



2017 Operational Energy Wargame

Executive Summary

1. **Purpose:**

The wargame seeks to develop mid-grade Officer and senior Enlisted students' understanding of Operational Energy and Energy Security concepts and how they affect mission execution. It will teach players the importance of incorporating energy resources and requirements into decision making during mission planning and execution.

2. **Background:**

Nation X has suffered through several years of economic depression and the democratically elected government is on the verge of collapse. Insurgents, believed to be supported by Nation Y, have taken control of a region of Nation X. Nation X has engaged the insurgents, but riots and terrorist attacks within Nation X have further disrupted government activities. To address the situation, Nation X has requested assistance from the international community.

3. **Study methods:**

The wargame design incorporates a mixed methodology strategy. There are two teams; a BLUE team comprised of a Combined Joint Task Force with Nation X personnel and a RED team operating as insurgent forces. BLUE team operates in a closed environment where they have limited information on RED forces. RED operates in an open environment knowing the location of all BLUE forces. All game actions are determined by human decisions. The outcome of actions and counter-actions are assumed to be stochastic in nature and therefore modeled with dice rolls and changes in popular support determined by random numbers in Microsoft Excel. Probability thresholds for success and failure are modeled with a standardized probability table defined by a function of popular support and unit effectiveness, which represent the measures of effectiveness monitored during the game. As this is an educational game, pre-and post-game surveys were utilized to gain data used for analysis.

4. **Study findings/recommendations:**

The final wargame was played on 7-8 June 2017 with ten participants from US, Australia, Germany, and Lithuania. The game lasted seven rounds ending with Blue victory and the following findings:

- a. Operational energy management is essential for successful conduct of a mission.
 - i. If the energy was not available, then the methods to achieve mission execution had to be adjusted.
- b. Military operations strongly depend on availability of operational energy.
 - i. Every operation conducted by military forces, including sustainment, require a certain level of energy in order to perform those operations. The availability of operational energy drives, to an extent, the options a military commander has.
- c. Success of a counter-insurgency mission is determined by a proper balance of efforts to increase the popular support ("win the hearts and minds"), achieving military objectives, and consideration of available energy.
 - i. These efforts are all interrelated and therefore must all be balanced. With the support of the population, more energy will be available for achieving mission objectives. The opposite is very true. If the population doesn't support the force, additional energy has



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- to be spent to protect and ensure the delivery of necessary energy to execute military objectives.
- d. Ensuring security to critical energy infrastructure is essential for sustaining forces and maintaining civilian security.
 - i. By protecting critical energy infrastructure, military forces can reduce dependency on fuel required for generators by utilizing the electrical grid to power bases. An additional benefit of providing security to energy infrastructure is to show the civilian population that you are there for them as well.
 - e. Establishment of a forward arming and refueling point (FARP) increases unit effectiveness by providing aviation capabilities as a force multiplier for combat operations (operational reach).
 - i. A FARP enables operational commanders' additional options in the execution of missions. This could be through close air support, quicker troop movements, or an extended reach.

Further development of the wargame is recommended to enhance the player learning experience. Modelling game rule books after commercial games could allow faster familiarity and more focus on operational energy related decision-making by the players. Simplification of game mechanics and rules will allow players to focus more on the scenario and less on game mechanics. Game board, pieces, and support material should be developed to mirror commercial games to make playing the game more enjoyable and easier to follow for the players. Automation of logistics related information exchange would allow players to make decisions faster and allow longer games during constrained blocks of instruction.

Consideration should be given to development of a seminar wargame to compare results of the different game styles.

5. For a copy of the complete Final Analysis Report, contact **Ms. Tahmina Karimova** at:

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