

Data and Analyses in Support of Energy Efficient Base Camp Design

19 October 2018 – ME Auditorium – 1300

With Guest Lecturer Mr. William R. Fisher

Lead, Power and Energy Team, U.S. Army Materiel Systems Analysis Activity (AMSAA), Aberdeen Proving Ground, MD



Mr. William Fisher

Abstract

Contingency base camps have been a fact of life for the Department of Defense (DoD) for many years. Fortunately, analytical capabilities for planning and support of these base camps has steadily improved over time. The Army Materiel Systems Analysis Activity (AMSAA) has focused its improvement efforts on enhanced item-level performance analyses and data support to include the areas of ground vehicle fuel consumption estimates, microgrid performance evaluations, renewable energy trade-offs, and shelter thermal energy requirements. Collaboration with the analytical community has culminated in a common base camp resource known as the Base Camp Component Data Base (BCCDB). This resource provides key, web accessible, foundational base camp component data and has successfully supported several analytical efforts conducted by the Operational Energy Analysis Task Force, Product Director Contingency Basing Infrastructure, and the US Army Corps of Engineers (USACE).

While AMSAA's efforts have focused on item-level performance, USACE, through the development of the Virtual Forward Operating Base (VFOB) software tool, has taken a holistic approach to base camp analyses and incorporated efficiency considerations into master planning and design. VFOB is a CAD-based design tool built that allows 2D drawings of base camp facilities and equipment to be laid out on scaled map layers, connected with cables, hoses, and ducts, and assessed for resource consumption given the specific operational and environmental scenario under which the camp is expected to operate. The time-series simulation in VFOB uses component data pulled from AMSAA's BCCDB, linking the Army's analysis community and the operational Soldiers tasked with designing base camps. Base camp planners can use estimated resource consumption rates to identify system configurations that perform most efficiently under expected operational and environmental conditions, ultimately leading to effective base camps with reduced logistical requirements.

Biography

Mr. Fisher has served as the lead for the Power and Energy (PE) Team at the U.S. Army Materiel Analysis Activity (AMSAA), Aberdeen Proving Ground, MD for over 10 years. In this position he is responsible for providing certified Operational Energy (OE) related performance data to the acquisition, combat simulation and sustainment communities, and providing ground vehicle and contingency basing OE-related analyses. These analyses are used to inform senior Army decision makers with respect to the impact of OE on acquisition decisions. In addition, these analyses are used to inform the Joint sustainment community regarding expected energy usage for planning purposes. Mr. Fisher, as an OE Analysis Task Force co-lead, is focused on improving item-level energy modeling and the availability of contingency basing data to the Joint analytical community. His 30 year career at AMSAA has included analytical efforts related to intelligence systems, mobility, logistics, communication systems, current operations, operational lessons learned, and various special studies. As a start to his energy-related experiences, he worked as an engineer in the petroleum industry servicing gas wells across the mid-west. He has a bachelor's degree in Petroleum Engineering from West Virginia University, and a masters' degree in Management from the Florida Institute of Technology.

