Process for Adjusting Minimum Frequency Bias Setting

Interconnection frequency performance is improved the closer all Balancing Authorities' (BAs') Frequency Bias Setting is to its natural Frequency Response ~~is to Frequency Bias Setting~~ (Cohn, 1966).

The BA calculates its ~~natural~~ Frequency Response Measure based on the events in FRS Form 1. A~~The~~ BA with a fixed Frequency Bias Setting will set its Frequency Bias Setting to the greater of (in absolute value):

- ~~Natural~~ Frequency Response Measure
- Interconnection Minimum ~~(initially 1% of peak in BAL-003-0.1b)~~.

A BA utilizing a variable Frequency Bias Setting will use a Frequency Bias Setting at least equal to or greater than (in absolute value) the greater of its previous years Frequency Response Measure or the Interconnection Minimum when frequency is outside the range of 59.964 to 60.036.

The BA in a single BA Interconnection utilizing a variable Frequency Bias Setting will use a Frequency Bias Setting at least equal to or greater than (in absolute value) its current years Frequency Response Obligation when frequency is outside the range of 59.964 to 60.036.

For purposes of calculating the minimum Frequency Bias Setting, a Reserve Sharing Group or a Balancing Authority providing Overlap Regulation will report the projected peak demand and generation of its combined BAs' areas on FRS Form 1.

This attachment outlines the process the ERO is to use for modifying minimum Frequency Bias Settings to better meet reliability needs. The ERO may adjust the Frequency Bias Setting minimum in accordance with this Attachment B.

The ERO will post the minimum Frequency Bias Setting values on the ERO website along with other balancing standard limits.

Under BAL-003-1, t~~T~~he ~~proposed~~~~initial~~ minimum Frequency Bias Settings will be moved toward the natural Frequency R~~r~~esponse in each interconnection. In the first year, the minimum Frequency Bias S~~s~~etting for each interconnection is shown in Table 1 below.~~are outlined in the following table.~~

Interconnection	Minimum Frequency Bias Setting (in MW/0.1Hz)	
	BAs with Load	Generation-only BAs
Eastern	0.9~~8~~% of peak load or generation	0.9~~8~~% of peak generation
Western	0.9~~8~~% of peak load or generation	0.9~~8~~% of peak generation
Texas*	~~0.8% of peak load or generation~~ N/A	N/A~~0.8% of peak generation~~
HQ*	N/A~~0.8% of peak load or generation~~	N/A~~0.8% of peak generation~~

Table 1. ~~Proposed~~Initial Frequency Bias Setting Minimums

*The minimum Frequency Bias Setting requirement does not apply to a Balancing Authority that is the only Balancing Authority in its Interconnection. These Balancing Authorities are solely responsible for providing reliable frequency control of their Interconnection. These Balancing Authorities are responsible for converting frequency error into a megawatt error to provide reliable frequency control, and the imposition of a minimum bias setting may have the potential to cause control system hunting, and instability in the extreme.

The ERO, in coordination with the regions of each interconnection, will annually review Frequency Bias Setting data submitted by BAs. If an Interconnection's total minimum Frequency Bias Setting exceeds (in absolute value) the Interconnection's total natural Frequency Response by more (in absolute value) than 0.2 percentage points (of peak load expressed in MW/0.1Hz), the minimum Frequency Bias Setting for BAs within that Interconnection ERO may be reduced (in absolute value) the minimum Frequency Bias Setting for BAs within that Interconnection, by 0.1 percentage point to better match that Frequency Bias Setting and natural Frequency Response.