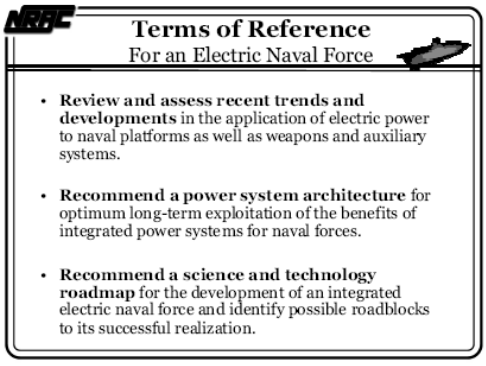

Terms of Reference

Naval forces are on the verge of a revolution in the distribution, control and utilization of power onboard weapons platforms. All-electric ships, boats and combat vehicles offer the promise of improved performance, increased versatility, and lower cost of ownership. In order to take full advantage of the opportunities offered by integrated electric power systems, a power system architecture that will facilitate flexibility in operation, rapid recovery from damage, ease of maintenance, and ready integration of new technologies, as they become available, is essential.

The Terms of Reference (TOR) for the NRAC "Roadmap to an Electric Naval Force" study charged the panel to assess the state of the art of naval relevant electric technologies, recommend an architecture for optimum exploitation and lay out a roadmap for development. The full text of the TOR is presented in Appendix A.

The panel decided early in the study that the advantages of electric propulsion and electrification of auxiliaries were well understood by naval architects and engineers and chose to focus instead on the question of why, after more than a decade of successful commercial applications, the Navy has not yet fielded a single modern electric ship. The panel's conclusion was that the compelling advantage to the warfighter had not yet been convincingly articulated. This is where the panel efforts were focused.