

**AMENDMENT 0002 FOR
BAA 09-011
ELECTRICALLY ACTUATED SUBMARINE CONTROL SURFACES**

1. Question: Table 1 of the subject BAA lists Threshold and Objective torque values, but does not state which control surfaces they apply to, or if the values provided are for a complete set of rudder or stern plane control surfaces, or individual segments or sides of control surfaces. In contrast, the presentation made by Dr. Ray Shoaf at the Industry Day for this subject listed typical torques for a range of different control surfaces and configurations ranging from 1.5×10^6 inch-lbs (125,000 ft-lbs) to 5.5×10^6 inch-lbs (458,333 ft lbs). This is a much lower range of torques compared to the Table 1 Threshold and Objective values listed in the BAA. Please clarify specifically what control surface configuration the values apply to.

Answer: The actuator technology that the FNC desires to field must be capable of application to a range of possible torques to cover the various control surfaces on any given submarine. These include but are not limited to bow and stern planes (~100,000 ft-lb to 393,000 ft-lbs) or rudders (~592,000 ft-lb to ~747,000 ft-lbs). The technology development should be applicable to a variety of control surface types (all-movable, flapped, segmented) and torques and is looking for an innovative approach.