Analysis Subsynchronous Resonance Power Systems Padiyar

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Three aspects of Subsynchronous Resonance (SSR) related problems in power systems are addressed in this dissertation which aims at contributing to a better understanding of these problems. Subsynchronous Resonance (SSR) problems in series compensated steam-turbine power systems co-exist with the beneficial effects provided by the series capacitors.

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Eigenanalysis of subsynchronous resonance in a multi-machine power system A linear representation of a system can be obtained by expanding the non-linear function which express the non-linear model about a steady-state operating point in a Taylor series. With the system represented in this way eigenanalysis can be performed.

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Subsynchronous resonance is a condition that can exist on a power system wherein the network has natural frequencies that fall below the nominal 60 hertz of the network applied voltages. Currents flowing in the ac network have two components; one component at the frequency of the driving voltages (60 Hz) and another sinusoidal component at a frequency that depends entirely on the elements of the network.

Subsynchronous Resonance in Power Systems
Analysis of Subsynchronous Resonance in Power Systems. [K R Padiyar] -- This book presents comprehensive mathematical models of turbine-generators, HVDC and FACTS controllers, and small signal analysis of SSR.

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Subsynchronous Resonance (SSR) "Subsynchronous resonance is an electric power system condition where the electric network exchanges energy with a turbine generator at one or more of the natural frequencies of the combined system below the synchronous frequency of the system." There are two aspects of the SSR problem.

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Abstract. The subsynchronous resonance (SSR) is an important problem in the power system, and especially the series compensated transmission lines may cause SSR in the turbine generators, such that it leads to the electrical instability at subsynchronous frequencies and potential turbine-generator shaft failures.

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