Alstom Power, Milan, Italy	Modelling of the parallel operation of Generators in Short-circuit tests	2012

Engineering services performed

In the framework of Alstom Power proposal to KERI (Korea Electrotechnology Research Institute) of two Short-circuit Generators for a total short-circuit power of 4800 MVA addressed to supply short-circuit tests in parallel of the already existing 4800 MVA Generator, it has been developed a simulation tool of synchronous generators, including driver, used in short circuit tests.

The model, developed in cooperation with the Electrical Engineering Department of the University of Pavia, allows the simulation of the drive-generator system in three-phase and single-phase systems at 50 Hz and 60 Hz, with and without excitation in a temporal transient of 150 ms from the short circuit start, providing the generator status at the beginning and end of the transient and the power flows in the different configurations.

The model also simulates the operation of 2 or 3 generators feeding short-circuit tests, in particular for the paralleling procedure and the configuration of the protections.

On the basis of the results of the simulations carried out, the required operating conditions (maximum excitation current required, minimum current limiting reactances to be connected in series with the Generators, maximum faults currents, etc.) for an effective parallel operating conditions in three or single phase short-circuit tests, at full power, at 60 Hz and 50 Hz, have been defined.