NERC
NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION

BAL-003-2 Frequency Response Obligation Allocation and Minimum Frequency Bias Settings for Operating Year 2022

Introduction

Compliance with Requirement R1 on Frequency Response performance of NERC Standard BAL-003-2 – Frequency Response and Frequency Bias Setting went into effect on December 1, 2020. The official Frequency Response Obligations (FRO) and Minimum Frequency Bias Settings (FBS) for each Balancing Authority (BA) for Operating Year 2022 are attached.

This document outlines the procedure for setting FBS for 2022 and publishes the FRO and minimum FBS for BAL-003 operating year 2022 in accordance with BAL-003-2.

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 endorsement of that report the NERC Reliability and Security Technical Committee sanctions the IFROs for allocation by the Electric Reliability Organization (ERO) through the methods put forth in Standard BAL-003-2.

In accordance with the recommendations from the *2021 FRAA* report that were approved by the NERC Resources Subcommittee and endorsed by the NERC Reliability and Security Technical Committee the IFRO values for the Eastern, Western, and Québec Interconnections for operating year 2022 (December 2021 through November 2022) shall not remain the same values as calculated in the *2016 FRAA* report for operating year 2017. The IFRO value for the each Interconnection shall increase or decrease slightly (in absolute terms) due to a change in the credit for load resources (CLR) and resource loss protection criteria as discussed in the *2020 FRAA*.

Effective IFROs for Operating Year 2022					
	Eastern (EI)	Western (WI)	Texas (TI)	Québec (QI)	Units
IFRO	-915	-1096	-412	-211	MW/0.1Hz

Allocation Method

The ERO annually allocates the approved IFROs to the individual BAs for the upcoming BAL-003 operating year (December 1 through November 30) in accordance with the allocation method defined in BAL-003-2.

Frequency Bias Setting Procedure for 2022 Bias Year

Note that 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-003-2.

BAs utilizing Variable Bias Settings should use the Operating Year 2022 FRO provided for implementation on December 1, 2021 for the purpose of compliance with Requirement R3 starting on the 3 business days starting on or after June 1, 2022 as specified by the ERO.

Minimum Frequency Bias Settings

In accordance with BAL-003-2 a BA using a fixed Frequency Bias Setting sets its Frequency Bias Setting to the greater of (in absolute terms) 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 BA.

2022 Frequency Performance Data Submittal

BAs will submit their 2022 data on FRS Forms FR-1 and FR-2 through the Balancing Authority Submittal Site (BAS Site) no later than April 1, 2022. The ERO will then publish the final FBSs in time for implementation on or about May 1, 2022.

L10 Calculations

The BA L_{10} 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_{10} values can only be calculated after all of the FBS for the interconnections are known. Therefore, after all the FBS are submitted, the ERO will calculate L_{10} values and distribute the data along with the final FBS for implementation on or within 3 business days of June 1, 2022.

Frequency Bias Setting Schedule for 2022

The FBS to be used for Bias Setting year 2022 (June 2022 through May 2023) for compliance with Requirements R2, R3, and R4 of Standard BAL-003-2 will be implemented using the following process:

1. Prior to March 1, 2022 the final FRS Form 1s will be posted for each Interconnection pre-populated with frequency events for all four quarters of operating year 2021 (December 1, 2020 through November 30, 2021).
2. By April 1, 2022 all BAs complete their frequency response analysis using the frequency events selected by the ERO for all four quarters of operating year 2021 and their desired FBS for the 2022 operating year. BAs submit their FRS Form 1 and FRS Form 2s to the ERO via the BAS Site. The final BA FBSs and L10 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 April 1st in accordance with BAL-003-2.*

3. By May 1 the ERO validates FBS, computes the sum of FBS for each Interconnection, and determines L_{10} 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 June, 2022, unless specified otherwise by the ERO, BAs will implement the 2022 FBS in their Reporting ACE calculation. In May of each year the ERO will announce a target date for implementation.

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Balancing Authority Frequency Response Obligations for Operating Year 2022

BA Name	NCR Number	BA Acronym	Reporting Region	Maximum Monthly Peak Demand (2020 MW) FERC 714 Data	BA Net Generation + BA Net Energy for Load (2020 MWh) FERC 714 Data	2022OY BA % Ratio (BAL-003-2 Attach A)	2022 OY BA FROs (MW/0.1 Hz)	For Comparison Only: Year over Year BA FRO Change	For Comparison Only: 2021 OY BA FROs (MW/0.1 Hz)	2022 OY Minimum Frequency Bias Settings For Fixed Bias BAs	For Comparison Only: Year over Year Min FBS Change	For Comparison Only: 2021 OY Minimum BA Frequency Bias Settings
							2022OY EI IFRO			0.9% of EI Peak Demand		
Eastern Interconnection				**579,015**	**5,985,774,914**	**100.00%**	**-915**	-9.85%	**-1015**	**-5,211**		
PowerSouth Energy Cooperative (Alabama Electric Cooperative Inc.)	NCR10203	AEC	SERC	2,022	10,050,376	0.168%	0.0	-100.00%	-2.0	0.0	-100.00%	-9.3
Associated Electric Cooperative, Inc.	NCR01177	AECI	SERC	4,770	45,606,683	0.762%	-7.0	-5.41%	-7.4	-39.7	-1.98%	-40.5
Cube Hydro Carolinas	NCR01169	CHC	SERC	11	1,303,217	0.022%	-0.2	0.00%	-0.2	-1.1	22.22%	-0.9
Duke Energy Progress, Inc. (Progress Energy (Carolina Power & Light Company	NCR01298	CPLE	SERC	13,233	129,032,499	2.156%	-19.7	-9.22%	-21.7	-112.3	-1.14%	-113.6
Duke Energy Carolinas	NCR01219	DUK	SERC	20,398	205,801,362	3.438%	-31.5	-10.51%	-35.2	-179.2	-2.87%	-184.5
Electric Energy, Inc.	NCR11399	EEI	SERC	2,042	586,005	0.010%	-0.1		0.0	-0.5	#DIV/0!	0.0
Florida Municipal Power Pool	NCR00023	FMPP	FRCC	3,466	33,418,286	0.558%	-5.1	-7.27%	-5.5	-29.1	2.83%	-28.3
Duke Energy Florida, Inc. (Progress Energy (Florida Power Corp.))	NCR00063	FPC	FRCC	11,121	97,034,301	1.621%	-14.8	-3.27%	-15.3	-84.5	3.55%	-81.6
Florida Power & Light Co.	NCR00024	FPL	FRCC	24,432	259,523,741	4.336%	-39.7	-3.41%	-41.1	-225.9	4.78%	-215.6
GridLiance Holdco, LP	NCR11783	GLHB	SERC	-	2,381,193	0.040%	-0.4		-0.4	-2.1		-2.0
Gainesville Regional Utilities	NCR00032	GVL	FRCC	422	3,815,142	0.064%	-0.6	0.00%	-0.6	-3.3	-2.94%	-3.4
Homestead, City of	NCR00037	HST	FRCC	117	599,628	0.010%	-0.1	0.00%	-0.1	-0.5	0.00%	-0.5
Ontario IESO	NCR07184	IESO	NPCC	24,446	279,469,980	4.669%	-42.7	-6.77%	-45.8	-243.3	1.33%	-240.1
ISO-NE	NCR07124	ISNE	NPCC	25,105	210,216,706	3.512%	-32.1	-7.76%	-34.8	-183.0	0.22%	-182.6
JEA	NCR00040	JEA	FRCC	2,706	22,160,498	0.370%	-3.4	6.25%	-3.2	-19.3	15.57%	-16.7
LG&E and KU Services Company	NCR01223	LGEE	SERC	6,661	62,511,907	1.044%	-9.6	-14.29%	-11.2	-54.4	-7.17%	-58.6
Manitoba Hydro	NCR01003	MHEB	MRO	4,759	63,312,692	1.058%	-9.7	0.00%	-9.7	-55.1	8.04%	-51.0
Midcontinent Independent System Operator, Inc.	NCR00826	MISO	RF	111,551	1,205,329,743	20.137%	-184.2	-13.32%	-212.5	-1,049.3	-5.89%	-1,115.0
New Brunswick Power Corporation	NCR07155	NBPSO	NPCC	3,405	29,286,101	0.489%	-4.5	-8.16%	-4.9	-25.5	-0.39%	-25.6
Nova Scotia Power Inc.	NCR07178	NSPI	NPCC	2,050	20,971,273	0.350%	-3.2	-8.57%	-3.5	-18.3	0.00%	-18.3
New York Independent System Operator	NCR07160	NYIS	NPCC	30,660	280,826,596	4.692%	-42.9	-7.94%	-46.6	-244.5	0.00%	-244.5
PJM Interconnection, LLC	NCR00879	PJM	RF	144,530	1,555,668,987	25.989%	-237.8	-8.29%	-259.3	-1,354.3	-0.46%	-1,360.6
South Carolina Public Service Authority	NCR01312	SC	SERC	4,467	41,628,852	0.695%	-6.4	-7.25%	-6.9	-36.2	-0.55%	-36.4
South Carolina Electric & Gas Company	NCR00915	SCEG	SERC	4,586	50,906,509	0.850%	-7.8	-9.30%	-8.6	-44.3	-1.77%	-45.1
Seminole Electric Cooperative	NCR00068	SEC	FRCC	284	13,159,563	0.220%	-2.0	-4.76%	-2.1	-11.5	6.48%	-10.8
Southeastern Power Administration	NCR00070	SEPA	SERC	-	2,578,517	0.043%	-0.4	0.00%	-0.4	-2.2	15.79%	-1.9
Southern Company Services, Inc. - Trans	NCR01320	SOCO	SERC	45,479	469,354,797	7.841%	-71.7	-8.78%	-78.6	-408.6	-0.95%	-412.5
Southwestern Power Administration	NCR01144	SPA	MRO	122	8,648,963	0.144%	-1.3	-13.33%	-1.5	-7.5	-5.06%	-7.9
Saskatchewan Power Corporation	NCR01029	SPC	MRO	3,722	49,013	0.001%	0.0	-100.00%	-8.1	0.0	-100.00%	-42.3
Southwest Power Pool	NCR01143	SWPP	MRO	48,687	526,153,799	8.790%	-80.4	-8.84%	-88.2	-458.1	-0.99%	-462.7
Tallahassee, City of	NCR00073	TAL	FRCC	576	5,279,828	0.088%	-0.8	-11.11%	-0.9	-4.6	-4.17%	-4.8
Tampa Electric Company	NCR00074	TEC	FRCC	4,255	41,832,216	0.699%	-6.4	-7.25%	-6.9	-36.4	0.00%	-36.4
Tennessee Valley Authority	NCR01151	TVA	SERC	28,930	307,275,941	5.133%	-47.0	-9.44%	-51.9	-267.5	-1.87%	-272.6

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BA Name	NCR Number	BA Acronym	Reporting Region	Maximum Monthly Peak Demand (2020 MW) FERC 714 Data	BA Net Generation + BA Net Energy for Load (2020 MWh) FERC 714 Data	2022OY BA % Ratio (BAL-003-2 Attach A)	2022 OY BA FROs (MW/0.1 Hz)	For Comparison Only: Year over Year BA FRO Change	For Comparison Only: 2021 OY BA FROs (MW/0.1 Hz)	2022 OY Minimum Frequency Bias Settings For Fixed Bias BAs	For Comparison Only: Year over Year Min FBS Change	For Comparison Only: 2021 OY Minimum BA Frequency Bias Settings
Western Interconnection							2022OY WI IFRO			0.9% of WI Peak Demand		
				176,357	**1,733,075,838**	**100.00%**	**-1096**	27.74%	**-858**	**-1,587.2**		**-1,604.5**
Alberta Electric System Operator	N/A	AESO	WECC	11,816	162,383,880	9.370%	-102.7	23.73%	-83.0	-148.7	-4.19%	-155.2
Avista Corporation	NCR05020	AVA	WECC	2,153	23,929,320	1.381%	-15.1	23.77%	-12.2	-21.9	-4.37%	-22.9
Avangrid Renewables	NCR10259	AVRN	WECC	-	8,132,812	0.469%	-5.1	82.14%	-2.8	-7.4	42.31%	-5.2
Arizona Public Service Company	NCR05016	AZPS	WECC	7,611	61,288,159	3.536%	-38.8	31.53%	-29.5	-56.1	1.63%	-55.2
Balancing Authority of Northern California	NCR11118	BANC	WECC	4,546	29,973,614	1.730%	-19.0	22.58%	-15.5	-27.5	-5.17%	-29.0
British Columbia Hydro and Power Authority	N/A	BCHA	WECC	11,541	132,007,632	7.617%	-83.5	36.89%	-61.0	-120.9	5.96%	-114.1
Bonneville Power Administration	NCR05032	BPAT	WECC	9,418	151,048,686	8.716%	-95.5	35.46%	-70.5	-138.3	4.85%	-131.9
Comision Federal de Electricidad	N/A	CFE	WECC	3,076	28,814,014	1.663%	-18.2	34.81%	-13.5	-26.4	4.35%	-25.3
Public Utility District No. 1 of Chelan County	NCR05338	CHPD	WECC	463	7,323,312	0.423%	-4.6	35.29%	-3.4	-6.7	6.35%	-6.3
California Independent System Operator	NCR05048	CISO	WECC	46,970	375,849,335	21.687%	-237.7	24.78%	-190.5	-344.2	-3.37%	-356.2
Arlington Valley, LLC - AVBA	NCR03049	DEAA	WECC	-	1,219,525	0.070%	-0.8	33.33%	-0.6	-1.1	0.00%	-1.1
PUD No. 1 of Douglas County	NCR05343	DOPD	WECC	416	3,686,691	0.213%	-2.3	9.52%	-2.1	-3.4	-15.00%	-4.0
El Paso Electric Company	NCR05140	EPE	WECC	2,147	13,737,039	0.793%	-8.7	26.09%	-6.9	-12.6	-2.33%	-12.9
Public Utility District No. 2 of Grant County Washington	NCR05342	GCPD	WECC	850	11,938,819	0.689%	-7.6	28.81%	-5.9	-10.9	-1.80%	-11.1
Gridforce Energy Management, LLC	NCR11393	GRID	WECC	-	13,913,221	0.803%	-8.8	12.82%	-7.8	-12.7	-13.01%	-14.6
Griffith Energy, LLC	NCR03050	GRIF	WECC	-	1,429,105	0.082%	-0.9	-40.00%	-1.5	-1.3	-55.17%	-2.9
NaturEner Power Watch, LLC (Glacier Wind Balancing Authority)	NCR10395	GWA	WECC	-	618,317	0.036%	-0.4	33.33%	-0.3	-0.6	20.00%	-0.5
Imperial Irrigation District	NCR05195	IID	WECC	1,123	4,181,188	0.241%	-2.6	30.00%	-2.0	-3.8	0.00%	-3.8
Idaho Power Company	NCR05191	IPCO	WECC	3,723	34,670,330	2.001%	-21.9	28.07%	-17.1	-31.8	-0.62%	-32.0
Los Angeles Department of Water and Power	NCR05223	LDWP	WECC	6,734	48,246,525	2.784%	-30.5	26.56%	-24.1	-44.2	-2.00%	-45.1
Nevada Power Company	NCR05261	NEVP	WECC	9,058	68,816,577	3.971%	-43.5	29.46%	-33.6	-63.0	0.32%	-62.8
NorthWestern Corporation (NorthWestern Energy)	NCR05282	NWMT	WECC	1,799	20,302,486	1.171%	-12.8	10.34%	-11.6	-18.6	-14.68%	-21.8
PacifiCorp_East	NCR05304	PACE	WECC	9,078	100,399,483	5.793%	-63.5	31.74%	-48.2	-91.9	1.88%	-90.2
PacifiCorp_West	NCR05304	PACW	WECC	3,750	40,013,313	2.309%	-25.3	27.78%	-19.8	-36.6	-0.81%	-36.9
Portland General Electric Company	NCR05325	PGE	WECC	3,824	37,561,899	2.167%	-23.8	26.60%	-18.8	-34.4	-1.99%	-35.1
Public Service Company of New Mexico	NCR05333	PNM	WECC	2,665	26,588,865	1.534%	-16.8	25.37%	-13.4	-24.4	-2.79%	-25.1
Public Service Company of Colorado	NCR05521	PSCO	WECC	9,249	94,049,939	5.427%	-59.5	31.06%	-45.4	-86.1	1.41%	-84.9
Puget Sound Energy, Inc.	NCR05344	PSEI	WECC	4,545	40,033,695	2.310%	-25.3	29.08%	-19.6	-36.7	0.00%	-36.7
Seattle City Light	NCR05382	SCL	WECC	1,755	15,597,314	0.900%	-9.9	32.00%	-7.5	-14.3	2.14%	-14.0
Salt River Project Agricultural Improvement and Power District	NCR05372	SRP	WECC	7,714	57,201,934	3.301%	-36.2	18.30%	-30.6	-52.4	-8.39%	-57.2
Tucson Electric Power	NCR05434	TEPC	WECC	3,390	32,132,271	1.854%	-20.3	26.09%	-16.1	-29.4	-2.33%	-30.1
Turlock Irrigation District	NCR05435	TIDC	WECC	688	4,599,240	0.265%	-2.9	31.82%	-2.2	-4.2	2.44%	-4.1
City of Tacoma, Department of Public Utilities, Light Division	NCR05097	TPWR	WECC	894	7,770,986	0.448%	-4.9	48.48%	-3.3	-7.1	14.52%	-6.2
Western Area Power Administration - Rocky Mountain Region	NCR05464	WACM	WECC	3,362	50,830,704	2.933%	-32.1	14.64%	-28.0	-46.6	-10.90%	-52.3
Western Area Power Administration - Desert Southwest Region	NCR05461	WALC	WECC	1,839	19,536,746	1.127%	-12.4	44.19%	-8.6	-17.9	11.88%	-16.0
Western Area Power Administration - Upper Great Plains Region	NCR05467	WAUW	WECC	159	1,310,176	0.076%	-0.8	14.29%	-0.7	-1.2	-7.69%	-1.3
NaturEner Wind Watch, LLC	NCR11382	WWA	WECC	-	705,554	0.041%	-0.4	33.33%	-0.3	-0.6	0.00%	-0.6
ERCOT Interconnection							2022 OY TI IFRO					
				73,825	**765,123,406**	**100%**	**-412**	8.14%	**-381**	**N/A**	**N/A**	**N/A**
Electric Reliability Council of Texas, Inc.	NCR04056	ERCO	TRE	73,825	765,123,406	100%	-412	8.14%	-381.0			
Québec Interconnection							2022 OY QI IFRO					
						100%	**-211**	17.88%	**-179**	**N/A**	**N/A**	**N/A**
Hydro-Québec TransEnergie	NCR07112	HQT	NPCC			100%	-211	17.88%	-179.0			