

Transient stability emergency control using generator tripping based on tracking area-based rotor angle combined with UFLS.

ABSTRACT

This paper concerns with transient stability control which is part of transient stability assessment which needs to be considered so that the power systems remained intact when failures originating from faults occurred in power systems. Conventional under frequency load shedding (UFLS) system is designed to retrieve the balance of generation and consumption following disturbances occurrences in the system. In UFLS method, whenever the system's frequency drops below a predetermined value, the system loads are shed in stages. An efficient UFLS method needs to be devised so as to reduce the impacts of transient disturbance on power systems and prevent total system blackout. In this paper, an emergency control scheme known as the combined UFLS and generator tripping is developed in order to stabilize the system when unstable faults occurred in a power system. The performance of the combined UFLS and generator tripping scheme is compared with the conventional UFLS control scheme. The results show that the combined control scheme performed better.

Keyword: Generator tripping; Transient stability assessment; Transient stability control; Transient stability index.