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## Winning the Oil Endgame Military Fact Sheet

The Pentagon is probably the world's largest oil buyer and energy user. It uses five billion gallons of fuel a year—enough drive every U.S. car coast-to-coast every four years.

### ARMY

- Every tank in the U.S. armed forces is trailed by unarmored 5,000-gallon tanker trucks, because an *Abrams* tank gets only about half a mile per gallon. Its efficiency is halved by idling its huge gas turbine most of the time, at less than one percent efficiency, to run small electrical loads when the tank is stationary. That halved efficiency delayed the invasion of Iraq by more than a month just to stockpile the extra fuel required.
- A typical armored division may use 20–40 times as many daily tons of fuel as it does of munitions—approximately 600,000 gallons per day.
- Of the Army's top-ten battlefield fuel guzzlers, only two are combat vehicles. *Abrams* tanks and *Apache* helicopters are ranked fifth and tenth respectively. Three of the four least fuel-efficient military vehicles are trucks, some to haul fuel—shades of Civil War logistics, when mule teams hauled wagons of supplies, half of whose tonnage was feed for the mules.
- More than half the fuel used by the Army on the battlefield never reaches front-line combat units, but is consumed by combat support units.
- About half the Pentagon's personnel and a third of its budget is for moving things, and two-thirds of the tons moved are fuel.
- The Army directly uses approximately \$0.2 billion worth of fuel each year, but pays approximately \$3.2 billion a year to maintain 20,000 active-duty and 40,000 reserve personnel to move it, each respectively costing \$100,000 and \$30,000 per year.
- An estimated science and technology investment of approximately \$2 billion by 2025 to save military fuel would save approximately \$1.2 billion annually.
- Army Research has proposed a seven-to-ten-ton tank that uses about 86 percent less fuel, yet is considered to be as lethal as the current 68-ton models. The new models are just as safe given their active protection systems.
- The Army believes redesigned tanks could decrease the force by 20,000 personnel—a whole division plus their equipment and logistical pyramid—usually required to deliver fuel to and within the theater. The result: Savings of up to \$3 billion annually for theater forces.

- When 30 *Abrams* tanks were set against 30 lightweight, agile Baja dunebuggies armed with precision-guided munitions, the result was 27 dead tanks and 3 dead dunebuggies.
- The Department of Defense's official *Army After Next* (AAN) goals for the year 2020 include 75 percent battlefield energy savings, with feasibility shown by 2012. In 2000, Army officials deemed the goal achievable for combat systems.

## AIR FORCE

- The U.S. Air Force spent 84 percent of its fuel delivery cost on the six percent of its gallons that were delivered in midair. Each delivered gallon costs nearly \$18, but the planes that use it are designed as if it cost \$1 and the delivery were free.
- B-52H bombers, intended to fly through the year 2037, have low-bypass engines using 1960s technology. By 2010, they could be retrofitted to today's commercial engines and use 33 percent less fuel to fly 46 percent farther.
- A Defense Science Board Panel unanimously recommended promptly re-engineering the B-52H fleet to save about \$6–9 billion net.
- In fiscal year 1999, the Air Force paid \$1.8 billion for two billion gallons of jet fuel, but delivering that fuel into the aircraft added another \$2.6 billion, so the actual *delivered* fuel bill was \$4.4 billion.
- In 2001, U.S. warplanes over Iraq were fueled partly with oil from Iraq, then the nation's six-largest oil supplier.

## NAVY

- The Navy leads all Services in institutionalizing energy savings, but has still captured only a fraction of the savings available.
- Naval energy savings of 26 percent from 1985 to 2002 included such innovations as the installation of fuel-flow gauges and performance curves to optimize cruise speed, and shutting off unneeded engines. As a result, the Navy saved a half-billion dollars in fuel costs.
- As an incentive, Pacific Fleet skippers are allowed to keep, for their own ships' needs, up to 40 percent of the money they save on fuel.
- In fiscal year 2001 alone, the Navy saved one million barrels worth \$42 million—enough fuel to support 38,000 steaming hours, and the equivalent of getting free fuel for 19 destroyers.
- In 1999–2000, Rocky Mountain Institute (RMI) engineers were invited to examine loads on a typical surface combatant in the top efficiency quartile of her class. *USS Princeton*, a billion-dollar *Aegis* cruiser, burned approximately \$6 million worth of oil a year, a third to a half of which was used to generate electricity. RMI engineers found nearly \$1 million per year in retrofittable hotel-load and operational savings in such uses as pumps, fans, chillers and lights. Such a “savings per hull” potential extrapolates to approximately \$0.3 billion annually for the entire Navy while improving warfighting capability.