

## Considering Energy Logistics in Force Development

By **Alan Bohnwagner** | September 16, 2015

The Department of Defense continues to develop and field cutting-edge equipment designed to equip our warriors with the best possible capabilities in defense of our nation. However, these enhanced platforms and equipment frequently come with a cost: increasing demand for energy. At the same time, our ability to project energy in support of our troops is more and more at risk. While remaining globally engaged, the Department's focus towards the Pacific means that the tyranny of distance is an even greater challenge to logistical support. Combined with adversary advances in Anti-Access and Area Denial (A2/AD) capabilities, this environment places logistical support, and specifically energy support, at risk.

These risks must be considered throughout the requirements and acquisition processes.

With that in mind, and pursuant to the Joint Explanatory Statement accompanying the National Defense Authorization Act for Fiscal Year 2015 (Public Law 113-291), the Department summarized actions taken to consider the operational impact of energy logistics through energy supportability analysis (ESA) conducted during planning, requirements development, and acquisition processes. Provided to the leaders of the US Senate and House Committees on Appropriations and Armed Services, the requirements and contents of this report are included below.

- ***A description of the process the Department of Defense is using to ensure energy supportability has been analyzed and considered during the requirements development and acquisition process.***

*The role of energy in the Department's requirements and acquisition process is guided by the Energy Key Performance Parameter (KPP) in the Joint Capabilities Integration and Development System (JCIDS) Manual and in DoD Instruction (DoDI) 5000.02, Operation of the Defense Acquisition System. The JCIDS Manual's Energy KPP was recently updated with specific review criteria to aid the Military Departments in obtaining an endorsement of a platform's ESA by the Joint Staff. The Department also recently updated DoDI 5000.02, directing the Military Departments to consider possible tradeoffs among life-cycle cost, schedule, and mandatory KPPs for each alternative considered during an Analysis of Alternatives. In order to comply with DoDI 5000.02, the Military Departments must conduct the ESA and develop the Energy KPP earlier in the process. ESA facilitates the identification of energy shortfalls and informs decisions on risk mitigation, such as changes in system design, the Concept of Operations (CONOPS), force structure, and procuring additional logistics.*

- ***An assessment of how well the Services are implementing the ESA.***

*The Services are making progress toward full implementation of the ESA requirement. For example, the Marine Corps has conducted an energy extension of Expeditionary Warrior (Title 10 wargame), Operational Reach 2015 (OR15) to provide the Joint Requirements Oversight Council-directed ESA for Amphibious Combat Vehicle 1.1, Joint Light Tactical Vehicle, CH-53K*

helicopter, Landing Helicopter Assault (LHA)(R), and LX(R) amphibious assault ship replacement. In addition, the Air Force will conduct ESA on the KC-46 aerial tanker and the F-35 fighter aircraft Follow-on Development variant. The ESA informs system attributes for developmental and pre-production systems. For systems that are nearing production or post production, the ESA ensures that logistics risks have been accounted for by the Services and, if necessary, mitigation strategies (such as changing the CONOPS; tactics, techniques, and procedures; or force structure/composition for a unit of maneuver) are identified.

- **An assessment of how well the Services have incorporated energy into their planning processes.**

The Services also are making progress incorporating energy logistics into DoD planning by utilizing wargames and modeling and simulation (M&S) tools. The Services use wargames to inform concept development, identify the ability of our adversaries to interdict energy logistics assets, provide insight into planning, and identify possible capability shortfalls. Wargames with energy play include the OR15 wargame, the 2013 Navy Logistics Centric Game, the 2014 Defense Logistics Agency bulk fuel wargame, the Air Force's 2014 Unified Engagement, and the 2015 Air Force Futures Games. During and after wargames, the Military Departments use M&S tools to analyze the operational effects of energy supply and demand. The tools include the Air Force's "4G" Wargaming Tool and the Marine Corps Power and Energy Conceptual Model Marine Air-Ground Task Force Power and Energy Model. In addition to these wargaming tools, the Army's Operational Energy (OE) Analysis Task Force is developing a set of M&S tools that capture energy related data to analyze impacts to mission effectiveness and sustainment. Going forward, the Department will continue to work to explore and expand the consideration of OE risks and opportunities throughout the planning process.

- **An assessment of the extent to which the energy security requirements of DoD are enhanced by incorporation of section 332 in the requirement and acquisition processes.**

As evidenced in the examples above, the Department continues to develop the methodologies necessary to incorporate energy into its planning, requirements development, and acquisition processes. Energy security requirements of the Department are enhanced by the incorporation of section 332. As the processes and methodologies become more familiar to the Military Departments, energy supportability of our operational force will continue to improve, along with our understanding of section 332's role in that process.

- **Recommendations for improvements to section 332 that would enhance energy security and capability.**

The Department will continue to assess the operational effects of energy in the battlespace. With increasingly sophisticated wargames and M&S tools, the Department intends to conduct ESA as early as possible in its requirements and acquisition processes, ensuring that the energy needed to

*perform critical missions is available around the globe. We have no recommendations for improvements to section 332 at this time.*

The Department has gained substantial experience using Energy Supportability Analyses to inform the Energy Key Performance Parameter associated with specific military systems. As we continue to assess platforms and equipment, energy supportability analyses may not only identify the need for changes in the design or energy use of a system, but also inform changes in CONOPS, force structure, and/or logistics capacity. Together, we will continue to enhance the role of operational energy in increasing warfighting capability and decreasing warfighter risk.

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