Equivalent circuits, time constants and reactances of dual-excited synchronous machines

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Abstract

The generalized transient equivalent circuits of dual-excited synchronous machines, in which the two field windings are not necessarily located on the rotor axes and may have different number of turns as well as different inclination angles to the physical-axis of the rotor, are developed. It is found that, in this case, the machine circuits on both the d- and q-axes are interacting and are no longer independent of each other. The equivalent circuits of machines with special construction, namely: conventional, dq and dwr ...