Background

The Purpose of the SPP PRC-006-SPP-01 standard is to develop, coordinate and document requirements for automatic under frequency load shedding (UFLS) programs to arrest declining frequency and assist recovery of frequency following under frequency events. The NERC PRC-006-1 requires the Planning Coordinator (SPP) to develop a program to meet a set of performance characteristics where there is an underfrequency condition caused by an imbalance between load and generation. The SPP SPCWG along with Powertech labs and the input from numerous SPP members developed this standard to meet these performance requirements.

SPP has had an UFLS requirement for its members for many years. These requirements were documented in the “SPP Criteria”. The performance requirements of the new PRC-006-SPP-01 are very similar to the original SPP Criteria requirements. The primary difference is the Applicability of the new Standard. UFLS entities will be identified by the Planning Coordinator and may include Distribution Providers, Transmission Owners and others. It is foreseen that there will be changes in UF locations, additions and removals of UFR, and aggregated UFLS program. Because of this there will be a multiyear implementation plan.

Summary of Comments

The SPCWG received several comments on Generator Owner participation in this Standard ranging from Applicability to performance requirements. The SPCWG believes that since an underfrequency condition involves both load and generation, Generator Owners and generator requirements have to be included. This also aligns with generator requirements included in the original SPP Criteria; Section 7.3.1.3 d. “The tripping of any generating unit by under-frequency relays or any other protective device during low frequency conditions shall be so coordinated that these units will not be tripped before the three steps of load shedding have been utilized. Should this not be practical due to the operating characteristics of certain units, then these members shall protect the interconnected systems by shedding a block of load equal to the capability of the generating unit that will be tripped and at the frequency which will remove the unit from service.”

The SPCWG received several comments on Attachment 1 “Underfrequency Curve for Requirement 7”. This is a generator operation curve developed by SPCWG to coordinate generator tripping with the dynamic simulation underfrequency results of the “2010 Evaluation and Assessment of Southwest Power Pool (SPP) Under-Frequency Load Shedding Scheme” prepared by Powertech Labs Inc. Adherence to this curve will help avoid aggravating an underfrequency situation by tripping additional generation. The Powertech study also verified that other requirements listed in the SPP UFLS standard adhered to the NERC performance criteria.

The SPCWG received several comments from Registered Entities with large load blocks concerned with meeting the minimum and maximum load relief percentages in the three steps of underfrequency. The number, type and location of Under-Frequency Load Shedding (UFLS) equipment will normally be the responsibility of the UFLS entities based on programs established by the Planning Coordinators. UFLS
entities may implement an aggregated UFLS program with other UFLS entities. In R1 and R2, the 100 MW limit refers to the aggregated UFLS program, if one exists.

A lot of comments received by the SPCWG were incorporated into the Standard. The SPCWG would like to express its sincere thanks to the many people who supplied comments, feedback, clarification and direction in the development of this Standard.

Thanks,

SPP UFLS Standard Drafting team