6.1.3 Phasor Measurement Recording Equipment

Phasor measurement recording equipment includes digital fault recorders, certain protective relays and/or meters with phasor measurement recording capability that meet the requirements in Sections 6.1.3.1 and 6.1.3.3. Phasor measurement recording equipment required by these Operating Guides shall be time synchronized with a Global Positioning System-based clock, or ERCOT-approved alternative, with sub-cycle (<1 microsecond) timing accuracy and performance.

6.1.3.1 Recording Requirements

Recorded electrical quantities shall be:

1. Provided in IEEE C37.118 format;
2. A minimum output recording rate of 30 times per second;
3. A minimum input sampling rate of 960 samples per second;
4. Transmitted to an ERCOT phasor data concentrator via a communication link or stored locally per retention requirements in Section 6.1.3.4.

6.1.3.2 Location Requirements

The Facility owner(s), whether a Transmission Service Provider (TSP) or Generation Entity, shall install phasor measurement recording equipment within 18 months at the following Facilities, at a minimum:

(a) Flexible AC Transmission System (FACTS) devices configured to actively control steady-state voltage or power transfer capability, operated at or above 100kV, and energized after January 1, 2015;

(b) One transmission facility identified by ERCOT associated with each published Generic Transmission Constraint as deemed necessary by ERCOT;

(c) New generating facilities over 20 MVA aggregated at a single site placed into service after January 1, 2015;

(d) Existing generating facilities over 20 MVA aggregated at a single site that has not provided for meeting applicable MOD-026 and MOD-027 model validation requirements via other means.

6.1.3.3 Data Recording and Redundancy Requirements

Recorded electrical quantities shall be sufficient to determine the following:

1. For locations meeting 6.1.3.2 (a through b), phase-to-neutral voltage magnitude/angle data for each phase from at least two distinct transmission level element measurements;
2. For locations meeting 6.1.3.2 (a through b), single phase current magnitude/angle data for each phase from at least two distinct transmission level lines;
3. For locations meeting 6.1.3.2 (a through b), Frequency and df/dt data for at least two transmission level element measurements;
4. For locations meeting 6.1.3.2 (c through d), phase-to-neutral voltage magnitude/angle data for each phase from at least one generator-interconnected bus measurement;
5. For locations meeting 6.1.3.2 (c through d), single phase current magnitude/angle data for each phase from each interconnected generator over 20 MVA;

(f) For locations meeting 6.1.3.2 (c through d), Frequency and df/dt data for at least one generator-interconnected bus measurement.

6.1.3.4 Data Retention and Reporting Requirements

The minimum recorded electrical quantities shall be retained per the following guidelines:

1. Rolling 10 calendar day window for all data stored locally and not transmitted to an ERCOT phasor data concentrator;
2. Minimum 3 year data retention by the generating facility owner for event data utilized for NERC MOD-026 or MOD-027 Reliability Standard model validation;

(c) Minimum 3 year data retention by the generating or transmission facility owner for event data provided to ERCOT via written request that is recorded in the context of an ERCOT-initiated disturbance analysis or event review.