

An Overview of the Fully Burdened Cost of Energy (FBCE)

By Alan Bohnwagner | December 11, 2013

Editor's Note: This is the second part of a two part series on addressing fuel logistics in DoD's requirements and acquisition processes.

Earlier this week, the blog featured an overview of the Energy KPP, as required by the Duncan Hunter National Defense Authorization Act (NDAA) for Fiscal Year 2009. The FY09 NDAA also introduced the concept of the Fully Burdened Cost of Fuel. [Section 332, paragraph \(g\)](#) defines the Fully Burdened Cost of Fuel as "...the commodity price for fuel plus the total cost of all personnel and assets required to move and, when necessary, protect the fuel from the point at which the fuel is received from the commercial supplier to the point of use."



FBCE Price Elements

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Element #	Price Element	Burden Description
1	Fuel Commodity Price	DLA Energy capitalized cost to purchase, transport, store, and manage fuel to the Point of Sale at the edge of the scenario battlespace.
2	Tactical Delivery Assets Burden*	Includes all of the following:
	Fuel Delivery O&S Price	Per gallon price of operating service-owned fuel delivery assets including the cost of military and civilian personnel dedicated to the fuel mission.
	Depreciation Price of Fuel Delivery Assets	Measures the decline in value of fuel delivery assets with finite service lives using straight-line depreciation over total service life.
	Infrastructure, environmental, and other miscellaneous costs over/above and distinct from the DLA Energy capitalized cost of fuel	Per gallon price of fuel infrastructure, regulatory compliance, tactical terminal operations, and other expenses as appropriate.
3	Security/Force Protection Assets Burden*	Per gallon price associated with delivering fuel, such as route clearance, convoy escort and force protection. Includes the manpower, O&S, and asset depreciation costs of the force protection.

* These prices vary by Service, delivery method (ground, sea, air) and delivery location.

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Calculating the Fully Burdened Cost of Energy involves three price elements including the commodity price of the energy used, the cost to deliver the fuel, and the cost to protect the fuel delivery

The Act also directed that "The Secretary of Defense shall require that the life-cycle cost analysis for new capabilities include the fully burdened cost of fuel during analysis of alternatives and evaluation of alternatives and acquisition program design trades."

Since 2009, the Department of Defense has expanded the concept beyond just fuel to include all energy

and electrical power used in operations. Typically, electrical power on the battlefield comes from one of three sources: fuel-powered generators, batteries (that may be rechargeable), or host-nation power grid. Ensuring these energy sources entails risk and cost for our forces, which is why we've incorporated them into this framework. Accordingly, we've renamed the concept the Fully Burdened Cost of Energy (FBCE).

FBCE isn't a static dollar figure. Instead, FBCE is highly dependent on the **scenario, time, and location**. For example, conducting major combat operations typically consumes more fuel than counterinsurgency operations. In addition, seasonal impacts will vary the amount of energy used to heat or cool buildings; also, seasonal impacts can require the use of more expensive delivery systems. Finally, the **delivery location** can add to the overall costs; locations closer to the source of the fuel typically have lower delivery costs.

The intent of FBCE is to capture the total cost of delivering energy to the battlefield. Often, the actual cost of the fuel is only a fraction of that total cost. Numerous indirect costs can drive up the cost of delivering fuel to the battlefield, beginning with the cost of **the transportation assets to distribute the fuel**, such as Air Force tankers, Navy oilers, and Army and Marine Corps fuel trucks. Naturally there is also the cost of the people who operate these military energy delivery systems. In some cases, delivery is contracted out, so that cost needs to be added to the cost of the fuel.

On the battlefield, fuel is a lucrative target for our enemies, so our delivery systems are often escorted by **security personnel** and vehicles to ensure delivery of this valuable commodity. The cost of those people, vehicles, and the fuel they consume is also added into the equation.

Occasionally, extraordinary measures may be needed to get fuel to the warfighter, such as through air lift or air drops. Again, these costs (aircraft, personnel and, if required, security personnel and aircraft) need to be added to the cost of the fuel.

Energy, particularly fuel, is often moved in stages across the battlefield (**location matters**). Each stage adds its "burden" to the original cost of the fuel. When the fuel reaches its final destination, the final calculation determines the FBCE.

Recently I presented a briefing to the Defense Acquisition University on calculating FBCE. The Power Point slide above and those areas bolded in this article capture the highlights of FBCE calculation. In addition, [Section 3.1.6 of the Defense Acquisition Guidebook](#), Fully Burdened Cost of Delivered Energy, provides additional information.

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