

# **A study on the effect of power pulse from large nuclear fusion facilities on the electric power grid**

## **Abstract**

Several Tokamak devices are being built worldwide to verify the engineering feasibility of controlled nuclear fusion. The tokamak reactor includes superconducting magnets, heating devices, etc. which requires sudden large power pulse from the electric power utility. Hence grid would be subjected to power shocks. This would result in grid voltage and frequency oscillations, power surge on generators, etc. This project would consider a standard bus-system (say 29-bus system) and analyse the effect of power shocks from fusion reactor operations. Simulation of the project would be performed in MATLAB Simulink. The project would also focus on selection of static var compensations (SVC) for mitigating the fluctuation in busbar voltages.

## **Academic Project Requirements:**

- 1) Required No. of student(s) for academic project: 1**
- 2) Name of course with branch/discipline: B.E./B.Tech. Electrical**
- 3) Academic Project duration:**
  - (a) Total academic project duration: 10 Weeks**
  - (b) Student's presence at IPR for academic project work: 3 Full working Days per week**

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