

From: mzf826@aol.com  
Subject: **Re: Energy articles - Jeff D**  
Date: April 10, 2007 9:35:50 PM EDT  
To: jrmail@rcn.com  
26 Attachments, 178 KB

ok

-----Original Message-----

From: jrmail@rcn.com  
To: Mzf826@aol.com  
Sent: Sun, 8 Apr 2007 1:05 PM  
Subject: Energy articles - Jeff D

"Our dependence on foreign oil threatens our economy and hamstrings our national security. Imported oil accounts for about one-third of our trade deficit, with much of that money going to regimes we would never choose to subsidize. ...And, if all that weren't enough, our dependence on oil is hastening the threat posed by global climate change. Energy production and use in transportation and electricity generation account for more than three-quarters of U.S. greenhouse gas emissions."

-- *Hillary Rodham Clinton*

Senator Lugar (R-IN) said it better on March 13 at the Brookings Institution:

...my message is that the balance of realism has passed from those who argue on behalf of oil and a laissez faire energy policy that relies on market evolution, to those who recognize that in the absence of a major reorientation in the way we get our energy, life in America is going to be much more difficult in the coming decades. No one who cares about United States foreign policy, national security, and long-term economic growth can afford to ignore what is happening in Iran, Russia, Venezuela, or in the lobby of the Corinthia Hotel in Tripoli. No one who is honestly assessing the decline of American leverage around the world, due to our energy dependence, can fail to see that energy is the albatross of U.S. national security.

We have entered a different energy era that requires a much different response than in past decades. What is needed is an urgent national campaign, led by a succession of presidents and Congresses, who will ensure that American ingenuity and resources are fully committed to this problem.

## **AJCongress Hails Introduction of S 838 US-Israel Energy Cooperation Act**

March 13, 2007 - The American Jewish Congress today applauded the introduction of S 838 U.S.-Israel Energy Cooperation Act by Senator Gordon Smith (R-OR), Senator Jeff Bingaman (D-NM), Chairman of the Senate Energy and Natural Resources Committee and Senator Mary Landrieu (D-LA).

A similar piece of legislation to HR 2730, which passed the House last year, S 838 will help foster cooperation on renewable energy projects between the United States and its only democratic ally in the Middle East.

The bill would allow for funding for eligible joint ventures between United States and Israeli businesses and academic persons. To facilitate the process, the bill establishes the International Energy Advisory Board. It has been referred to the Committee on Energy and Natural Resources.

AJCongress Senior Vice President Jack Halpern described the bill as "a landmark effort to establish the same type of strategic partnership between the U.S. and Israel to help solve the energy crisis as has been so successful in addressing military matters."

"Israel has some of the most advanced facilities in the world for concentrated solar," Senator Smith said.

Halpern added, "Just as the Arrow Missile Project has shown that U.S./Israel collaboration can bring results that neither nation could achieve alone, this new program will bring together the enormous technical talents of Israel and the U.S. to devise new solutions to both nations' energy needs."

According to David Haberman, Vice Chair of the AJCongress Energy Independence Task Force, and Senior AJCongress Advisor on Energy, "We are proud to have played a role in shaping this process." Haberman said "The support for this bill emerged as a result of an international conference held in Jerusalem, Israel, attended by major U.S. corporations, energy end-users, government officials from both countries, and scientific laboratories and academic institutions. The Conference was hosted by the American Jewish Congress, the U.S. Department of Energy and Israel's Ministry of National Infrastructure. A major component of this bill is funding for hydrogen energy innovations by joint Israeli-American teams."

AJCongress Executive Director Neil B. Goldstein explained the reason for the American Jewish Congress' involvement in this issue: "We want to reduce the petrodollars that are flowing into the hands of terrorists and into the hands of America's and Israel's enemies. The surest way to do that is by reducing the industrialized world's dependence on oil from the Middle East. The American Jewish Congress has been a leader for the last three years in advancing public policies on several fronts to achieve that goal including promoting alternative sources of fuel and promoting alternative technology."

ONLINE EDITION  
**JERUSALEM POST**

### **The energy to lead**

GERSHON BASKIN, THE JERUSALEM POST

Nov. 6, 2006

Since the mid-1970s most of the world has been held hostage by the oil-rich nations, many of which do not share their political world view. In order to maintain energy security most of these oil-dependent nations have capitulated for decades to the whims and wills of the oil-rich ones.

Most of these oil-rich nations have not used their wealth to really benefit their people. It has instead aided their families and tribes to stay in power, usually against the will of their own people. The global political power of these nations far outweighs their real contribution to humanity; indeed, it is solely based on their ability to control the flow of oil, and its price.

Israel of course stands firmly in the category of the oil-dependent nations; but more importantly, most of the nations of Europe, Japan and even the United States have also allowed themselves to cater to the regimes of the oil-wealthy nations, even at times when this has seemed to go against their direct political interests, or even national security.

It is time for this state of affairs to end.

THE 1970S brought about the first major effort by the oil-poorer nations to conserve oil and use alternative forms of energy. But this effort was short-lived and widely controlled by the overwhelming power and interests of oil producers, companies and countries. Many alternative fuels were tried and tested and conservation was widely practiced until the entry of the 4x-drive jeeps, vans and other fuel-eating monsters of the late 1990s.

Coal was one of the alternatives, but coal, while perhaps in great supply in many parts of the world, is a dirty and inefficient source of fuel.

The 1990s brought a surge in the use of natural gas, and great strides have taken place in the development of gas-benzene hybrid vehicles which, in the new century, will become even more commonplace when natural gas supplies are available at gas stations around the world. This too is a great stride forward.

Ethanol is the latest alternative to gain more attention. Certainly-tax related incentives could be used to significantly boost the development of cheap hybrid possibilities for the Israeli market.

Israel recently signed a deal for natural gas with Egypt, and there is also a large quantity of natural gas available from the Palestinians, were Israel to decide to purchase it from them. Israel is interested in bringing more natural gas from places as far away as Russia.

NEW DEVELOPMENTS are also on the horizons, such as improving the production of cheap and clean electricity from wind power and from the sun, both of which are readily available in Israel. Hydrogen cells are also being developed in laboratories throughout the world; the advocates of this technology place high hopes in developing a limitless supply of efficient and cheap energy from this source.

Nuclear energy is used widely in many parts of the world, but with the Iran crisis looming above us it would probably not be wise for Israel to move into wider nuclear energy production at this time.

The world needs more energy; development requires that electric companies throughout the developed and developing world provide limitless quantities of cheap and efficient energy. Fossil fuels will one day in the not too distant future be depleted at the current level of exploitation.

The depletion of the ozone layer, global warming and its further effects on the environment are additional real cause to reduce the use of fossil fuels.

Israel is a relatively small consumer of energy and an even smaller source of energy production globally. The limits of the Israeli Electricity Company were quite apparent this past summer when the heat waves created demands for power beyond the capacity of production.

What Israel has in high supply is ingenuity and initiative. For political reasons such as the need to limit the global power of the oil-rich world, for reasons of protecting our frail environment in our small land, and for economic and development reasons, Israel could take the lead globally inventing and creating new sources of energy. There is perhaps nothing more important to our national strategic agenda, yet this subject is almost completely ignored by policy makers.

WHAT COULD be done? Israel could announce that it was launching a global energy effort. A sort of Manhattan Project for energy, bringing together the top expertise and genius in the world to dedicate themselves full-time for the next five years, unfettered by the interests of the oil producers and oil companies, in order to find the solutions for limitless, clean energy that would replace the world's dependency on oil.

The government of Israel would, under this proposal, allocate \$1 billion a year for the next five years and invite tens of other oil poor nations and the United States to join the effort. Each one of these nations committing \$1 billion a year for the next five years would be included in the effort. With a multi-billion international fund available, coordinated by Israel, the reasonably expected result could be cost-effective, efficient and sustainable new sources of energy to effectively change the nature of international relations and global economics and have a huge impact on the environment of the planet.

Cheap and efficient energy also means cheap and available water - another natural resource in short supply. Unlimited cheap and efficient energy would have a huge impact on the ability of nations like Israel to have access to virtually unlimited quantities of fresh water.

Desalination has already come down in price to "reasonable" costs, yet even the current prices make desalinated water too expensive for most of the water-poor countries of the world. New, cheaper energy would resolve that problem as well, and hunger around the world could become a distant memory.

ENERGY EXPERTS around the world claim that they are on the verge of new technologies. Required is a global, coordinated effort to synergize those efforts into a concentrated, focused combined push forward.

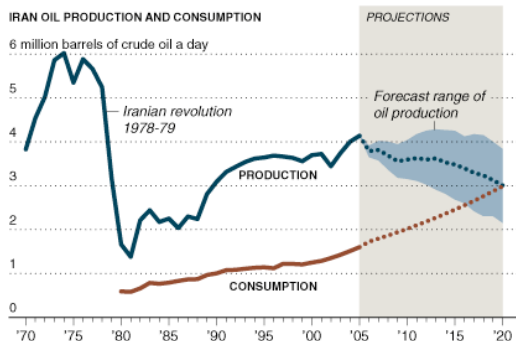
Israel could lead the way. The benefits to Israel would be far beyond anything Israel has ever done before. This is a global problem that can be resolved. In addition to the obvious important benefits to Israel, the reduction of the world's dependence on oil would also have a great impact on regional and global politics.

*The writer is the Co-CEO of the Israel/Palestine Center for Research and Information. The ideas presented here were inspired by Dr. Kobi Michael. [www.ipcri.org](http://www.ipcri.org)*

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## Is Iran Facing an Energy Revolution?

With domestic consumption on the rise, Iran is struggling to maintain its current level of oil production. As a result, exports could dry up within a decade, analysts say, unless its leaders can reverse the projected trends.



Sources: Energy Information Administration; PFC Energy (forecasts)

The New York Times

The New York Times  
nytimes.com

February 13, 2007

## West Adds to Strains on Iran's Lifeline

By [JAD MOUAWAD](#)

Western political and economic pressure on Iran over its nuclear program has chilled foreign investment to the extent that it is now squeezing the country's long-fragile energy industry, adding strains to a government that is burdened by sanctions and wary of unrest at home.

The world's fourth-largest oil exporter, Iran sits on the second-largest oil and gas reserves. But it has struggled in recent years to keep its oil production, currently running at about four million barrels a day, from falling.

Some analysts say that if this acute imbalance between stagnant production and rising demand at home continues unchecked, Iran will have no oil left over to export within a decade. Its oil exports, totaling \$47 billion last year, account for half the government's revenue.

"They have a perfect storm of problems feeding into each other," said Robert Murphy, an analyst at PFC Energy, a consulting firm in Washington. He estimated that Iran might have no more oil to export by around 2015 if it did not rein in runaway consumption and reverse the long-term decline in its oil production.

"The domestic energy situation is as big as the international issue, and feeds into it in a very significant way," he said.

To curb demand, which has been driven in part by subsidies that keep the domestic pump price at a mere 35 cents a gallon, the government plans to begin rationing gasoline in March, a measure so unpopular, and potentially explosive, that rationing plans have been put off several times in the past.

Iran's energy problem is in many ways at the heart of the nuclear controversy as well. Iran's leadership says it wants to develop nuclear power generation to free its petroleum resources for domestic use or for exports. The United States and other Western countries say Iran is using the program as a front for building weapons. At a time of relatively high prices, oil is clearly providing Iran's government with enormous strength — but also with an Achilles' heel.

In December, the [United Nations Security Council](#) voted unanimously to impose limited economic sanctions on Iran until it halts its nuclear program. So far, American and European officials say they are not seeking to cut off Iran's oil exports, because that would disrupt global markets and raise prices for Western consumers.

Still, the pressure on Western energy companies not to deal with Iran may ultimately speed that outcome. Iran currently exports about 2.5 million barrels a day.

In recent weeks, senior American officials warned several European oil companies that if they invested in new energy projects, they risked financial sanctions in the United States, according to a European energy executive who spoke on the condition that he not be identified because of the delicate nature of his company's relations with Iran.

Foreign investors, who have helped promote Iran's oil development, have been scarce since the 1979 revolution, and the country's oil industry has now suffered decades of economic, political and technical problems. Iran has signed no firm oil or gas contracts with foreign investors since June 2005, when [Mahmoud Ahmadinejad](#) was elected president and began flaunting the country's nuclear ambitions and renewing tensions with the West.

At home, meanwhile, Iran has had to appease a population historically prone to unrest. It spends about \$20 billion each year, or 15 percent of its economic output, to keep consumer prices low for gasoline, natural gas, electricity and other energy products, according to estimates from the [International Monetary Fund](#) and others. Those subsidies have prompted double-digit growth in consumption in this country of 70 million people.

Iran holds 11 percent of global oil reserves, second only to Saudi Arabia. But each year, Iran has to find ways to make up for natural declines in production from existing wells, which in past years has dipped by 200,000 to 500,000 barrels a day.

It has managed to hold its own, but just barely. Moreover, Iran's refining capacity lags far behind its domestic needs, so the country is forced to import 40 percent of its gasoline.

Because of delays in developing new fields, like Yadavaran, Azadegan and others, Iran has scaled back its targets; it now plans to increase oil production to 4.5 million barrels by 2010, down from 5 million barrels. But even that might prove challenging, according to analysts who cite the figures.

Iranian production is now about 3.9 million barrels. It peaked at more than 6 million barrels a day in the mid-1970s, but plummeted to 1.5 million barrels just after the 1979 revolution. During the eight-year war against Iraq that followed, Iran's oil infrastructure lining the Persian Gulf was a frequent target.

Iran currently uses 1.5 million barrels of oil a day, triple its consumption in 1980, and must import about 170,000 barrels a day of gasoline, which last year cost the government more than \$4 billion.

Some Iranian fields are in dire need of foreign technical expertise to help reverse their natural decline rates, estimated at 8 to 10 percent a year. Modern methods of enhanced oil recovery, which involve reinjecting natural gas to flush out more oil from the fields, can greatly increase production rates but are both costly and difficult to perform without foreign assistance.

"Iran needs to invest more than it does," said Manouchehr Takin, an Iranian energy analyst at the Center for Global Energy Studies in London. "It needs foreign companies to bring expertise, capital and technology."

But oil companies complain that the rewards are limited. Under Iran's stringent buyback contracts, oil companies basically operate as contractors for the government for a limited time. They are not allowed to book the reserves as their own and gain little in extra profits when energy prices go up.

Iran's energy officials have already indicated they would sweeten buyback contracts. At a meeting held at a Hilton hotel in Vienna this month, they unveiled a new licensing round for 17 onshore and offshore exploration blocks. The conference was attended by dozens of European, Chinese and Russian oil executives.

For Gholam Hossein Nozari, the managing director of Iran's national oil company, continued interest from Europe and Asia is "a sure sign companies do not cower to U.S. pressure," according to Iran's official news agency, IRNA.

Freidun Fesharaki, an energy adviser to the Iranian government before the revolution, said, "For all its faults, the Islamic Republic is very flexible."

Not all countries or international companies have bowed to American pressure. India has rebuffed Washington's efforts to cut off gasoline exports to Iran. New Delhi has also rejected American requests to cancel a planned pipeline project that would take Iranian natural gas through Pakistan to India.

But recent conversations with European energy executives and consultants, who spoke anonymously to protect their relations with Iran, suggest there is a new wave of concern about starting projects in the country. Even Chinese companies, which Iran is trying to lure with big oil and gas deals, seem to be acting with caution.

Oil companies, including [Royal Dutch Shell](#), [Total](#) of France, [Eni](#) of Italy and [Repsol YPF](#) of Spain, are playing for time in the hope that the political situation may somehow improve, energy analysts said.

Shell and Repsol announced last month a preliminary deal for South Pars, the world's largest natural gas field. But the project, estimated at \$10 billion, has been delayed for more than a year. A final investment decision is not due until at least the end of 2007.

Asked about the project at a news conference this month, Jeroen van der Veer, the chief executive of Shell, expressed some embarrassment, saying, "We have a dilemma." Iran's oil and gas reserves are too big to ignore, he said, but "we have all the short-term political concerns, as you can see."

Last year, Inpex, a Japanese oil company, agreed to sharply cut its stake in a \$2 billion project to develop the Azadegan field, in the southwestern province of Khuzestan, near Iraq. Inpex cut its stake to 10 percent from 75 percent after problems with land mines left over from the Iran-Iraq war delayed development. But some analysts said the decision reflected Japan's displeasure at Iran's nuclear stance. Japan accounts for 20 percent of all Iranian oil exports.

"Oil companies are simply assessing risk, including what some see as the real risk of a military strike against Iran," said Cliff Kupchan, an analyst at the Eurasia Group, a political risk consulting firm, and a former senior State Department official. "Some are deciding it's not worth it."

The United States is pressing Europeans to trim their government-backed loan guarantees, which amounted to \$18 billion in 2005. European countries have recently said they would not issue guarantees for companies that the [United Nations](#) lists as tied to Iran's nuclear or missile programs. But Washington is calling on Europe to make sure it is not dealing with front companies, possibly in the energy field.

Since opening up their energy sector to foreigners in the 1990s, Iran's clerical leaders have sought to turn their energy riches into political alliances. In the mid-1990s, they tried to persuade an American company, Conoco (now [ConocoPhillips](#)), to develop an oil field in a strategic bid to thaw relations with the United States; when that failed, after President [Bill Clinton](#) banned American investments in Iran, Iran turned to Europe and Japan. More recently, Iranian leaders have set their sights on China and Russia.

But while China's three main state-owned oil companies have been eager to sign preliminary agreements with Iran in recent years, drawing criticism from the United States, analysts say few projects have actually gotten off the ground.

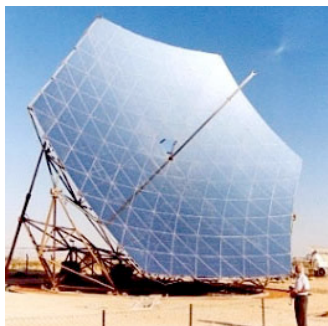
*Steven R. Weisman contributed reporting from Washington and Nazila Fathi from Tehran.*

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## GLOBAL DEMOCRACY

US partners with Israel to develop the next generation of energy

By Ahron Shapiro October 03, 2006



Among the Israeli research that's cited in support of the bill is the development of a technique that vastly increases the efficiency of using solar energy to generate hydrogen for use in energy cells.

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## RELATED SITES

[Cooperation for Energy Independence of Democracies in the 21st Century](#)

[American Jewish Congress](#)

### **An ISRAEL21c series The Israeli Energy Alternative**

If the United States is serious about energy independence, it has to reach beyond its borders and recruit the help of the world's top scientists in the field of alternative energy. That opinion by Rep. Brad Sherman (D-CA) was partially the impetus for the United States-Israel Energy Cooperation Act - a springboard for scientific research that may help the US reach its strategic goal.

In July, the bill, co-sponsored by Sherman, and carrying bipartisan support and the weight of 100 co-sponsors, passed easily through the House of Representatives by a voice vote. It has now moved to the Senate, where it is expected to roll on a fast track to ratification.

Why is Congress so bullish on this bill and why does the US so readily turn to another country - Israel - for research that is so fundamental to America's long term security? According to Sherman, first and foremost, the US needs Israel's help.

"There is nothing we can do that is more important than weaning the United States and the world off its dependence of petroleum. And the first step is research, and an important part of that research is cooperative research with other countries similarly dedicated to finding alternative energy," noted Sherman, adding "There is perhaps no better partner than Israel."

In his State of the Union Address in February, US President George Bush called special attention to America's historic dependence on foreign petroleum. "America is addicted to oil," Bush said, and vowed to push the US towards energy independence. And later, in May, Israeli Prime Minister Ehud Olmert expressed solidarity with the US leader and lauded the cooperation act.

In support of the bill, several speakers on the House Floor made allusions to Israeli scientific expertise in the field of alternative energies. The bill itself cites three examples of breakthroughs made by Israeli scientists and researchers in this niche:

- The development of a cathode that uses hexavalent iron salts that accept three electrons per ion and enable rechargeable batteries to provide three times as much electricity as existing rechargeable batteries;
- The development of a technique that vastly increases the efficiency of using solar energy to generate hydrogen for use in energy cells;
- The development of a novel membrane used in new and powerful direct-oxidant fuel cells that is capable of competing

favorably with hydrogen fuel cells and traditional internal combustion engines.

Ron Dermer, Israel's Minister of Economic Affairs in the US told ISRAEL21c that he compared the current race towards American energy independence to its race towards nuclear technology at the end of World War II.

"If [you] were looking to create "The Manhattan Project" of alternative energy, then certainly... one country [you] would want at that table would be Israel," Dermer said.

Under the terms of the bill, the United States Department of Energy is authorized to invest up to \$20 million annually through 2012 in joint energy projects between American and Israeli businesses, scientists and academics. Eligible products include research, development and commercialization of alternative energy sources, improved energy efficiency and renewable energy sources.

The bill has a payback provision that ensures that the American taxpayer would be reimbursed for the grants issued under the Act through profits earned from innovations emerging from the research.

"What that means is that if a successful project is developed as a result of these funds and if an energy source is found, according to rules provided by the Secretary of Energy, the Treasury of the United States will be repaid in proportion to the Federal Government's investment in the research involved or in the project which created this new energy," said Rep. John Shadegg (R-AZ), sponsor of the bill

"This bill is an absolute win for everybody," said Rep. Eliot Engel (D-NY).

Dermer said that Israel's reputation for quality science and research has often been described in terms of statistics and figures, which sometimes obscure the real significance.

"All these statistics of all the scientists per capita and engineers per capita and [the vast amount of] R&D that is done in Israel... The question you have to ask yourself is: What does all that mean?" Dermer asked rhetorically.

"It means that we have the most dynamic, entrepreneurial workforce on the planet."

The roots of the Cooperation Act bill can be traced back to a conference in 2003 sponsored by the American Jewish Congress and the US Department of Energy. The conference, themed "Cooperation for Energy Independence of Democracies in the 21st Century," was held in Jerusalem with the participation of 170 attendees from 140 institutions and six countries.

"What developed at the conference was the concept of designing a permanent pipeline for [energy research] cooperation between the United States and Israel," Neil B. Goldstein, AJC executive director, told ISRAEL21c.

"When we returned to the United States from this conference, I and my staff sat down and drafted some talking points of specific principles that we wanted to see included in any such legislation. We took these very specific principles and... our Washington office approached a member of Congress to see if these could then be implemented in the form of specific legislation."

Goldstein said that now that the bill has passed through the House, it is on a fast track for ratification in the Senate and eventual approval from the White House.

"We have been informed informally that there will be hearings of the bill in the fall and that we will be asked to testify," Goldstein said. "Our expectation? is that [the bill] will be reported favorably with some amendments. We have also been informed by [Senate Majority Leader William] Frist that he favors passage of this bill in this session of Congress and that they are pushing very hard to see that. My expectation is that the bill... will be [passed by the] full Senate... and that the president will then sign it into law shortly thereafter."

On its website, the AJC defines itself as "an association of Jewish Americans, whose members have organized to defend against threats to Jewish interests at home and abroad through vigorous public policy advocacy, in the courts, Congress, the executive branch and local legislatures."

Energy independence has been one of the AJC's core issues in recent years, a natural turn of events according to Goldstein.

"There is no issue that is more important to Israel and to the

Jewish community than energy," Goldstein said.

"This is an issue that every dollar that is spent on imported oil is a dollar potentially that can go to the enemies of the United States and Israel and as good Americans and as good Jews we are concerned about that.

"We are concerned that petrodollars are finding their way directly into the hands of terrorists. And some money is in the hands of people like President Mahmoud Ahmadinejad of Iran who wants to destroy Israel and, by the way, wants to [also] destroy the United States."

## Sun rising on new local energy economy

ryan nadel, THE JERUSALEM POST

Nov. 13, 2006

Israel's commitment to the new energy economy and pioneering efforts by local research and development were hot topics at the Renewable and Alternative Energy Conference held last week in Tel Aviv.

"We are committed to the new energy economy. Israel has reached the point where we are part of the global effort," National Infrastructures Minister Binyamin Ben-Eliezer told the audience of over 400 people.

As reported in The Jerusalem Post last week, the government sees the triumvirate of security, the environment, and the economy as major factors driving the need to develop alternative sources of energy and is putting its full efforts behind such development projects. The conference brought together an international group of researchers, businessmen, and politicians to tackle the issue.

Sessions focused on Israeli development of alternative sources of energy, including solar power. "The amount of energy from the sun is enough to sustain life on earth," said Dr. Allan Hoffman, a senior analyst at the US Department of Energy, in his keynote address.

"Israel was a pioneer of solar energy in the 1960s and 1970s," said Yehudit Bronicki, President and CEO of Ormat Technologies Inc., an Israel-based company which is a world leader in developing and implementing alternative energy sources. "If Israel had maintained this through technology and regulation, we would still be leading solar power development," she said. Ormat has designed, manufactured, and implemented alternative sources of energy across the world since 1965.

Israeli researchers, however, now seem poised to reclaim their place as solar energy pioneers.

Dov Raviv, the famed innovator of the Arrow Missile System, has set his sights on reducing the cost of solar energy to a practical level.

His company, MST A Renewable Energy Company, claims to have developed a method to produce concentrated photovoltaic solar cells, which reduces the cost from \$3,000 per kilowatt to \$850.

This reduction in production cost is vital for the successful implementation of solar power. "If costs can come down, it will open the photovoltaic market in a significant way," Hoffman said.

David Waiman, CEO of Jerusalem-based OrionSolar PhotoVoltaics Ltd., described his company's efforts to commercialize a dye-based solar cell. According to Waiman, the dye-based system is much cheaper than the current silicon technology.

Based on Raviv's pricing model, Prof. David Feinman, Director of the National Solar Energy Center at Ben-Gurion University, presented a program to create a total solar infrastructure in Israel by 2036.

Most solar energy proposals focus on replacing or supplementing traditional sources for electricity, such as oil and coal. However, transportation is one of the most promising, and perhaps most difficult, areas in which to introduce alternatives to fossil fuels.

Raviv presented a model whereby solar power is used to mix hydrogen and carbon dioxide which produces methanol, a potential replacement for fossil fuels. Prof. Jacob Karni, Head of the Center for Energy Research at the Weizmann Institute, claimed that technologies which use solar power to create a chemical reaction could be operational within four years with proper research and development support. Funding for such research and development initiatives is growing, reflecting the sense of urgency within the government.

Infrastructures Ministry Director-General Hezi Kugler said that his ministry has quadrupled funding for research and development. "We have modeled our support as in the Chief Scientist's Office; we believe this enables us to give the greatest support at initial stages," he said.

Additionally, Dr. Eli Opper, Chief Scientist at the Ministry of Science, Culture, and Sport, said the ministry was considering classifying alternative energy development as a preferred sector. "We will have the money for any good idea presented to our office," he said.

In his remarks, Ben-Eliezer emphasized the global nature of the challenge to develop alternative sources of energy, saying "we cannot go it alone... this must be a joint effort where we put our expertise to work." Concurring, Hoffman, in his address, highlighted the common interests of the US and Israel in developing alternative energy sources. "Both the US and Israel are too dependent on imports," he said.

Hoffman told The Jerusalem Post that the similar nature of the US and Israeli energy economies created a natural area of cooperation between the two countries. "Research and development is part of the long-term solution, but we also need to pay attention to the deployment of these technologies," he said.

One manifestation of this cooperation is the approval by the US House of Representatives this summer of the US-Israel Energy Cooperation Act, which offers an opportunity to expand the scientific cooperation between the two countries in the pursuit of alternative energy sources. The bill authorizes the funding of eligible joint venture projects between US and Israeli businesses and researchers with grants of \$20 million annually from 2006-2012.

The bill is to come before the Senate within the next few months, according to Danny Grossman, Israel Director of the American Jewish Congress, the organization which

initiated this bill. Grossman is confident the bill will pass the Senate. Once approved, funds will be granted to groups such as the Binational Industrial Research Development Foundation, one of the main sponsors of the renewable energy conference.



## Twenty In Ten: Strengthening America's Energy Security

[2007 State of the Union Policy Initiatives](#)

[In Focus: Energy](#)

**Tonight, President Bush Will Ask Congress And America's Scientists, Farmers, Industry Leaders, And Entrepreneurs To Join Him In Pursuing The Goal Of Reducing U.S. Gasoline Usage By 20 Percent In The Next Ten Years – Twenty In Ten.** For too long, our Nation has been dependent on oil. America's dependence leaves us more vulnerable to hostile regimes, and to terrorists – who could cause huge disruptions of oil shipments, raise the price of oil, and do great harm to our economy.

**America Will Reach The President's Twenty In Ten Goal By:**

- **Increasing The Supply Of Renewable And Alternative Fuels By Setting A Mandatory Fuels Standard To Require 35 Billion Gallons Of Renewable And Alternative Fuels In 2017 – Nearly Five Times The 2012 Target Now In Law.** In 2017, this will displace 15 percent of projected annual gasoline use.
- **Reforming And Modernizing Corporate Average Fuel Economy (CAFE) Standards For Cars And Extending The Current Light Truck Rule.** In 2017, this will reduce projected annual gasoline use by up to 8.5 billion gallons, a further 5 percent reduction that, in combination with increasing the supply of renewable and alternative fuels, will bring the total reduction in projected annual gasoline use to 20 percent.

**The President's Plan Will Help Confront Climate Change By Stopping The Projected Growth Of Carbon Dioxide Emissions From Cars, Light Trucks, And SUVs Within 10 Years.**

**The President's Plan To Strengthen America's Energy Security Also Includes:**

- **Stepping Up Domestic Oil Production In Environmentally Sensitive Ways.**
- **Doubling The Current Capacity Of The Strategic Petroleum Reserve (SPR) To 1.5 Billion Barrels By 2027.**

### **Reducing Gasoline Consumption Through The Growth Of Alternative Fuel Sources**

**The President's Plan Calls For Facilitating The Growth Of Renewable And Alternative Fuel Sources By Increasing The Size And Expanding The Scope Of The Current Renewable Fuel Standard (RFS).**

- The RFS, established by the President and Congress in the Energy Policy Act of 2005, has contributed to the rapid acceleration of the development and use of renewable fuels. Significant ongoing technological advances have made it possible to increase and expand the standard to displace even larger volumes of gasoline.
- Under current law, fuel blenders must use 7.5 billion gallons of renewable fuels in 2012.
- Under the President's proposal, the fuel standard will be set at **35 billion gallons of renewable and alternative fuels in 2017.** This will displace 15 percent of projected annual gasoline use in 2017. The President's proposal will also increase the scope of the current **Renewable** Fuel Standard (RFS), expanding it to an **Alternative** Fuel Standard (AFS).
  - The Alternative Fuel Standard will include sources such as corn ethanol, cellulosic ethanol, biodiesel, methanol, butanol, hydrogen, and alternative fuels.
- The increased standard will contain multiple "safety valves."
  - The EPA Administrator and the Secretaries of Agriculture and Energy will have authority to waive or modify the standard if they deem it necessary, and the new fuel standard will include an automatic "safety valve" to protect against unforeseen increases in the prices of alternative fuels or their feedstocks.
- **American Technology And Innovation Will Lead To Energy Security.** President Bush believes our scientists, farmers, entrepreneurs, and industry leaders will continue to lead the world in developing and investing in cutting-edge technology, infrastructure, and farming methods. Advances in many fields will play an important role, such as continued improvement in crop yields, optimization of crops and cellulosic materials as fuel feedstock, and cost reduction in the production of cellulosic ethanol and other alternative fuels. The increased and expanded fuel standard creates a tremendous incentive for research, development, and private investment into alternatives to oil.
- **Global Production Of Alternative Fuels Helps Us Reach Our Goal And Increases Our Energy Security.** The President expects most of the expanded fuel standard to be met with domestically-produced alternative fuels. However, importing alternative fuels also increases the diversity of fuel sources, which further increases our energy security.
- **The President's Plan Enables America To Lead The World To Energy Security.** By establishing such a visible and ambitious fuel standard, America's global leadership will help encourage our friends and allies to consider similar policies. Actions by America's friends and allies to increase their production of oil and oil alternatives, diversify their supplies, reduce their consumption, and increase their oil reserves will enhance the energy security of America and the rest of the world. Conversely, foreign actions that undermine free, open, and competitive markets for trade and investment in energy supplies diminish the energy security of America and the world. This is why America opposes the political manipulation of oil and gas exports.

### **Reducing Gasoline Consumption Through Increasing Vehicle Efficiency**

**The President's CAFE Plan Will Reduce Gasoline Consumption By Up To 8.5 Billion Gallons Per Year In 2017.** The President's plan calls for reforming and increasing CAFE standards for cars, and for further increasing light truck and SUV standards. The President believes new technologies can be deployed to significantly improve fuel economy without impacting safety. Reducing projected consumption by up to 8.5 billion gallons in 2017 means a 5 percent reduction in projected gasoline consumption in that year. The fuel efficiency standard will have even larger benefits later, when consumers replace even more of the auto fleet with purchases of the more efficient new vehicles. These amounts are based on an **assumption** that on average, fuel efficiency standards for both light trucks and passenger cars are increased 4 percent per year, beginning in Model Year 2010 for cars and Model Year 2012 for light trucks. Given the changing nature of the marketplace for both cars and light trucks, the Secretary of Transportation will determine the **actual** standard and fuel savings in a flexible rulemaking process.

- **Congress Must Reform CAFE For Passenger Cars.** The Administration has twice increased CAFE standards for light trucks using an attribute-based method. An attribute-based system (for example, a size-based system) reduces the risk that vehicle safety is compromised, helps preserve consumer choice, and helps spread the burden of compliance across all product lines and manufacturers. Congress should authorize the Secretary of Transportation to apply the same kind of attribute-based method to passenger cars.
- **Congress Should Not Legislate A Particular Numeric Fuel Economy Standard.** The Secretary of Transportation should be given the authority to set the fuel standard, based on cost/benefit analysis, using sound science, and without impacting safety.
- **The President's Plan Incorporates Flexibility To Minimize Consumer Costs And Increase Consumer Benefits.** The plan will enable auto companies to increase fuel economy at the lowest possible cost to consumers by building flexibility into the CAFE standard for both cars and light trucks, such as giving companies the opportunity to buy and sell CAFE credits.

**The President's Plan Calls For The U.S. Department Of Transportation (DOT) To Work With States And Cities To Explore Ways To Reduce Traffic Congestion, Help Save Fuel, And Reduce Commute Times.** In 2003, drivers in America's 85 most congested urban areas experienced 3.7 billion hours of travel delay and wasted 2.3 billion gallons of fuel, costing a total of \$63 billion.

- **The President's Budget Redirects DOT Funds To A New \$175 Million Highway Congestion Initiative For State And Local Governments To Demonstrate Innovative Ideas For Curbing Congestion.** These ideas include congestion pricing, commuter transit services, commitments from employers to expand work schedule flexibility, and faster deployment of real-time traffic information. In one year, this wasted fuel accounts for more than 20 million metric tons of carbon dioxide emissions.

#### **Stepping Up Domestic Oil Production In Environmentally Sensitive Ways**

**The President Calls For Stepping Up Domestic Oil Production In Environmentally Sensitive Ways By:**

- Continuing to support Congressional action to authorize environmentally responsible oil and gas exploration in a small area of the Arctic National Wildlife Refuge located in northern Alaska, which could produce as much as 1 million barrels of oil per day – Congress reserved this small area after the late 1970s oil shocks to help prevent future ones.
- Continuing to work with Congress to develop legislation to encourage investments in refinery capacity.
- Continuing to encourage all parties to resolve remaining issues regarding the Alaska Natural Gas Pipeline.

#### **Doubling The Current Capacity Of The Strategic Petroleum Reserve**

**The President Proposes Doubling The Current Capacity Of The Strategic Petroleum Reserve (SPR) To 1.5 Billion Barrels By 2027.** The SPR's purpose is to provide the United States with an emergency inventory of oil, an insurance policy in the event of a severe supply disruption, such as from a natural disaster or a terrorist attack in the energy supply chain. Doubling the SPR alone will provide approximately 97 days of net oil import protection, enhancing America's ability to respond to potential oil disruptions.

- **The SPR Is Currently At 691 Million Barrels And, Due To Increased Consumption, This Represents Only 55 Days Of Net Oil Imports.** In 1985, the SPR, with 493 million barrels of oil, represented 118 days of net oil imports.

#### **Our Nation Has Already Made Great Progress In Strengthening Our Energy Security**

**Technology Has Enabled Us To Make Significant Progress.** We need to continue with important research into plug-in and advanced hybrid vehicles, and expand the use of high efficiency clean diesel vehicles and biodiesel fuel. We must continue investing in new methods of producing ethanol and other biofuels. We must further expand the use of clean coal technology, solar and wind energy, and clean, safe nuclear power.

**Including The 2008 Budget, The Federal Government Will Have Spent \$15 Billion Since 2001 To Develop Cleaner, Cheaper, More Efficient, And More Reliable Energy Sources.**

**The President Signed The Gulf Of Mexico Energy Security Act To Increase Domestic Oil And Gas Production By Allowing Access To Key Portions Of America's Outer Continental Shelf.** This allows access to areas with potential resources of more than 1 billion additional barrels of oil and nearly 6 trillion cubic feet of natural gas.

#### **The President's Plan Enables Us To Further Enhance Our Energy Security**

**Technology Will Help Diversify America's Energy Supply.** America is close to technological breakthroughs that will decrease our oil dependency, protect our environment, and help us confront the serious challenge of global climate change. The President's new proposals build upon the advances made possible by the Administration's previous initiatives, including the Advanced Energy Initiative, American Competitiveness Initiative, and the Energy Policy Act of 2005.

**Energy Security Will Be Further Enhanced By:**

- **Increasing The Transportation Sector's Energy Diversity.** Increasing renewable and alternative fuels used in automobiles from 3 percent in 2006 to 15 percent in 2017 can give drivers a built-in defense against supply disruptions and high gasoline prices.
- **Increasing The Supply Of Oil Alternatives And Reducing Oil Demand.** The President's plan will reduce our oil consumption by 10 percent in 2017, or 2 million barrels per day. Increasing the supply of oil alternatives and reducing oil demand could slow the growth of oil prices and lower the price over time, increasing our energy security.
- **Building Resilience Through Doubling The Current Capacity Of The Strategic Petroleum Reserve.** Uninterrupted oil supply is critical to our energy security. Increasing oil reserves strengthens our ability to respond to oil shortages and reduces our vulnerability to terrorist attacks on energy supplies and infrastructure.

**The President's 2008 Budget Continues Robust Funding For Advanced Energy Technologies That Can Help Reduce Our Dependence On Foreign Oil And Provide Clean, Lower Carbon Energy To Change The Way We Power Our Homes And Businesses.** The 2008 budget includes nearly \$2.7 billion for the Advanced Energy Initiative, an increase of 26 percent above the 2007 request and 53 percent above 2006. The 2008 budget provides \$179 million for the President's Biofuels Initiative, an increase of \$29 million (19 percent) compared to the 2007 budget. The President's Biofuels Initiative aims to accelerate cost reduction and commercial development of cellulosic ethanol, which can be made from abundant biomass materials, including agricultural waste and forest residues, and from dedicated energy crops such as switchgrass.

**The President's Farm Bill Proposal Will Include More Than \$1.6 Billion Of Additional New Funding Over Ten Years For Energy Innovation, Including Bio-Energy Research, Energy Efficiency Grants, And \$2 Billion In Loans For Cellulosic Ethanol Plants.**

#### **The Administration's Ongoing Energy Policy**

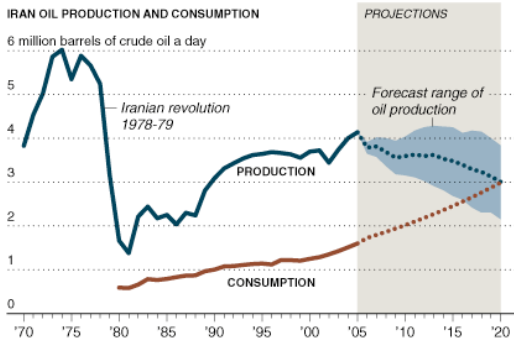
**The Administration's 2001 National Energy Plan Provided A Blueprint For Diversifying And Conserving Our Energy Resources To Increase Our Energy Security.**

- **Energy Policy Act Implementation:** In August 2005, the President signed the Energy Policy Act of 2005, which was a significant first step towards achieving greater energy security. Among its many achievements, the Energy Policy Act established the Renewable Fuel Standard that has increased the use of biofuels; provided incentives for renewable energy, clean coal, and advanced nuclear energy; and instituted mandatory reliability rules for the electricity grid and promoted investment in transmission upgrades.
- **Advanced Energy Initiative:** Building upon the Energy Policy Act's clean energy foundation, the President announced the Advanced Energy Initiative in the 2006 State of the Union Address. The Advanced Energy Initiative focuses on increasing R&D to encourage technological breakthroughs in the transportation and power sectors that will diversify our resource portfolio and reduce our dependence on foreign oil in order to strengthen our energy security. The Advanced Energy Initiative also incorporates the Global Nuclear Energy Partnership, aimed at reducing proliferation risks while expanding availability of clean, safe, climate-friendly nuclear energy.
- **International Technology Partnerships:** Launched and actively contributed to major international technology partnerships to share breakthroughs and advances in fusion, hydrogen, next-generation nuclear power, renewable energy, energy efficiency, capture and underground storage of carbon dioxide emissions, and profitable capture of methane emissions from coal mines, landfills, inefficient oil and gas systems, and agricultural operations.

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## Is Iran Facing an Energy Revolution?

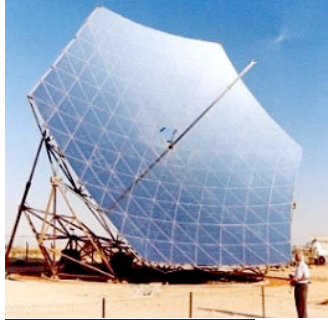
With domestic consumption on the rise, Iran is struggling to maintain its current level of oil production. As a result, exports could dry up within a decade, analysts say, unless its leaders can reverse the projected trends.



Sources: Energy Information Administration; PFC Energy (forecasts)

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