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WECC Policy Statement:

Power System Stabilizers

Date: April 18, 2002

INTRODUCTION

Technical studies and operations experience support a continuing need for power system stabilizer (PSS) (supplementary excitation control) to improve dynamic operation and allow non-oscillatory attainment of desired loading levels in the western interconnected power system.

POLICY CRITERIA

It is necessary for the stability of the bulk electric system that PSS be in operation on large numbers of synchronous generators in order to provide the required damping for oscillations that would otherwise develop across the western interconnection.

Accordingly, the following criteria are adopted:

1. The following criteria shall be used to determine when a PSS shall be installed on a synchronous generator, regardless of ownership, that is connected to the transmission system (by generator step-up transformer to 60 kV or higher voltage):
 - a.) A PSS shall be installed on every existing synchronous generator that is larger than 75 MVA and is equipped with a suitable excitation system as defined in the report "Criteria to Determine Excitation System Suitability for PSS", dated December 1992 (available on WECC Website, www.wecc.biz).
 - b.) A PSS shall be installed on every existing synchronous generator that is larger than 30 MVA, or is part of a complex that has an aggregate capacity larger than 75 MVA, if the excitation system is updated so that it becomes a suitable excitation system as defined in the report mentioned in 1a above. This section applies to all machines whose excitation system is updated at any time after November 18, 1993.
 - c.) A PSS shall be installed on every synchronous generator that is larger than 30 MVA, or is part of a complex that has an aggregate capacity larger than 75 MVA, and is equipped with suitable excitation systems as defined in

paragraph 1a, and is commissioned after November 18, 1993.

- d.) A PSS is not required on a station service generator.
2. When a synchronous generator that is equipped with a functional PSS is on line, the PSS shall be in operation except for the following reasons:
 - a.) Maintenance and testing
 - b.) PSS exhibits instability due to nonstandard transmission line configuration
 - c.) PSS does not operate properly due to a failed component
 - d.) Unit is operating in the synchronous condenser mode (very near zero power level)
 - e.) When a unit is generating less power than its design limit for effective PSS operation
 - f.) When a unit is passing through a range of output that is a known “rough zone”

The aggregate MVA of the synchronous generators that are on line and equipped with a functioning PSS shall not fall below the level identified in the most recent power system stabilizer study commissioned by the WECC.

3. When a synchronous generator that is equipped with a PSS is operating in the pump mode (P/G unit), and is connected to a transmission system such that the PSS does not produce negative damping, the PSS should be in service.
4. PSS equipment shall be tested and calibrated in conjunction with AVR testing and calibration. This will be done as often as is necessary to maintain reliable PSS performance in accordance with the “WECC PSS Tuning White Paper” (available on WECC Website, www.wecc.biz). PSS recalibration must be performed if AVR response parameters are modified.
5. When a PSS is taken out of service because of a failed component, the party responsible will be expected to perform the needed repairs (or replacement) in a responsible and timely manner.
6. A PSS is not required for a synchronous condenser.

Approved By:

Approving Committee, Entity or Person	Date
Technical Studies Subcommittee	January 11, 2002
Planning Coordination Committee	March 1, 2002
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