

IMPACT OF POWER SYSTEM FAULTS ON OUTPUT POWER OF POWER PLANT AND POWER CONSUMPTION OF DYNAMIC LOADS

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ABSTRACT

In power transmission and distribution system, the majority of the voltage and current signal distortions are caused by faults. These distortions affect the output power of the generators as well as power consumptions by the loads. This paper presents the study of impact of power system faults on the output power of the power plant and power consumption of dynamic loads. The effect of single-phase to ground fault, double line fault, double line to ground fault, three phase faults involving ground and without ground on power output of plant power and consumption by the dynamic load are presented in detail. The variations of active and reactive power during the faulty conditions and post fault conditions are investigated. A test system having generation, loads, and transmission lines and connected to the utility network is modeled in MATLAB/Simulink environment.

KEYWORDS: Active Power, Dynamic Load, Fault, Power Plant, Reactive Power, Utility Grid