A 75 bus bars model to evaluate the steady state operation of a sub-transmission electrical power grid.

Modelo de 75 nodos para evaluar la operación en estado estable de una red de sub-transmisión de energía eléctrica

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Abstract

This paper presents a 75 bus bars system interconnected with generating units, transmission lines, distribution grids and other elements seeking to model a sub-transmission grid. The survey has been focused on estimate the operating conditions of the transmission network during the steady state and transient using simulations tools. Results can be used to prevent, identify, and solve contingencies that affect the normal operation of the network in the short, medium and long term. They are also validated with real and updated information, demonstrating their reliability to evaluate power flow, short-circuits, reliability. Information can be used as reference by utilities, national operators in their usual activities of energy planning in the power grid. This applied survey contribute in validate operating ranges on forecasts of low, medium and high demand, control of active and reactive power; measure single and three phase levels of short-circuits in all buses; estimate the reliability of the power grid using the N-1 criteria; evaluate specific cases during steady state operation.