Department of the Navy SBIR/STTR Transition Program
Pending SYSCOM Review

**WHO**

**SYSCOM:** NAVSEA  
**Sponsoring Program:**  
**Transition Target:** Naval Power and Energy Systems (NPES) Integrated Power and Energy System (IPES)  
**TPOC:**  
(202)781-2520

**Other transition opportunities:**  
Transition of this capability would be follow on work to continue the specification development and standards refinement for all the major Advanced Development Model (ADM) components that interface with the medium voltage direct current system components. This overview from a systems engineering perspective will allow deriving other sub components that will "fit" in to the anticipated architecture.

**WHAT**

**Operational Need and Improvement:** In support of the NPES Technology Development Roadmap, research and analysis is necessary in the use of medium voltage direct current (MVDC) within a shipboard architecture. The Navy needs to understand how commercial industries utilize MDVC in transmission to minimize loss across long distances in order to apply that technology to the electric ship design. Additionally developing MVDC circuit protection in multiple transmission variants will need analysis for component design and implementation.

**Specifications Required:** This effort is to create design specifications for required MVDC implementation to support fault detection, localization and isolation (DLI). Additionally, this effort will provide inputs to update any standards effected by the new design and implementation requirements such as the Draft MIL-STD 1399 section for MVDC

**Technology Developed:** In addition to the specifications and standards, modeling and simulations will be utilized to test fault DLI impacts and limitations. The specification development will utilize model-based systems engineering techniques to model the entire DLI environment.

**Warfighter Value:** Disciplined engineering processes will be utilized to design components that do not exist today or modify current components for the rigors of a ship environment

**WHEN**

**Contract Number:** N68335-18-C-0149  
**Ending on:** December 15, 2020

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**HOW**

**Projected Business Model:** Knowledge gained through additional model based systems engineering experience can be used on other components in the MVDC environment.

**Company Objectives:** Provide large companies with an ability to analyze and model large amounts of data for hidden information.

**Potential Commercial Applications:** ISSAC can utilize this experience in the data analysis components of Naval Research

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