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 (Cohn, 1966).

The BA calculates its Frequency Response Measure based on the events in FRS Form 1. A BA with 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
- Interconnection Minimum

A BA utilizing a variable Frequency Bias Setting uses 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 uses 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 Frequency Response 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, the minimum Frequency Bias Settings will be moved toward the natural Frequency
Response in each interconnection. In the first year, the minimum Frequency Bias Setting for each
interconnection is shown in Table 1 below.

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

Table 1. 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 greater than the magnitude the Frequency Response Obligation 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 may be reduced (in absolute value) based on the technical evaluation and consultation with the regions affected by 0.1 percentage point to better match that Frequency Bias Setting and natural Frequency Response[r1].