



PERSPECTIVES

THE BEGIN-SADAT CENTER FOR STRATEGIC STUDIES

[Ending Oil's Monopoly: The Role of Israel](#)

by Dr. Emmanuel Navon

BESA Center Perspectives Paper No. 118, November 7, 2010

EXECUTIVE SUMMARY: The emergence of China as a major oil importer is feeding geopolitical tensions with the United States over the securing of oil supplies. Russia's oil resources – a significant source of that country's increasingly aggressive foreign policy – are also of concern to the US, as is the expected depletion of oil resources over the coming decades. The solution to this problem lies in the ending of oil's monopolistic status by promoting the use of biofuels and electricity for transportation, something in which Israel can assist thanks to its technological lead in electric cars and second-generation biofuels.

More than any other source of energy, oil is at the core of global geopolitical tensions because of its monopoly as an energy source for transportation (land, sea and air). US dependence on oil is not related to power generation. Only 1-2 percent of the electricity used in the US is generated by oil. Similarly, only 4% of the EU's electricity is produced from oil. Since industrialized economies no longer generate electricity from oil, promoting nuclear power or renewable energy would have no effect on reducing oil dependency. Building more nuclear plants, solar panels and wind farms would only reduce the use of coal and gas in power production. This would have a positive impact on the environment, but virtually no impact on oil consumption. The US is nearly self-reliant for power generation but entirely dependent on imported oil for transportation. In fact, America is more dependent on oil imports today than it was 40 years ago, because of declining domestic production. In 1973, the US imported 35% of its oil consumption, in contrast to 60% in 2007.

The only way to really reduce oil dependency in a country like the United States is to change the energy consumption of engines. There are two realistic alternatives: electricity and biofuels. While hydrogen appears on paper to be a third alternative, it is too impractical and too expensive. Hydrogen is not available in nature in a usable form and must therefore be separated from the materials of which it is an element (such as water, natural gas or coal) in order to be used as a fuel.

Incidentally, Israeli technology is revolutionizing the use of electric transportation and biofuels. Israeli scientist Yitzhak Barzin founded GreenFuel, a company that produces biological fuel from seaweed, in 2002. Israeli entrepreneur Shai Agassi founded Better Place in 2007, with the purpose of spreading the use of electric cars worldwide.

In January 2008 Better Place signed a partnership agreement with Renault-Nissan to launch a new electric car project. Renault-Nissan is building the vehicles while Better Place is building the electric recharge grid, which will enable its customers to recharge their cars wherever they park. More significantly, battery switching stations will enable drivers to switch their car battery in less time than it would take to fill a gas tank. These stations will be spread out just like gas stations, and switching batteries will not involve any extra cost for the customer since the customer is charged only for kilometrage.

While Israel is among Better Place's first and leading "trial countries" (the company is also implementing its model in Denmark and Hawaii), the Israeli government has done too little to promote biofuels. By contrast, the EU and US have adopted policies that make the use of biofuels mandatory. The European Commission's Renewable Energy Directive (RED) requires 10% of fuels in the EU to be composed of biofuels by 2020. Many of the light planes manufactured in Europe now use bio-diesel, both for cost and air quality reasons. The US Air Force is introducing the use of synthetic fuels made from gas derived from coal or biomass. Its target is to use a 50:50 blend of synthetic and traditional jet fuel for half of its aviation requirements by 2016. As for the US Navy, it is testing biofuels in ship turbines. It also recently launched an amphibious assault ship that runs on an electric motor at low speed. The Navy's ambition is to ultimately develop all-electric ships.

Israel is certainly aware of the need to dethrone the monopolistic status of oil, and it has recently taken initiatives in that regard (such as the launching of the yearly international renewable energy conference in 2007, the establishment of the Institute for Renewable Energy Policy at the IDC in 2008

and the setting-up of a national commission for the replacement of fossil fuels in 2009). In September 2010, the Israeli government decided to invest nearly NIS 200 million over the next ten years in R&D projects aimed at creating alternatives to oil. (The plan also calls for government money to be supplemented by donations from the private sector to the tune of NIS 180 million a year).

To avoid the risky dependency on electric cars exclusively (an electric blackout caused by natural disasters could cripple transportation for entire regions), plug-in hybrid electric vehicles (PHEV), which run on electricity and automatically keep running on liquid fuel (including biofuel) when the electrical charge is used up, are most likely to become the most widespread vehicles in the future. Moreover, replacing gasoline cars with electric cars would only partially reduce the world's dependency on oil because of the massive use of petroleum by ships and airplanes (both civil and military). Hence, the importance of biofuels.

The controversy over biofuels is too wide and complex to be discussed here. One important remark though is that biofuels do not need to be produced from crops. "Second generation" biofuels are produced from waste, algae and non-food vegetation. One example is cellulosic ethanol. Another example is algae. Algae double their mass in a few hours and produce 30 times as much oil per acre as sunflowers. Most significantly, algae devour carbon dioxide, the primary culprit in global warming. Growing algae like a crop enables the production of biofuel.

It remains an intriguing fact, however, that biofuels are virtually nonexistent in Israel's transportation landscape. The Israeli government must be more proactive in that regard. By contributing to the breaking of oil's monopoly over transportation, Israel will not only strengthen its strategic value vis-à-vis the United States and Europe, it might also provide its oil-producing neighbors with a good reason to be more pragmatic.

Dr. Emmanuel Navon is a lecturer at Tel Aviv University's Abba Eban Graduate Program for Diplomacy Studies and a senior fellow at the Center for International Communication at Bar-Ilan University

BESA Perspectives is published through the generosity of the Greg Rosshandler Family