

POWER SUPPLY FOR NSTX RESISTIVE WALL MODE COILS*

S. Ramakrishnan, C. Neumeyer, R. Marsala, R. Hatcher and E. Baker
Princeton Plasma Physics Laboratory, PO Box 451, Princeton NJ 08543
sramakri@pppl.gov

The National Spherical Torus Experiment (NSTX) has been designed and installed in the existing facilities at Princeton Plasma Physics Laboratory (PPPL). Most of the hardware, plant facilities, auxiliary sub-systems, and power systems originally used for the Tokamak Fusion Test Reactor (TFTR) have been used with suitable modifications to reflect NSTX needs. Until 2004, the NSTX power system was feeding twelve circuits in the machine. In 2004 Resistive Wall Mode (RWM) Coils were installed in the machine to provide error correction to the normal NSTX fields. There are six of these RWM coils installed around the machine in the mid-plane. Since the RWM coils need fast and accurate bi-polar response, a Switching Power Amplifier (SPA) was procured, installed and commissioned (along with other power loop components) for the new coil system supply. An existing thyristor rectifier was also connected to provide dc current input for the SPA. The controls for the RWM have been integrated into the overall computer control of the DC Power systems for NSTX. This paper describes the RWM Power system for NSTX. This new system's rapid, real time, correction of NSTX field errors are a logical step for increasing NSTX plasma performance.

*Work supported by U.S. DOE Contract No DE-AC02-76CH03073.