7