



Applying the Army Fully Burdened Cost of Fuel Methodology to Analyses of Alternatives



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Bottom Line Up Front

- This methodology is intended specifically for Acquisition System Analyses of Alternatives (AoAs)
- Question this methodology is intended to answer: What is the Fully Burdened Cost of Fuel for a specific acquisition system?
- Types of questions this methodology is not intended to answer:
 - What is the Fully Burdened Cost of Fuel of a unit currently operating in a wartime theater?
 - What are the Fully Burdened Cost of Fuel implications of moving a unit from one theater to another?



Fully Burdened Cost of Fuel: What It Is and Why We Are Doing It

- Fully Burdened Cost of Fuel (FBCF) Defined: The Defense Energy Support Center (DESC) standard price for fuel plus apportioned costs of everything needed to get fuel to a system
- Why We Are Doing It:
 - Our large logistical tails in Iraq and Afghanistan are being attacked by the enemy
 - Fuel Inefficiency is thought to be one reason our logistical tails are so large
 - Deputy Under Secretary of Defense for Acquisition, Technology, and Logistics (DUSD(AT&L)) issued a Policy Memorandum, 10 April 2007, calling for FBCF inclusion in all acquisition trade analyses to improve energy efficiency and cost effectiveness
 - Office of Secretary of Defense Cost Assessment and Program Evaluation (OSD CAPE) Office conducted a pilot FBCF study in 2007 on the Joint Light Tactical Vehicle (JLTV) system
 - FY2009 National Defense Authorization Act calls for incorporation of Energy Efficiency Requirements into Key Performance Parameters for fuel consuming systems

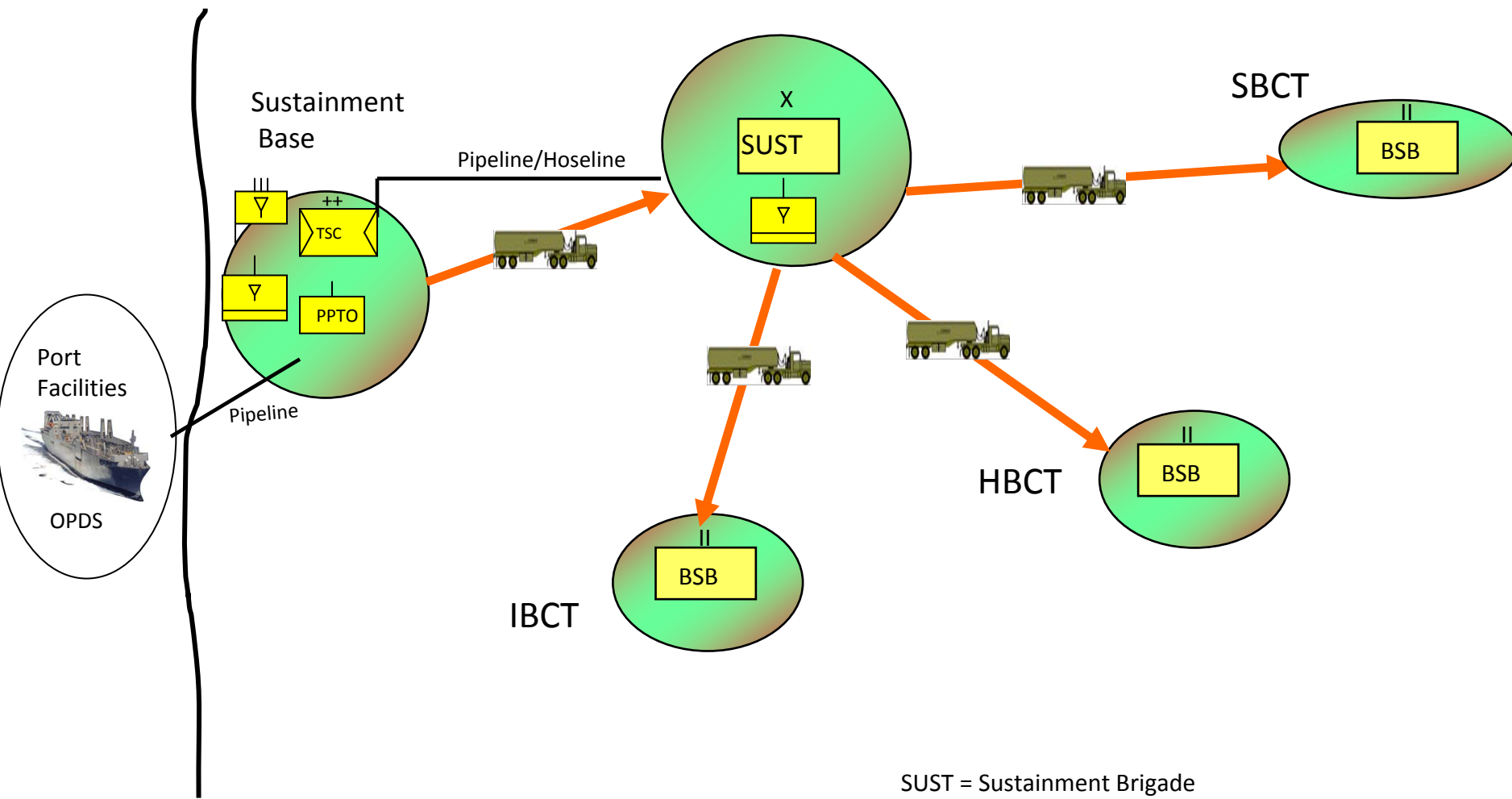


OSD CAPE Seven Step FBCF Methodology

Step	Burden Element
1	DESC Commodity Cost of Fuel
2	Primary Fuel Delivery Asset O&S Cost
3	Depreciation Cost of Primary Fuel Delivery Assets
4	Direct Fuel Infrastructure O&S and Recapitalization Cost
5	Indirect Fuel Infrastructure O&S Cost
6	Environmental Cost
7	Other Costs (i.e. Force Protection)



FBCF Defined From an Army Perspective



TSC = Theater Support Command
 PPTO = Petroleum Pipeline Terminal Operating Battalion
 OPDS = Offshore Petroleum Discharge System

SUST = Sustainment Brigade
 SBCT = Stryker Brigade Combat Team
 HBCT = Heavy Brigade Combat Team
 IBCT = Infantry Brigade Combat Team
 BSB = Brigade Support Battalion



Defense Acquisition Guidebook (DAG) Guidance

- DAG guidance requires all future trade-off analyses for acquisition systems to include FBCF estimates
- For all future AoAs, cost analysts are being required to:
 - Develop both a wartime and peacetime estimate
 - Allocate fuel down to specific systems



FBCF Challenges

- Since this is a relatively new requirement that has not been implemented to date, incorporating FBCF presents challenges:
 - How does an analyst calculate a peacetime FBCF estimate?
 - How does an analyst properly apportion fuel delivery and force protection assets to a specific system?
 - Where does an analyst start when they are required to produce a wartime FBCF estimate?
 - How can FBCF results be displayed so that they will be meaningful to decision makers?



Peacetime FBCF Calculations for AoAs

- Following the OSD CAPE 7 Step Methodology:
 - DESC price
 - Calculate Operation and Support (O&S) and Depreciation Costs for fuel truck convoys and associated units (Brigade Support Battalions and Sustainment Brigades)
 - Calculate Direct and Indirect Fuel Infrastructure costs of fuel infrastructure on military posts that are not operated by DESC
 - Environmental Costs
 - Force Protection Costs are not included in peacetime FBCF calculations
- Properly allocate fuel to specific acquisition systems by analyzing fuel usage of various Brigade Combat Teams:
 - Stryker Brigade Combat Team (SBCT)
 - Heavy Brigade Combat Team (HBCT)
 - Infantry Brigade Combat Team (IBCT)
 - Aviation Brigade

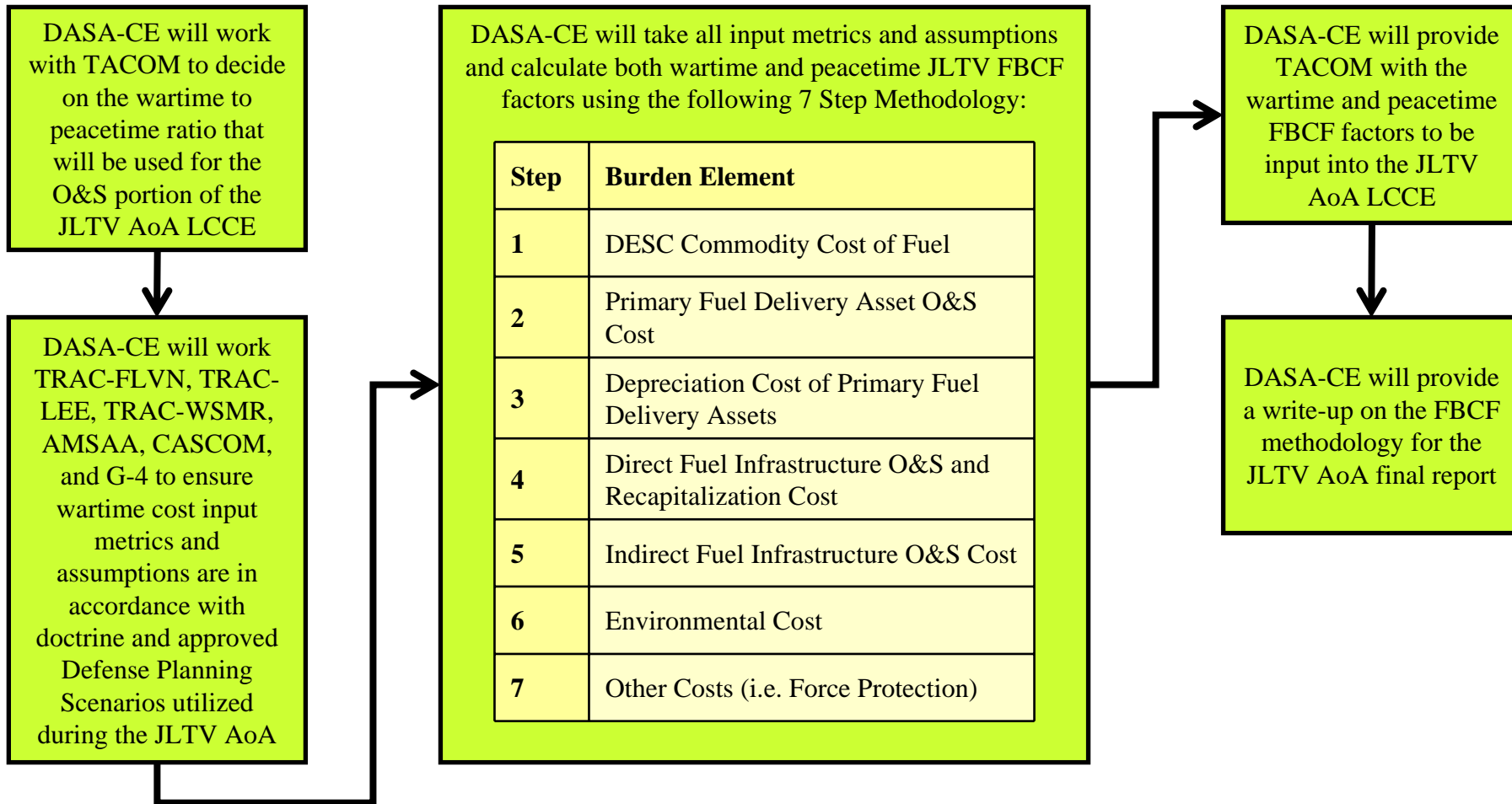


Wartime FBCF Calculations for AoAs: Where to Start

- Start with the Effectiveness Scenario that is being run for the AoA and “cost the scenario”
- Following the OSD CAPE 7 Step Methodology:
 - DESC price
 - Calculate Operation and Support (O&S) and Depreciation Costs for fuel truck convoys and associated units (Brigade Support Battalions Sustainment Brigades, and Theater Support Commands) and include attrition
 - Calculate Direct and Indirect Fuel Infrastructure costs of fuel infrastructure on Forward Operating Bases (FOBs)
 - Environmental Costs
 - Calculate Force Protection Costs of armored vehicles and any attack aircraft that protect the convoys
- Fuel allocation is conducted using the same methodology used by the peacetime FBCF calculations



Process for Calculating FBCF in AoAs: Joint Light Tactical Vehicle (JLTV) Example





Displaying FBCF Results to Decision Makers

- Results are envisioned to be presented as follows:

Course of Action (COA)	Wartime FBCF Cost Per Gallon (BY10\$)	Peacetime FBCF Cost Per Gallon (BY10\$)
Base Case	\$8.40/Gallon	\$5.80/Gallon
COA 1	\$8.65/Gallon	\$6.15/Gallon
COA 2	\$9.20/Gallon	\$7.55/Gallon
COA 3	\$7.75/Gallon	\$5.35/Gallon

Course of Action (COA)	Total Wartime BCT FBCF Cost Per Year (BY10\$K)	Total Peacetime BCT FBCF Cost Per Year (BY10\$K)
Base Case	\$280.5K	\$167.9K
COA 1	\$302.3K	\$192.1K
COA 2	\$421.7K	\$265.8K
COA 3	\$248.4K	\$129.6K

- Total Lifecycle FBCF POL Costs in the bottom chart are only the costs that would fall under CES Element 5.05 POL after the fuel cost has been burdened
- Note: All costs are notional



Path Ahead

- FBCF will be included in a few near-term AoAs:
 - Ground Combat Vehicle (GCV) AoA
 - Joint Light Tactical Vehicle (JLTV) AoA
 - Armed Aerial Scout (AAS) AoA
- Fully Burdened Cost of Alternate Forms of Energy