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## Phase I Summary: Neutral Beam Injector Grid Power System

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Neutral beam injection (NBI) is important in fusion science experiments for plasma heating, current drive and diagnostics. Currently, there limited vendors for these systems, and there are no vendors in the United States, which is a potential challenge for the development of private fusion for defense applications. Eagle Harbor Technologies (EHT), Inc. has completed a Phase I program to develop a new power system for NBI that utilizes the state of the art in solid-state switching. EHT has developed a resonant converter that can be scaled to the power levels required for NBI at small-scale validation platform experiments like the Lithium Tokamak Experiment at Princeton Plasma Physics Laboratory. This power system can be used to modulate the NBI voltages over the course of a plasma shot, which can lead to improved control over the plasma. EHT will present initial modeling used to design this system as well as experimental data showing power system operation at 15 kV and 40 A for 10 ms into a test load. Additionally, testing results from a neutral beam system will also be presented.

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