The Committee on the Present Danger

fighting terrorism and the ideologies that drive it

a Committee on the Present Danger Policy Paper

Oil and Security

by George P. Shultz and R. James Woolsey

(NOTE: An earlier version of this paper was posted on the CPD web site in late June, just prior to the Senate debate of the Energy Bill, in order to help inform that debate and for discussion and commentary by interested parties prior to CPD board and membership approval. That discussion and commentary has informed this draft, dated August 5, 2005. Board and membership approval are not yet final.)

SUMMARY

This paper could well be called, "It's the Batteries, Stupid." Four years ago, on the eve of 9/11, the need to reduce radically our reliance on oil was not clear to many and in any case the path of doing so seemed a long and difficult one. Today both assumptions are being undermined by the risks of the post-9/11 world and by technological progress in fuel efficiency and alternative fuels.

We spell out below the risks of petroleum dependency, particularly the vulnerability of the petroleum infrastructure in the Middle East to terrorist attack – a single well-designed attack could send oil to well over $100/barrel and devastate the world's economy. That reality, among other risks, and the fact that our current transportation infrastructure is locked in to oil, should be sufficient to convince any objective observer that oil dependence today creates serious and pressing dangers for the US and other oil-importing nations.

We propose in this paper that the government vigorously encourage and support at least six technologies: two types of alternative fuels that are beginning to come into the market (cellulosic ethanol and biodiesel derived from a wide range of waste streams), two types of fuel efficient vehicles that are now being sold to the public in some volume (hybrid gasoline-electric and modern clean diesels), and one vehicle construction technique, the use of manufactured carbon-carbon composites, that is now being used for aircraft and racing cars and is quite promising as a way of reducing vehicle weight and fuel requirements while improving safety.

700 12th Street, N.W., Suite 800
Washington, D.C. 20005-3949

Mailing Address: P.O. Box 65196
Washington, D.C. 20035-5196

Tel: 202/778-1032
Fax: 202/659-7923

E-mail: info@fightingterror.org

The sixth technology, battery improvement to permit "plug-in" hybrid vehicles, will require some development – although nothing like the years that will be required for hydrogen fuel cells. It holds, however, remarkable promise. Improving batteries to permit them to be given an added charge when a hybrid is garaged, ordinarily at night, can substantially improve mileage because it can permit hybrids to use battery power alone for the first 10-30 miles. Since a great many trips fall within this range this can improve the mileage of a hybrid vehicle from, say, 50 mpg to over 100 mpg (of oil products). Also, since the average residential electricity cost is 8.5 cents/kwh (and in many areas, off-peak nighttime cost is 2-4 cents/kwh) this means that, after taking account of the differential efficiencies of electric and gasoline power, much of a plug-in hybrid's travel would be on electricity that is the equivalent of $1/gallon gasoline (or, off-peak, 25-50 cents/gallon) as contrasted with the same vehicle's use of today's approximately $2.50/gallon gasoline.

A plug-in hybrid averaging 125 mpg, if its fuel tank contains 85 per cent cellulosic ethanol, would be getting on the order of 500 mpg (of oil products). If it were constructed from carbon composites that mileage could double, and, if it were a diesel and powered by biodiesel or renewable diesel derived from waste, it would be using no oil products at all.

What are we waiting for?

--•--

There are at least seven major reasons why dependence on petroleum and its products for the lion's share of the world's transportation fuel creates special dangers in our time. These dangers are all driven by rigidities and potential vulnerabilities that have become serious problems because of the geopolitical realities of the early 21st century. Those who reason about these issues solely on the basis of abstract economic models that are designed to ignore such geopolitical realities will find much to disagree with in what follows. Although such models have utility in assessing the importance of more or less purely economic factors in the long run, as Lord Keynes famously remarked: "In the long run, we are all dead."

These dangers in turn give rise to two proposed directions for government policy in order to reduce our vulnerability rapidly. In both cases we believe that existing technology should be used, i.e. technology that is already in the market or can be so in the very near future and that is compatible with the existing transportation infrastructure. To this end government policies in the United States and other oil-importing countries should: (1) encourage a shift to substantially more fuel-efficient vehicles, including fostering battery development for plug-in hybrid vehicles; and (2) encourage biofuels and other alternative and renewable fuels that wherever possible can be derived from waste products.