

The National Defense Council Foundation

Issue Alert

THE ROLE OF RENEWABLE ENERGY AND ENERGY EFFICIENCY IN NATIONAL SECURITY

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Presentation

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I'm sure that some of you may be wondering why an institution such as ours, that is primarily concerned with issues related to national defense should be concerned with topics like renewable energy and energy efficiency.

The answer is simple, really.

Energy is a defense issue, and has been for more than a century.

Indeed, over the past seven decades energy has been a *causus belli* on at least five and possibly six occasions. In case you have doubts, let me list them.

The Japanese decision to attack Pearl Harbor was a direct consequence of the US embargo on oil sales to that nation. Moreover, the specific design and timing of the attack was dictated by Japanese General Staff estimates of how long their oil supplies would last.

The invasion of Poland by Russia and Germany during World War II was aimed at gaining control over that country's oil production.

The Iran-Iraq war over the Shatt al Arab region during the 1980s was sparked by Saddam Hussein's desire to gain control of the area's rich oil production.

The invasion of Kuwait, again, was an attempt to gain control over that nation's oil.

The Iraqi suppression of Kurds in its northern region was again aimed at controlling the oil deposits there.

Finally, I would also suggest that the Argentinean attempt to gain control of the Falkland Islands, and the British response to that invasion had a lot more to do with the suspected presence of huge offshore oil deposits than the presence of 300,000 sheep – British proclivities notwithstanding.

In a world where the ability of oil production to keep pace with rising demand is increasingly in doubt and the competition for oil increasingly intense, the potential for yet another oil-inspired conflict grows greater every day.

This fact alone is enough to make the development of secure, practical alternatives to conventional petroleum a national security imperative. But that is not the only defense-related concern that sparks our interest.

Another equally important consideration is the need to find new ways to provide energy to our armed forces in a radically transformed global threat environment. Our recent experience in Iraq illustrates this point.

In the Opening Days of Operation Iraqi Freedom, Coalition forces were faced with a dilemma. Foreclosed from moving forces into Northern Iraq through Turkey by that government's March 1, 2003 decision to deny U.S. use of its territory in the conflict, another avenue of insertion had to be found. Since Iraq and Syria were the other two nations bordering the region, the only option left was an air assault.

On March 26, 2003, 15 C-17 Globemaster transport planes carried 1,000 troops of the 173rd Airborne Brigade's Sky Soldiers to Northern Iraq for Operation Northern Delay, the 29th combat jump in U.S. history. Their target: a Kurdish-controlled airfield near Bashur, Iraq. Their objective: secure a landing zone for the C-130 transports that would bring in additional supplies. Their mission: win control of the invaluable oil fields eighty miles away.

But the insertion of troops was not the only complication the Turkish Parliament's decision to deny access to its territory as a staging area created. An even greater problem was how to ensure sufficient resupply without access to a land route – especially resupply of critical fuel. Although the problem was ultimately resolved when Turkey relented, it was illustrative the new reality.

Indeed, as I considered the obstacles that the coalition faced in Northern Iraq, I was struck by the fact that they embodied the circumstances our forces will face increasingly in the future due to the radical transformation of the global threat environment.

It is a situation much on the minds of military planners as the Department of Defense goes through the process of Force Transformation.

FM 100-5, the U.S. Army's Statement of Doctrine puts the problem this way:

“The global realities of today are in a period of significant change. Army forces may find themselves called upon to fight under conditions of rapid force projection, that can build to major sustained operations in war and peace or that can terminate quickly only to lead to other commitments elsewhere.”

To meet this challenge we must maintain the capability to move troops where and when we need to – in particular, given our recent history, to the Persian Gulf.

It is really nothing more than what the famed Civil War cavalry officer Nathan Bedford Forrest described more than a hundred years ago as “Getting there first with the most.” Today, however, getting there first with the most, as Jackson would have put it means oil, and lots of it.

Oil to fuel the aircraft to take troops and materiel to the theater of operations. Oil to power the armor forces that overwhelm an enemy. Oil for the air support that provides an umbrella of safety under which our troops can maneuver.

To illustrate, a contemporary U.S. Army Heavy Armored Division comprised of 17,500 soldiers uses roughly twice as much fuel on a daily basis as two World War II field armies.

During Operation Desert Storm, this meant that the 582,000 U.S. forces deployed to the Middle East consumed over 450,000 barrels of oil per day – more than twice as much as the entire 2 million-man Allied Expeditionary Force that liberated Europe in World War II.

Moreover, the military’s oil requirements continue to grow.

During Operation Iraqi Freedom, the petroleum requirement per soldier rose by almost 20% over the Desert Storm requirement.

As Defense Transformation proceeds, the problem will become even more critical.

The new Stryker Brigade Combat Teams that are expected to provide a template for the future are a case in point.

Fully integrated, modular and self-contained, the Stryker Brigade Combat Teams are designed to be deployed on short notice and to operate independently. They are also

designed to be highly mobile with a range of 300 miles at speeds of up to 60 miles per hour.

But to perform their anticipated mission, the new Brigades will require fuel, and lots of it. Indeed, the ten-day fuel load for just the Infantry Battalion of a Stryker Brigade will amount to over 160,000 gallons, and for the full Brigade could approach 500,000 gallons.

The question is where will the oil to make that fuel come from?

It does appear that traditional sources are the answer.

According to the Energy Information Administration, the total surge oil production capacity in the world comes to 1,550,000 barrels, of which 1,500,000 is attributed to Saudi Arabia.

Now it is true that the Saudis claim they will increase their production by 3 million barrels per day by the year 2010. But world demand is expected to increase by 3.5 million barrels by then.

So, in essence the world will have to keep running faster just to stay in place.

For the military the problem is even more critical – especially if it has to compete with civilian sector requirements.

Recognizing this fact, the Department of Defense has mounted an impressive effort through the Tank-automotive and Armor Command, or TACOM, to develop new technologies that will address the challenges of the 21st Century threat environment.

For example, TACOM's National Automotive Center, or NAC as it is called, has instituted the Commercially Based Tactical Truck, or COMBATT program aimed at developing military vehicles from the architecture of existing commercial trucks. Under

this program both Dodge and Chevrolet have built hybrid-electric prototype versions of standard military trucks.

The NAC has also established the IMPACT program, to develop lighter, corrosion-resistant materials for both military and commercial vehicles. Most important, because of the cooperative nature of the program, the advances developed for military vehicles will also be available for use in civilian vehicles.

But these and other programs to develop new, more efficient technologies are not enough by themselves. Moreover, it could be years, or even decades before they can have a meaningful impact.

So what can be done to have a more immediate impact on domestic petroleum use?

One answer is to take full advantage of the potential contribution from renewable energy and energy efficiency.

For example we could establish a national ethanol standard.

At present, ALL alternative fuel use accounts for around 2.8% of domestic motor fuel consumption.

But this statistic is deceiving, because 90% of alternative fuel use is in the form of oxygenates blended with gasoline – this despite the fact that any automobile can use fuel with an alcohol content of up to 10% without experiencing any operational problems or invalidating the manufacturer's warranty. If we went to a national ethanol standard, over 680,000 barrels per day of petroleum requirements could be eliminated.

A second area where renewable fuels and efficiency could make an immediate contribution is home heating.

Today, there are almost eight million homes in the United States, predominantly in the Northeast and Mid-Atlantic regions, that heat with oil. On average the United States uses 455,000 barrels of distillate fuel per day for home heating, with winter peaks ranging as high as 720,000 barrels per day in the Northeast. Worse, the overwhelming majority of that oil comes from the Middle East.

But this need not be the case. A variety of alternatives exist.

Biodiesel is not only a ready substitute, but is both renewable and environmentally superior. In addition, there are high-efficiency propane and natural gas heating units which offer the opportunity to use cleaner-burning, domestically based fuels to heat homes. Geothermal heat pumps, while expensive to install, offers enormous savings over time that more than offset the initial outlay. In fact, using geothermal heat pumps can reduce heating costs by as much as 80%.

Taken together, just these two items, eliminating the use of oil in home heating and establishing a national alcohol standard for gasoline, would reduce domestic oil requirements by close to 1.2 million barrels per day.

A third option would be to expand the use of fuels like propane on farms – not only to provide power, but in applications like flame cultivation which essentially substitutes heat for petroleum-intensive and polluting pesticides other agricultural chemicals. Making full use of the potential of these technologies could eliminate the need to consumer several hundred thousand barrels of oil daily.

What we must understand is that there are many opportunities to substitute existing renewable energy resources, energy efficiency technologies and non-petroleum fuels for oil that must largely be imported from abroad. While none of them is a solution to the problem in and of itself, in combination they can provide substantial, near-term reductions in overall petroleum needs, and therefore reduce our need to import foreign oil. That is a goal that must be among our highest national priorities.

We must always remember that not only does our import dependence place our economic security at risk and jeopardize the ability of our armed forces to operate; it also helps to fund the very forces we are fighting around the globe.

The simple fact is that international terrorism stands on two financial pillars: the narcotics trade and the oil trade. As a result, some portion of every dollar we spend for imported oil finds its way into the hands of people determined to do us ill. Therefore to the extent that we can reduce our import dependence, we also reduce the ability of international terrorism to operate.

But to make real progress in eliminating our oil import burden we must set aside our energy partisanship. Too often energy partisans claim to have the cure for our energy ills writ large across the sky by the flaming finger of God. The trouble is they are wrong. There is not silver bullet, no single answer. The only valid approach is to make the fullest use possible of every energy resource – both conventional and alternative – at our disposal. We simply do not have the luxury of forgoing any option. There is simply too much at risk.