A B S T R A C T

This report describes the results of studies investigating the frequency disturbances on an isolated power system supplying an inherently random fluctuating load. The fluctuating load considered is that of the electric arc furnaces of a proposed steel plant.

An account is given of the investigations into the dynamic behaviour of the power system when subjected to this type of loading.

The effects of the fluctuating load on the power system are also discussed.

The frequency disturbances were predicted by means of a digital computer transient stability program which included voltage regulator and governor effects. The report describes the modelling of the synchronous machine, excitation system, turbine governor and loads. The equations and/or block diagrams for the representation of these equipment are presented.

For the computer program, the furnace load was modelled by a single step approach. This approach assumes that the fluctuating load can be approximated by a series of step load changes.

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