



Balance Resources and Demand

Review of Proposed Standard 300

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Standard's Purpose

Maintain interconnection frequency within a predefined frequency profile under all conditions (i.e. normal and abnormal) to prevent:

- Frequency-related instability
- Unplanned tripping of load or generation
- Uncontrolled separation or cascading outages that adversely impact the reliability of the interconnection.

Standard's Six Requirements

Operations-related requirements:

- 301 - Balance of Resources and Demand
- 302 - Frequency and Area Control Error
- 303 - Return Frequency within FTL

Supporting requirements:

- 304 - Establish Frequency Bias Settings
- 305 - Establish Frequency Limits
- 306 - Establish BAALs

Overview of Proposed Standard

301 - Balance of Resources and Demand – Requires the Balancing Authority to:

- Monitor its ACE and Interconnection Frequency in real-time so that it knows if its ACE is moving towards/outside its ACE limits – and so it knows if Interconnection Frequency is moving towards/outside its frequency limits
- Take corrective actions if ACE exceeds its ACE limits
- Restrict its time-averaged adverse impact on interconnection frequency within the bounds
- specified by Control Performance Measure-1

Overview of Proposed Standard

302 - Frequency and Area Control Error – Requires the Reliability Authority to:

- Monitor interconnection frequency and the ACE of its BAs in real-time so that it knows if Interconnection Frequency is moving towards/outside its Frequency Limits and so it knows if any BAs have an ACE that is moving towards/outside its ACE Limits
- Act or direct others to act to prevent frequency limits from being exceeded
- Document directives issued relative to frequency limits
- Report all instances of exceeding frequency limits

Overview of Proposed Standard

303 - Actions to Return Frequency within Frequency Limits – Requires the Balancing Authority to:

- Follow the RA's directives
- Document actions taken to follow RA's directives

304 - Frequency Bias Settings - Requires the Balancing Authority to:

- Review and recalculate, if necessary, its Frequency Bias Setting at least once a year
- Have a documented methodology for developing Frequency Bias and follow this methodology

Overview of Proposed Standard

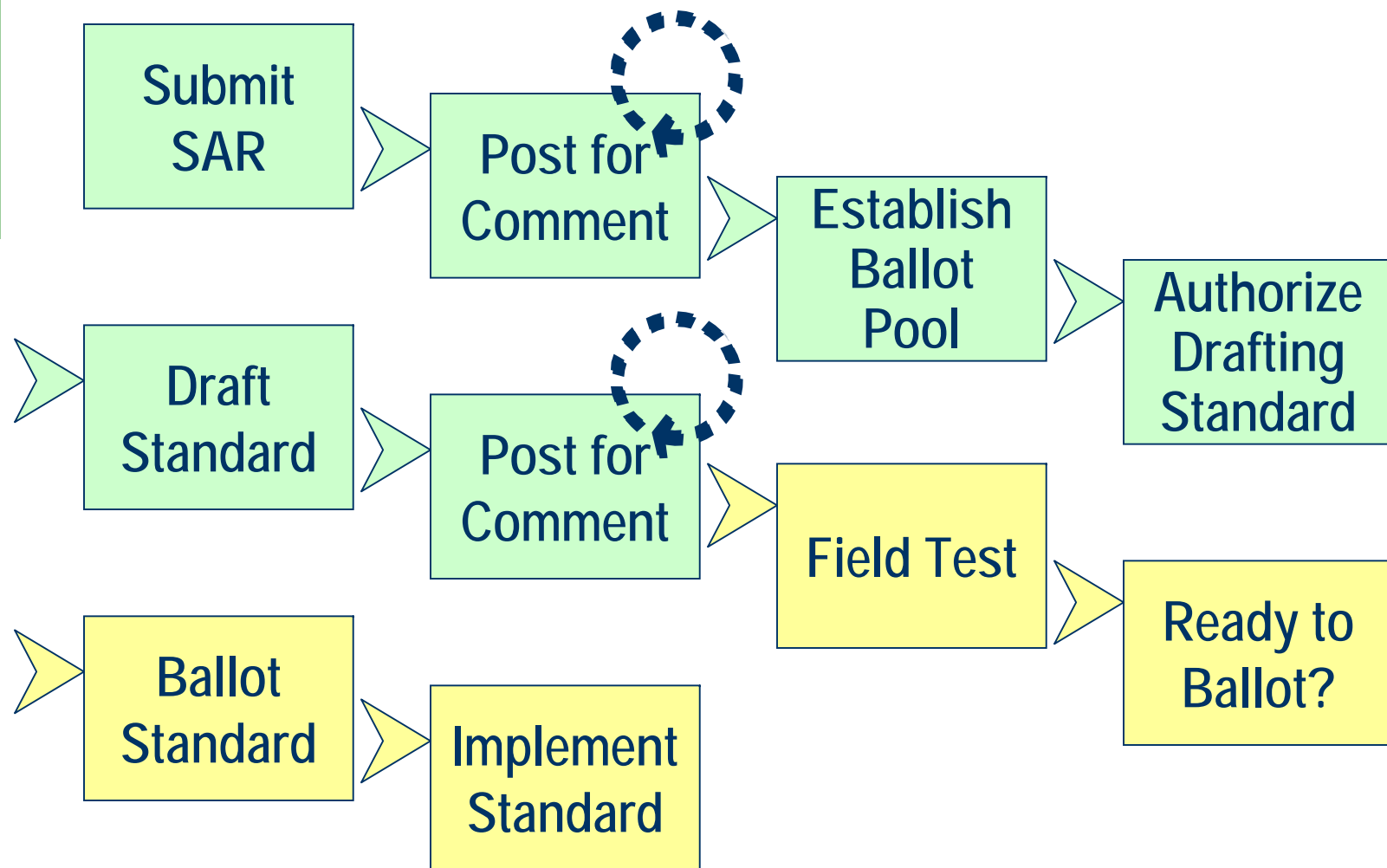
305 - Interconnection Frequency Limits - Requires the Standards Developer (NERC) to:

- Develop a set of frequency limits for each Interconnection following a procedure and distribute the limits to entities that have a reliability-related need for them
- Review and update the limits, if necessary, at least annually

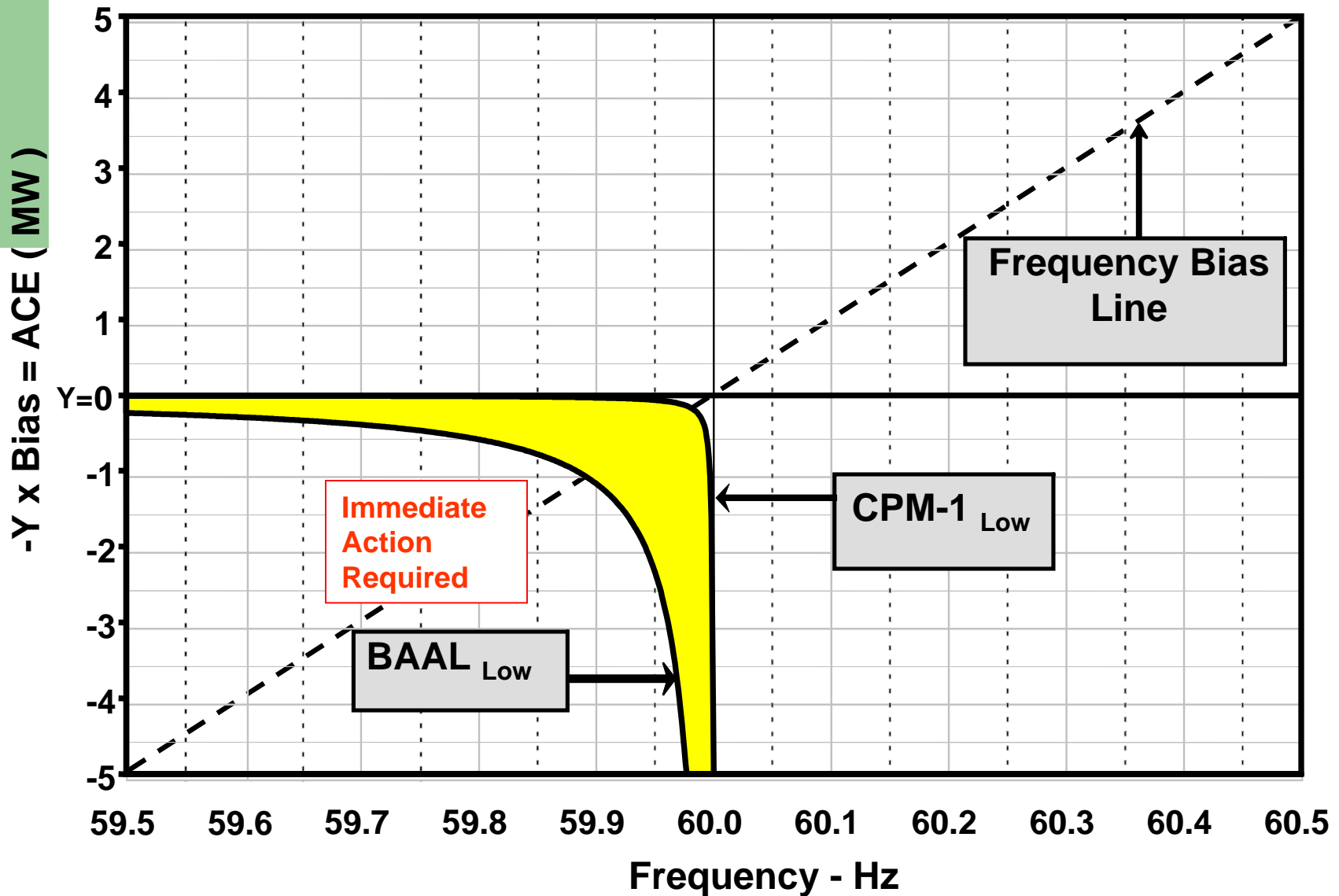
306 - Balancing Authority Area Control Error Limits - Requires the Standards Developer (NERC) to:

- Develop a set of ACE limits for each Balancing Authority following a procedure and distribute the limits to entities that have a reliability-related need for them

Where are we in the development of this Standard?

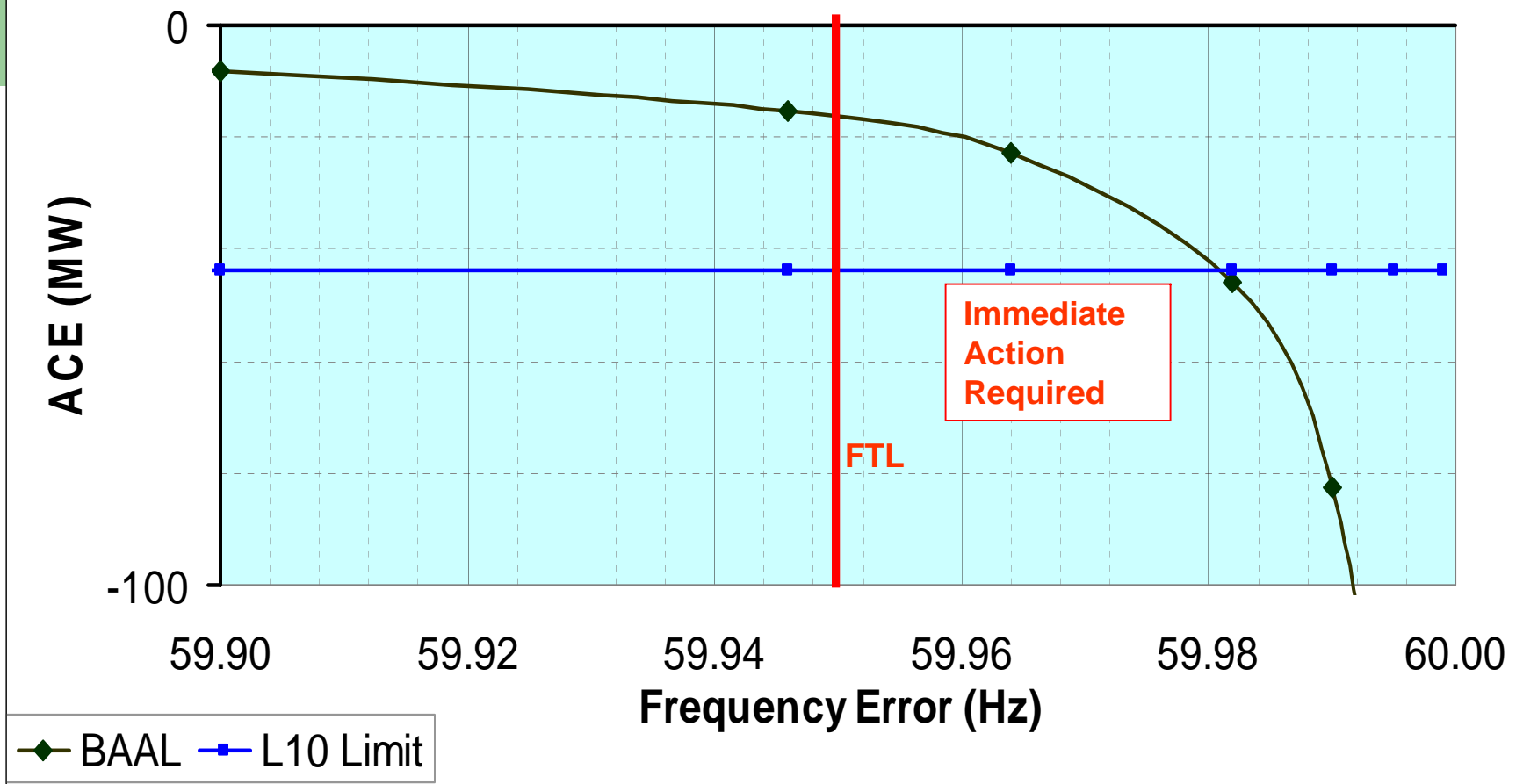


'Low' BAAL and CPM-1



BAAL and L10 for Median-Size CA

BAAL for Median-size BA in Eastern Interconnection
Based Upon Frequency Bias and 59.95 Hz Frequency Trigger Limit



Interconnection Limits (high & low):

- **Frequency Trigger Limit (FTL)** – can operate for **limited** time before risk to interconnection is unacceptable
- **Frequency Abnormal Limit (FAL)** - cannot be exceeded w/out exposing interconnection to unacceptable level of risk (greater than a one in ten-year probability of unwarranted load shed relay activity)
- **Frequency Relay Limit (FRL)** - if exceeded, will result in tripping of frequency-related relays

What group would address gaining consensus on this value?

Questions?

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<http://www.nerc.com/~filez/standards/Balance-Resources-Demand.html>

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