Abstract Submitted
for the DPP08 Meeting of
The American Physical Society

Pegasus power system facility upgrades[1] B.T. LEWICKI, B.A. KUJAK-FORD, G.R. WINZ, University of Wisconsin - Madison — Two key Pegasus systems have been recently upgraded: the Ohmic-transformer IGCT bridge control system, and the plasma-gun injector power system. The Ohmic control system contains two new microprocessor controlled components to provide an interface between the PWM controller and the IGCT bridges. An interface board conditions the command signals from the PWM controller. A splitter/combiner board routes the conditioned PWM commands to an array of IGCT bridges and interprets IGCT bridge status. This system allows for any PWM controller to safely control IGCT bridges. Future developments will include a transition to a polyphasic bridge control. This will allow for 3 to 4 times the present pulse length and provide a much higher switching frequency. The plasma gun injector system now includes active current feedback control on gun bias current via PWM buck type power supplies. Near term goals include a doubling or tripling of the applied bias voltage. Future arc bias system power supplies may include a simpler boost type system which will allow access to even higher voltages using existing low voltage energy storage systems.

[1]Supported by US DOE grant DE-FG02-96ER54375

Aaron Redd
University of Wisconsin - Madison

Date submitted: 18 Jul 2008 Electronic form version 1.4