

FUEL SUPPLY FOR MILITARY MISSIONS AND OPERATIONS – IN SEARCH FOR SOLUTIONS

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The International Security Assistance Force (ISAF) uses ca. 1.8 million gallons (6.8 million litres) of fuel in Afghanistan on a daily basis. 99 per cent of the fuel is delivered by trucks. In 2011, Pakistan closed the border with Afghanistan three times, which held down 4000 trucks at the boarder for almost one month. At least once in 23 days, fuel supplying convoys suffered from attacks. As a result, on 9 February, the NATO Allied Command Transformation (ACT) called a meeting of representatives of the member countries, the NATO Headquarters and Commands, as well as specialists from various disciplines working with the Alliance, to discuss the possible solution for the problem that would ensure reliable and undisrupted supply and reduce consumption of costly fossil fuel by replacing it with alternative resources etc.

Supply of resources in Afghanistan – the reality

Issues related to fuel supply during international missions and operations are, if not the primary, then the second important issues after human resources and provision of weapons and ammunition. Shortage of fuel would halt any movement by ground or air, disrupt power supply. This, in turn, would instantaneously menace functioning of communication facilities, military camps, medical support, catering, heating during winter, air conditioning during summer, hygiene of soldiers and other less visible, yet crucial, functions. This is why standard military procedures (logistics-related) are exercised to supply fuel to strategic objects, such as Kabul International Airport (KAIA) that performs multiple military and civil activities. This means that operations are highly dependent on oil supply, issuance, accounting flow management, aircraft fuelling procedures, which are accurately set, monitored and constantly improved.

Fuel provision to Afghanistan deployed troops for NATO missions is ensured by several local and foreign companies. The choice of fuel supplying companies is largely dependent on impeccable reputation and experience – price is not the determining factor. Though the business implies high risk, competition is fierce because of high and secured profit. Among the largest local companies are AFG CO, DK Group Afghanistan, Red Moon Logistics & Supplies, Key Brand Logistics, Akrami Brothers Trading Co, Golden Eagle Logistics, Equipment and Service Company, and foreign companies KBR, NCS, SUPREME. For example, in Kabul region, traditional rivals to supply fuel are NCS and SUPREME. Currently, NCS (*Nord Camp Supply*) has been chosen due to more favourable conditions and higher reliability.

NCS is also the company that supplies fuel to the Lithuanian Reconstruction team (PRT) in Ghor province – the company is paid about USD 3 m for the fuel annually (given the size of our troops, intensity of operations, facilities, equipment and weapons, we could only speculate the actual sums spent on fuel in the southern provinces of Afghanistan, where the scope of operations is several times larger). In terms of possibility for supply diversification and price reduction, it must be mentioned that agreements with fuel suppliers are usually signed by the NATO Allied Joint Force Command (JFC) (though certain exceptions exist). For example, agreement with NCS for fuel supply to Kabul airport and several other objects in the capital (*Bulk Fuel Agreement for KAIA BFI, AFG IN KABUL AO*) has been signed by JFC-B Command in Brunssum (Netherlands) and is governed by the Dutch law. In this case, the ISAF controls only implementation of the agreement. The ISAF submits forecasts of fuel demand for the following 3 months on a monthly basis, and the contractor must be ready to increase or

reduce annual fuel demands by 50% if needed. Ordered fuel must be delivered within one week after the order, which may vary depending on the distance and meteorological conditions. Within one week after delivery invoices with 30 day payment term are issued. Penalty for unreasonable delay of payment is 1 % of the value of delivered fuel. Pursuant to the agreement, the largest amounts of fuel are delivered to regional command airport (*APOD RC center*); however, fuel may be delivered directly to other provinces if needed (e.g. in case of Lithuania fuel is delivered directly to the PRT deployed in Ghor province).

One of the major prerequisites for undisrupted supply of required amounts of fuel is possibility to receive fuel from several reliable suppliers. The buyer (the JFC-B or the ISAF) must be able to purchase fuel in extra cases from companies other than the major supplier (e.g. NCS). Due to this requirement, the agreement with NCS provides that in extra cases the company may authorize a known, verified and reliable subcontractor to supply the fuel. In standard situations, subcontractors of NCS (usually, Afghan logistics companies) perform other functions – transport by ground, store fuel, still under the responsibility of the main contractor. In fact, the condition for secure fuel supply in Afghanistan has been fully complied with and there hasn't been a situation where NCS would be replaced with another company or a subcontractor.

Fuel supply and distribution to missions of different countries and various types of forces at the site of operations must be simplified, and “single fuel” concept is applied here. The concept means that all military units are provided with the same aviation fuel F-34 (or F-35), but with different additives for the use with different mechanisms. For example, fuel F-34 for air transport is turned into F-54 by adding certain additives and can be used for diesel engines. Military units usually receive ready-to-use fuel with pre-added additives; however, they buy extra additives from the supplier to be able to add them to use the fuel that has become unusable due to certain temperatures or additive settlement (laboratory tests have shown that fuel characteristics eventually decline below the norms) (this process is called fuel recirculation).

Another prerequisite for secure fuels supply is the capability of ISAF to monitor and carry out technical control over fuel supply, store the reserve and analyse lessons learnt. For this reason the term of agreement with a supplier is 2 years with subsequent extension for another 12 months if not terminated 3 months in advance. After the three-year term, the agreement and revised and, if needed, provisions are amended. Pursuant to the contract, NCS has established a laboratory in Kabul International Airport operated by technicians hired by the contractor. After the fuel has been delivered, verified and accepted into storage containers, responsibility for the fuel passes to the buyer. However, if the fuel cannot be accepted due to non-compliance with quality requirements, it shall be immediately replaced with a new consignment. Pursuant to the agreement, the buyer is entitled to analyse the fuel at any stage of supply. Moreover, in order to avoid fuel shortage, there is constant mandatory reserve of F-34 and F-54 fuel maintained in Kabul Airport measured in DOS (days of supply). The reserve is expected to ensure undisrupted operations for about 1 to 2 months without any logistic replenishment. The period is sufficient to restore provision of fuel from other sources. This means that undisrupted fuel supply depends on fairly flexible agreements and mechanisms for remuneration of loss. Naturally, such conditions render higher prices on fuel.

In terms of cost of fuel supply to a mission in Afghanistan, it must be noted that fuel as any other products for the ISAF, enters Afghanistan tariff-free according to agreement with the Government (still, the agreement provides that the cost of any unexpected additional external duties shall be included in the price on fuel). Contractors purchase fuel at difference prices from Pakistan, countries of the CIS and the Persian Gulf.

Contractor's profit consists of the purchasing price plus the agreed fee depending on the purchased amount. For example, a contractor may receive additional fee of USD 1 from each 50 kg of fuel. In case of war in Pakistan or the Persian Gulf, a contractor may request to revise the prices and administrative fee, while other *force major* circumstances are the matter of separate negotiations. If a contractor has incurred any losses or has lost fuel during delivery as a result of terrorist attacks or robbery and is able to prove the reason of such loss, the buyer shall cover the losses by including them into the price of future deliveries. No remuneration is paid in case of robbery.



Source: <http://www.phibetaiota.net/2012/01/chuck-spinny-log-of-war/>

Prospects for introduction of technological innovations in the military

Technological innovations are generally considered to primarily introduced and catch on in the military as this was in case of computers, Internet, logistics and personnel management systems, etc. However, this is not quite true in terms of energy sector, for example, in the year 2005, hurricane Katrina cut off power supply to several U.S. military bases, let alone rescue centres that were the ones in need for rescue. Despite constant improvement of military technologies, success of expeditionary operations of modern forces is still dependent on the provision of quality and, usually, conventional fuel. In other words, capabilities of military forces to implement tasks depend directly on availability of fuel to sustain at the site of operations, ensure operation of the base in complicated conditions, survive in unidentified circumstances, etc., just as it used to be seventy years ago or even earlier. However, it must be noted that during the WWII, one U.S. soldier consumed the average of 1.67 gallons (6.3 litres) of fuel per day, while recently one U.S. soldier in Iraq consumed 27.3 gallons (103 litres) of fuel on a daily basis. Moreover, CNN reported that 10% of U.S. soldiers in Iraq were killed or injured during the tasks of safeguarding fuel convoys. Though changing the habits of consumption of resources by the military in general, troops or individual soldiers would be challenging, lucky enough, current technological solutions allow taking more active actions.

According to calculations by PikeResearch, the U.S. Department of Defence spends about USD 20 b to satisfy its energy demands (75% of the sum are expenses on fuel, 25% – heating or air conditioning of buildings). According to estimations by Defence news, increase of price on oil by USD 1 increases Pentagon's annual expenses by USD 130 m. Hence, it is obvious that troops, as well as civic organizations, are forced to look for solutions without any positive forecasts of cheaper oil. The U.S. Military took actions in such context back in 2008 by publishing the statement about capabilities, or rather incapability, of the Department of Defence to cope with disruptions in energy

Thousands of NATO trucks stranded as Pakistan closed the border with Afghanistan to NATO forces.

supply. In the year 2010, the U.S. Army published a White Paper called “Power and Energy Strategy”. In May 2011, the Pentagon published its operational energy strategy called “Energy for the Warfighter: Operational Energy Strategy”, while September 2011 was marked with the news on establishment of the Energy Initiatives Task Force. The latter is supposed to evaluate the potential for renewable energy sources in the military (including remote expeditionary forces), as well as possible suppliers of technologies, and to propose optimal ways of diversification of fossil fuel. It is anticipated that after the most effective way to use the sources is found, the Department of Defence might be ready to spend USD 10 b on renewable energy sources in 2030 (to compare, China’s army plans to spend about USD 4.1 b on renewable energy sources in 2030). Renewable energy sources would be used primarily for maintenance of infrastructure (bases), while a part of technologies must be mobile (such as mobile solar batteries) to be used by soldiers and bio fuel to be used for ground, air and maritime transport.

The 2010 White Paper noted that there was no “silver bullet” to ensure energy security. The idea implied that positive changes would be brought by an array of solutions, systematic approach towards the problem rather than a single solution. Progress in this area is also characterised by several criteria: undisrupted, secure, reliable, flexible supply of energy is crucial to the military, fuel supply system must be integrated into common logistic chain, while new technologies must be easy to adopt and apply. Within this context, the U.S. Department of Defence plans to pay the most of its attention in the medium term on individual solar power-driven devices used by the soldiers, smart networks in military bases and use of bio fuel for military equipment (in particular, the fleet).

Nonetheless, as the participants of workshop of 9 February at the NATO Allied Command Transformation in Norfolk (the U.S.) have noted, while using substitutes for conventional fuel or even so called “single” conventional fuel, another significant issue is interoperability. In other words, national efforts to ensure undisrupted and less costly supply of fuel and, at the same time, increase capabilities of the soldiers to “travel further, sustain longer, consume less” should not create any additional obstacles to the allies. Lessons learnt in Afghanistan require coordination of actions, formalization and institutionalization of decisions by turning NATO structures into the major venue for coordination of such decisions. Within this context, the NATO Center of Excellence for Energy Security to be opened in Lithuania could become the institution that would accumulate lessons learnt by the member countries and raise the proposed national solutions to a higher level of the international organization (NATO).