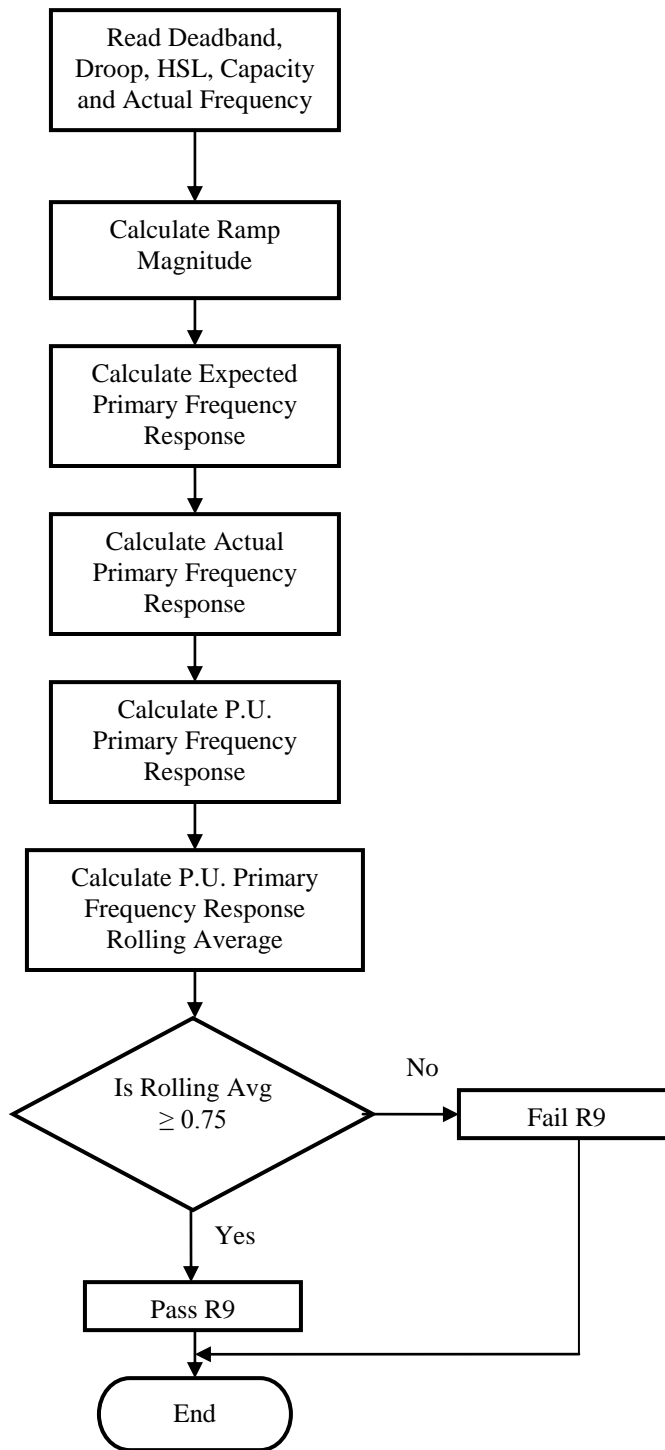


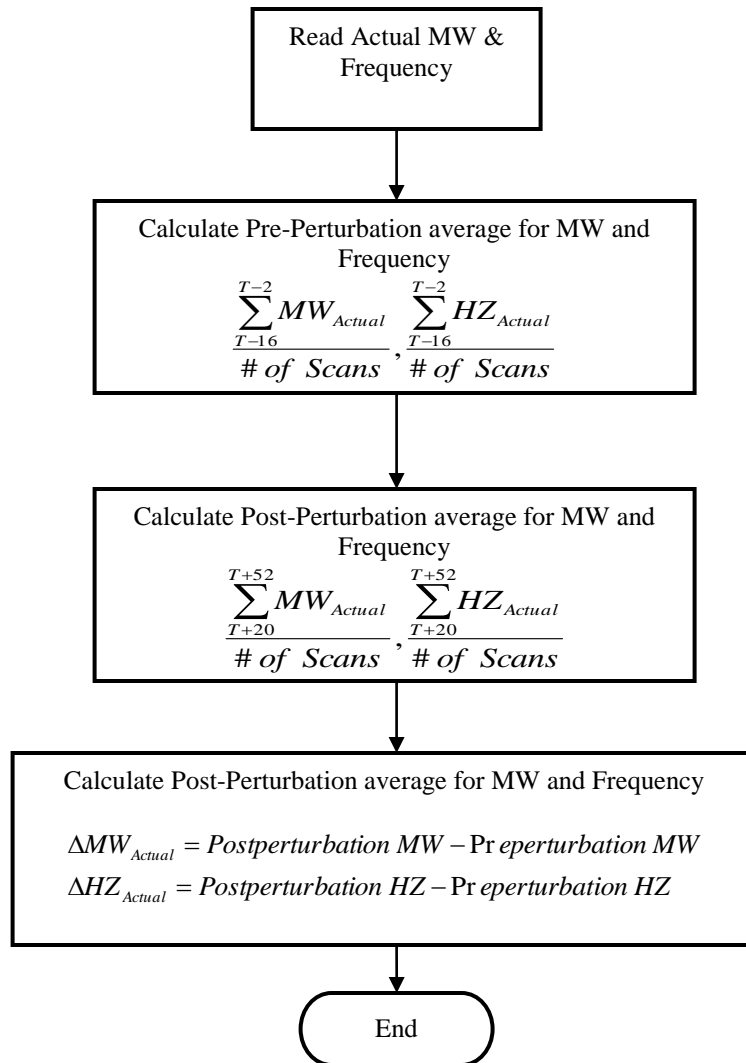
**Attachment A to
Primary Frequency Response Reference Document**

**Initial Primary Frequency Response Methodology for
BAL-001-TRE-1**

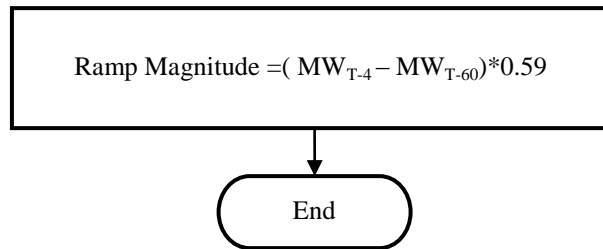
Primary Frequency Response Measurement and Rolling Average Calculation – Initial Response



Perturbation Average MW and Average Frequency Calculations



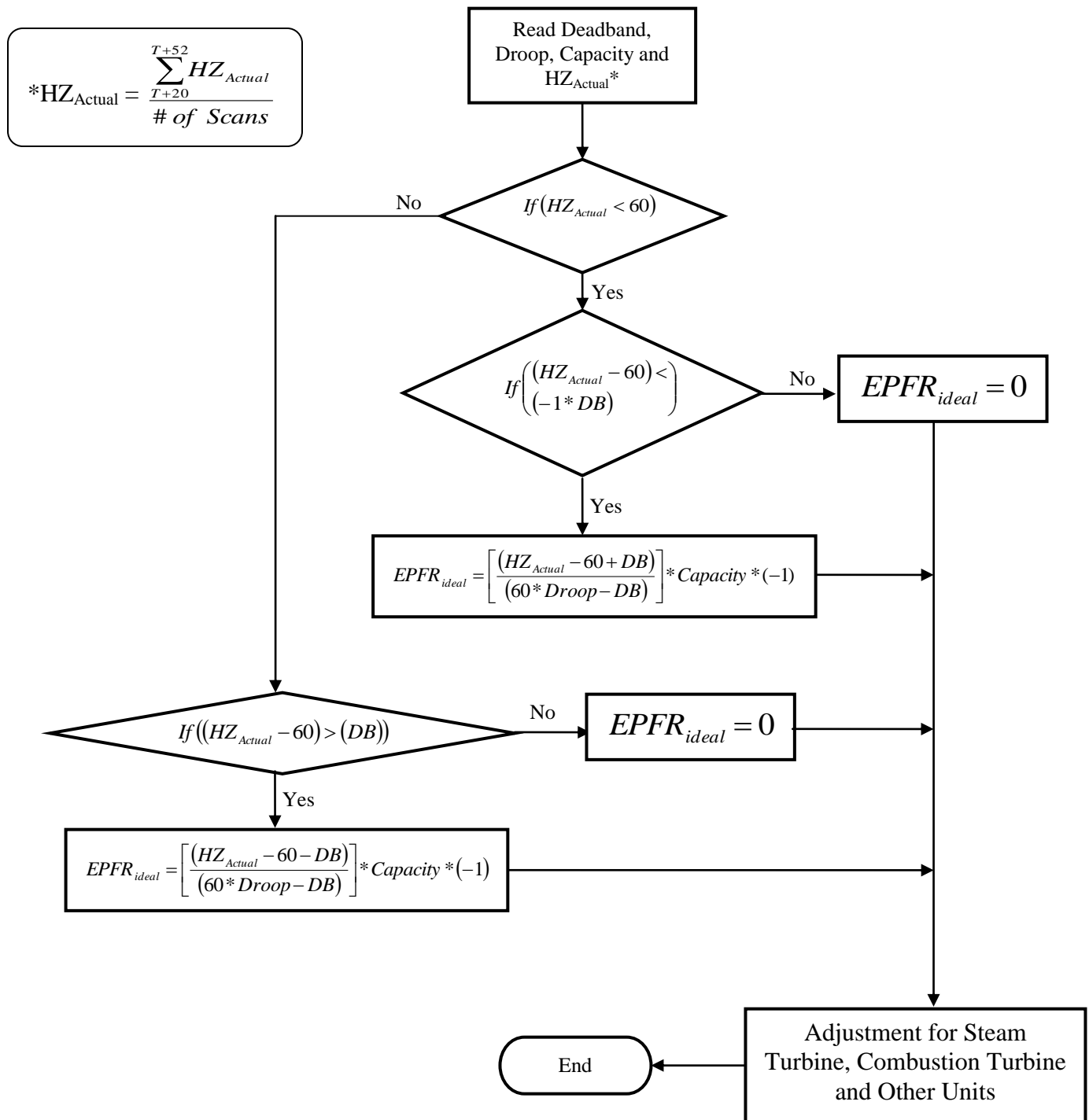
Ramp Magnitude Calculation



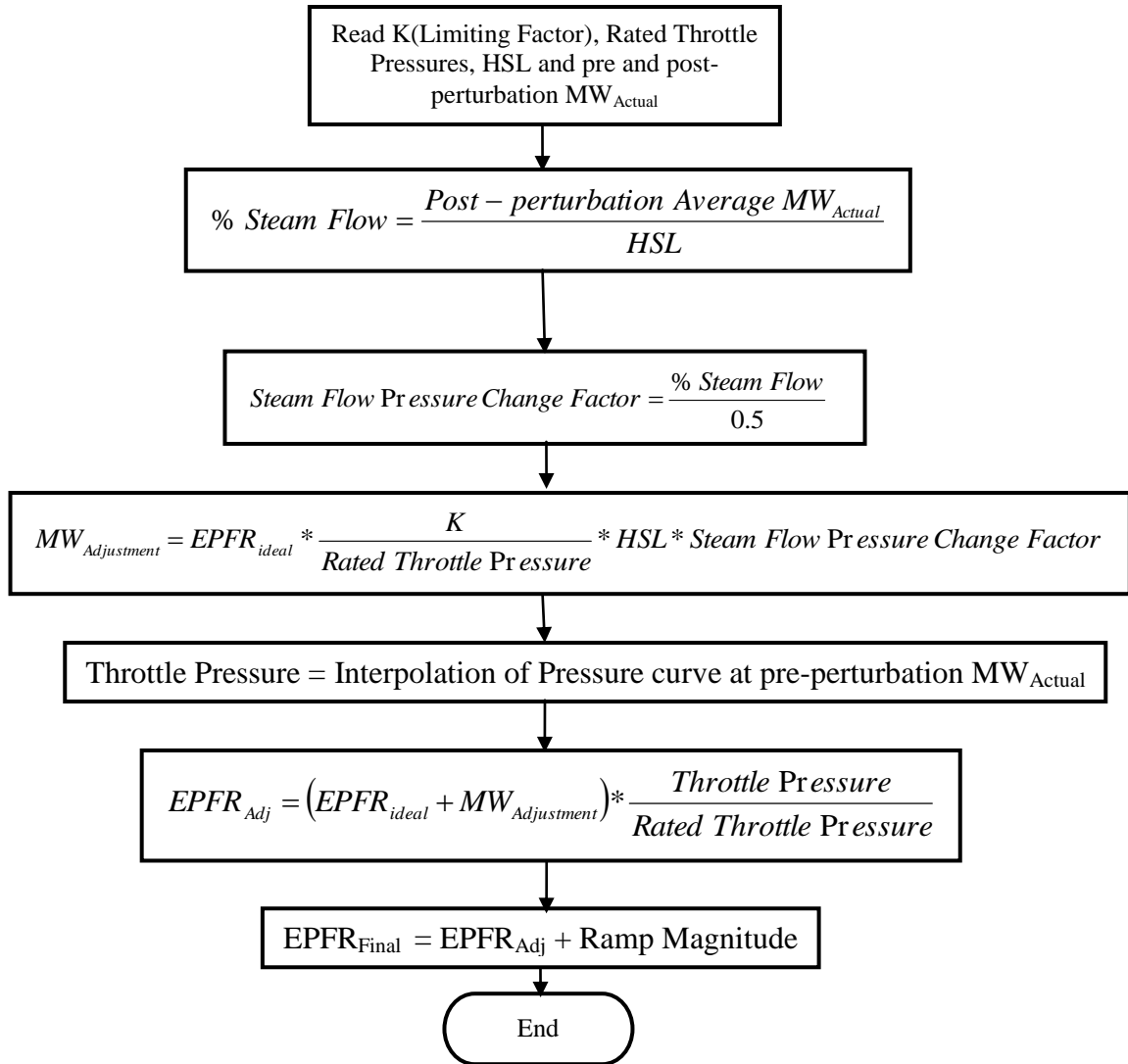
$(MW_{T-4} - MW_{T-60})$ represents the MW ramp of the generator resource/generator facility for a full minute prior to the event. The factor 0.59 adjusts this full minute ramp to represent the ramp that should have been achieved during the post-perturbation measurement period.

Expected Primary Frequency Response Calculation

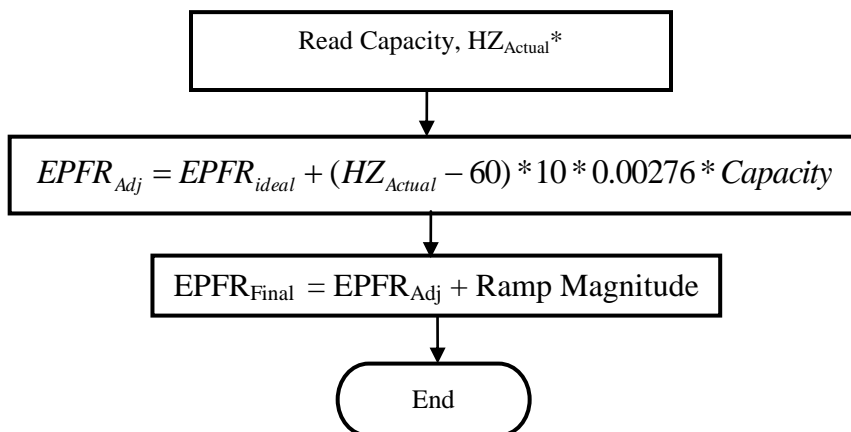
Use the droop and deadband as required by R6. For Combined Cycle Facility evaluation as a single resource (includes MW production of the steam turbine generator), the EPFR will use 5.78% droop in all calculations.



Adjustment for Steam Turbine

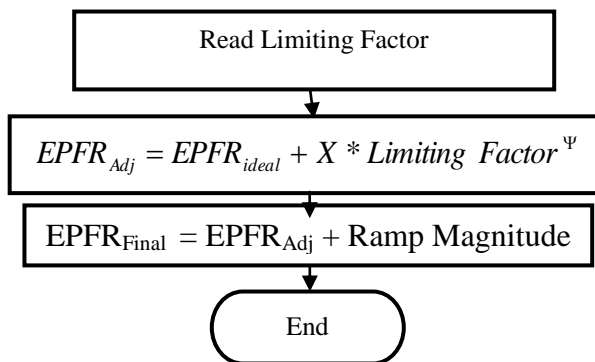


Adjustment for Combustion Turbine



0.00276 is MW/0.1 Hz change / MW Capacity and represents the MW change in generator output due to the change in mass flow through the combustion turbine due to the speed change of the turbine during the post-perturbation measurement period. (This factor is based on empirical data from a major 2003 event as measured on multiple combustion turbines in ERCOT.)

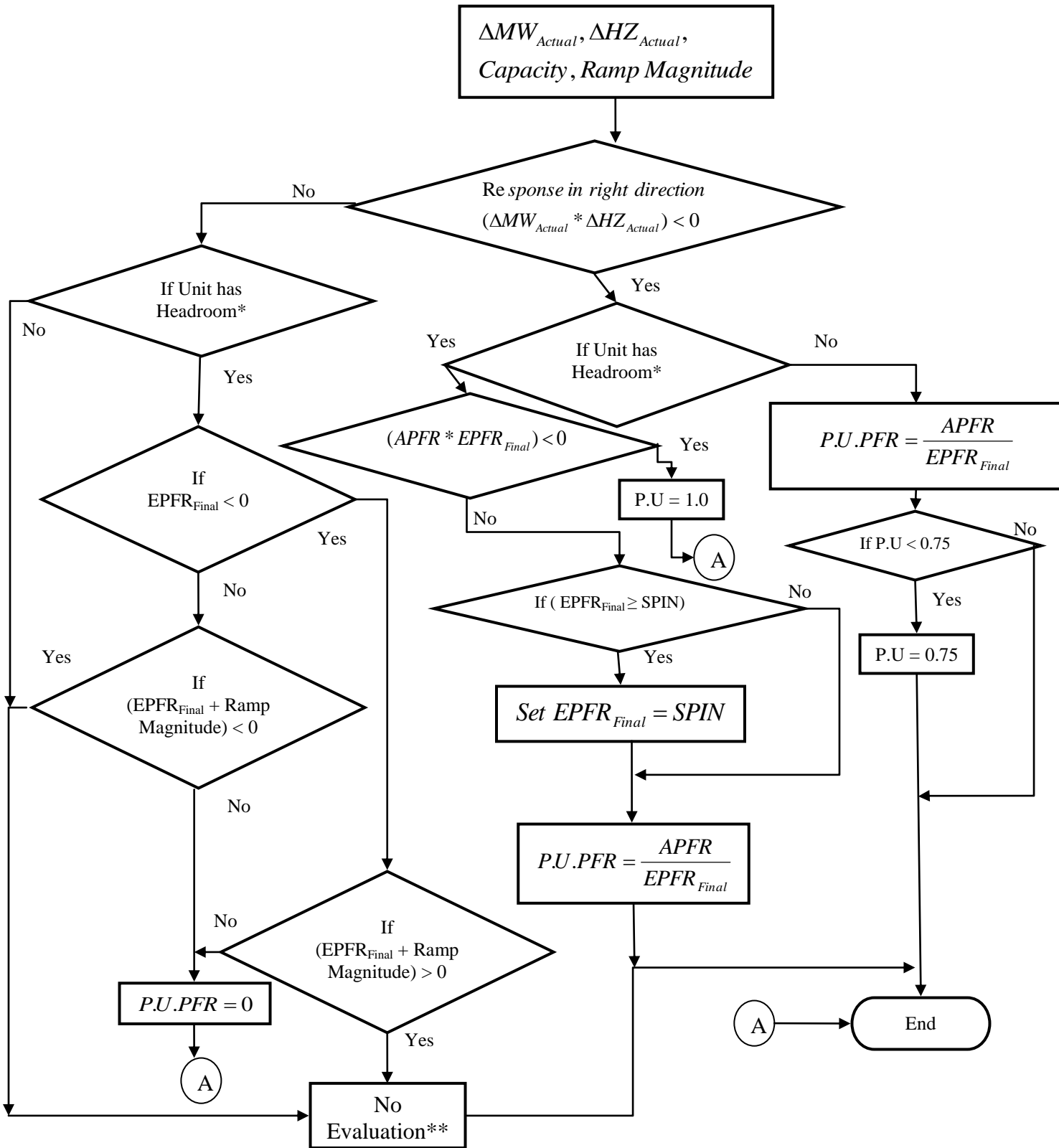
Adjustment for Other Units



$$*HZ_{Actual} = \frac{\sum_{T+20}^{T+52} HZ_{Actual}}{\# \text{ of Scans}}$$

X_and_Limiting Factor^Ψ = This adjustment and Limiting Factor will be developed to properly model the delivery of PFR due to known and approved technical limitations of the resource. X and Limiting Factor may be adjusted by the BA and may be variable across the operating range of a resource.

P.U. Initial Primary Frequency Response Calculation



R9. Initial Primary Frequency Response Measurement

*check for 2% headroom. If a unit has only 2% of HSL or less as available headroom, the unit is considered operating at full capacity and will not be evaluated for low frequency. If a unit has only 2% of HSL as down headroom it is considered operating at low capacity and will not be evaluated for high frequency.

**No further evaluation is required for Sustained Primary Frequency Response. This event will not be included in the Rolling Average calculation of either Initial or Sustained Primary Frequency Response.

T = Time in Seconds