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## Alternative Energy: Israel at the Forefront of Industry Development

### From Electric Cars to Affordable Solar Power, Israel Pioneering New Technologies

Israel is taking the lead in a number of alternative energy fields aimed at reducing CO<sub>2</sub> emissions and promoting the use of renewable energy. It is one of the first countries to actively promote zero-emission electric cars and prepare the infrastructure for mass marketing such vehicles. An Israeli company is currently active in developing and designing efficient solar power plants around the world; Israeli municipalities are contributing to international projects to reduce greenhouse gas emissions; and just recently Israel and the United States initiated a joint research alternative energy program that President Bush signed into law.

#### **The First-Ever Electric Car Network**

On Jan. 21, 2008, the Israeli government announced its support of a plan to install the world's first electric car network in Israel by 2011. [1]

Project Better Place, owned by Israeli-American entrepreneur Shai Agassi, will provide lithium-ion batteries to power the cars and the infrastructure to refresh or replace them. One battery will enable the cars to travel 124 miles per charge. Project Better Place will install parking meter-like plugs on city streets and construct service stations along highways to replace the batteries. [2] Renault-Nissan will build the new cars and will offer a small number of their existing electric models, such as the "Megane" sedan, at prices roughly comparable to gasoline models.

To promote this form of environmentally efficient transportation, the Israeli government cut the tax rate on cars powered by electricity to 10 percent (from 79 percent on ordinary cars) to encourage consumers to buy the vehicles once they become available. [3] This initiative will offer consumers an inexpensive car for which they will pay a monthly fee based on expected mileage.

The tax breaks for "clean" electric vehicles, which Israel promises to offer until at least 2015, will make the cars cheaper to consumers than gasoline-engine cars. "You'll be able to get a nice, high-end car at a price roughly half that of the gasoline model today," Agassi said. [4]

Israeli President Shimon Peres, who actively promoted the project said, "Oil is becoming the greatest problem of our time." Not only does it pollute, he said, but "it also supports terror and violence from Venezuela to Iran... Israel can't become a major industrial country, but it can become a daring world laboratory and a pilot plant for new ideas, like the electric car." [5]

### Joint U.S. – Israel Energy Bill

On Dec. 19, 2007, President Bush signed into law the American-Israeli joint energy research bill. This bill will fund cooperative research and development efforts by the United States and Israel for cultivating renewable and alternative energy sources. [6] Joint research ventures will focus on solar, biomass, wind, geothermal, wave and tidal energy, as well as advanced battery technology and energy efficiency. [7]

U.S. Rep. Brad Sherman, D-Calif., who first presented the legislation to Congress as its sole sponsor, said, “Cutting edge research by top scientists from the United States and Israel could hold the key to reducing our reliance on foreign oil. We must promote efficient use of traditional energy sources as well as research into alternative energy sources.” [8]

### Solar Power Energy Plants

Solel Solar Systems Ltd., an Israeli company, designed the key components for a new solar energy plant in Nevada that produces 64 megawatts of electricity, enough to power 48,000 homes in the Las Vegas Valley.

The plant uses 190,000 curved parabolic mirrors, concentrating desert sunlight to 750 degrees Fahrenheit, in order to heat synthetic oil inside tubes that, in turn, create steam and drive a turbine to produce electricity. These liquid tubes or “solar receivers” are specially coated glass and steel vacuum tubes designed and produced by Solel Solar Systems Ltd. with Schott North America Inc. of Elmsford, N.Y. The new plant uses about 19,300 of these 13-foot (four-meter)

Curved Parabolic Mirrors receivers. [9]

Solel and Pacific Gas and Electric together acquired a \$2 billion contract in July 2007 to build the world’s largest solar energy park in California by 2011 that will provide enough electricity for 400,000 homes and stretch over 6,000 acres (23 sq. km.). It will use 1.2 million mirrors and 317 miles of vacuum tubing to harness the power of the desert sun, delivering 553 megawatts of clean energy. [10] Since 1992, Solel’s technology has been powering nine solar power stations in California that generate 350 megawatts of electricity. [11]

Israel is likewise increasing its domestic solar power operations. In February 2008, the Israeli government issued a tender for the construction of two solar-energy plants in the southern Negev desert. The two plants will supply 250 megawatts of electricity, equivalent to 3 percent of Israel's electricity consumption. These new plants, along with 300 megawatts from wind power, will permit Israel to produce 600 megawatts of renewable energy by 2011-2012. [12]

### Affordable Solar Power

Bar-Ilan University nanotechnology expert Professor Arie Zaban has invented a photovoltaic cell that could dramatically reduce the cost of producing electricity from solar power. Zaban, who heads The Nanotechnology Institute at Bar-Ilan, says that the cells, which are composed of metallic wires mounted on conductive glass, can form the basis of solar cells that produce electricity with efficiency similar to that of conventional,

silicon-based cells while being much cheaper to produce. OrionSolar, a Jerusalem-based company that has entered into a partnership with Bar-Ilan University, is developing commercial applications for inexpensive, dye-based photovoltaic cells based on Zaban's work. [13]

### **International Council for Local Environmental Initiatives**

In February 2008, mayors from 15 Israeli cities will join the International Council for Local Environmental Initiatives' Cities for Climate Protection Campaign, committing to reduce 20 percent of greenhouse emissions in their cities by 2020. [14] Goals for these cities, consisting of 3 million citizens (40 percent of Israel's total population), include reducing gas emissions from factories, encouraging recycling and developing more environmentally friendly public transport.

### **Wind Turbines**

Israeli executives Shlomo Shmeltzer and Dr. Eli Ben-Dov, along with Epcon Industries, aim to build a wind-turbine farm that will generate 50 megawatts of power in Israel's southern Arava region. Together, the two men also installed 100 megawatts of turbines in northern Israel.

### **Ormat Industries and Geothermal Energy**

Israeli company Ormat Industries is doing pioneering work in an alternative field of energy, geothermal energy. The geothermal plants harness steam, heat or hot water from geysers or hot springs on the earth's surface to produce electricity. Ormat operates 11 plants in five countries, providing 360 megawatts of power to 500,000 people.

Ormat, along with two other companies, won a tender in July 2006 to construct a new 340-megawatt geothermal power project on the island of Sumatra, Indonesia. It will be the largest such facility in history. [15]

### Footnotes

[1] "Israel vows to introduce electric cars by 2011," The Associated Press via MSNBC, Jan. 21, 2008, <http://www.msnbc.msn.com/id/22783747/>

[2] Erlanger, Steven. "Israel Is Set to Promote the Use of Electric Cars," The New York Times, Jan. 21, 2008,

[http://www.nytimes.com/2008/01/21/world/middleeast/21israel.html?\\_r=2&pagewanted=print&oref=slogin&oref=slogin](http://www.nytimes.com/2008/01/21/world/middleeast/21israel.html?_r=2&pagewanted=print&oref=slogin&oref=slogin)

[3] Sandler, Neal, "Israel: Cradle of the Electric Car," BusinessWeek, Jan. 25, 2008, [http://www.businessweek.com/globalbiz/content/jan2008/gb20080125\\_533039.htm](http://www.businessweek.com/globalbiz/content/jan2008/gb20080125_533039.htm);

Erlanger, Steven. "Israel Is Set to Promote the Use of Electric Cars," The New York Times, Jan. 21, 2008,

[http://www.nytimes.com/2008/01/21/world/middleeast/21israel.html?\\_r=2&pagewanted=print&oref=slogin&oref=slogin](http://www.nytimes.com/2008/01/21/world/middleeast/21israel.html?_r=2&pagewanted=print&oref=slogin&oref=slogin)

[4] Erlanger, Steven, "Israel is embracing the electric car on a wide scale," International Herald Tribune, Jan. 21, 2008, <http://www.iht.com/articles/2008/01/21/business/cars.php>

- [5] Erlanger, Steven, "Israel Is Set to Promote the Use of Electric Cars," The New York Times, January 21, 2008,  
<http://www.nytimes.com/2008/01/21/world/middleeast/21israel.html?pagewanted=print>
- [6] Krieger, Hilary Leila, "US to fund joint research with Israel," The Jerusalem Post, Dec. 20, 2007,  
<http://www.jpost.com/servlet/Satellite?c=JPArticle&cid=1196847385537&pagename=JPPost%2FJPArticle%2FShowFull>
- [7] "Bush inks energy bill with Israel grant," Jewish Telegraphic Agency, Dec. 18, 2007,  
<http://www.jta.org/cgi-bin/iowa/breaking/105976.html>
- [8] Congressman Brad Sherman's Office, Michael Briggs, 202-225-5911,  
[Michael.Briggs@mail.house.gov](mailto:Michael.Briggs@mail.house.gov)
- [9] Illia, Tony, "Green Light: Nevada's Largest Solar Power Plant Opens," Web site of Southwest Contractor, retrieved on Feb. 12, 2008,  
[http://southwest.construction.com/features/archive/0706\\_feature4.asp](http://southwest.construction.com/features/archive/0706_feature4.asp)
- [10] Tugend, Tom, "Israeli firm Solel contracts to build world's largest solar park in California," The Jerusalem Post, July 29, 2007,  
<http://www.jpost.com/servlet/Satellite?cid=1185379029251&pagename=JPost%2FJPArticle%2FShowFull>
- [11] Sandler, Neal, "Israeli Solar Startup Shines," BusinessWeek, Feb. 14, 2006,  
[http://www.businessweek.com/technology/content/feb2006/tc20060214\\_533101.htm?campaign\\_id=rss\\_tech](http://www.businessweek.com/technology/content/feb2006/tc20060214_533101.htm?campaign_id=rss_tech)
- [12] "Israel to hold tender for solar energy plants," Reuters, Feb. 10, 2008,  
<http://uk.reuters.com/article/oilRpt/idUKL1033616220080210>
- [13] Siegel, Judy, "Israeli photovoltaic cells to produce inexpensive electricity," The Jerusalem Post, Sept. 5, 2007, republished on Web site of Israel 21c,  
<http://www.israel21c.org/bin/en.jsp?enDispWho=Articles%5E11767&enPage=BlankPage&enDisplay=view&enDispWhat=object&enVersion=0&enZone=Technology>
- [14] Ivri-Darel, Yael "While government wavers, Israel's cities combat pollution," Ynetnews, Feb. 3, 2008, <http://www.ynetnews.com/articles/0,7340,L-3501178,00.html>
- [15] "Ormat Industries – Israeli energy pioneer," from the Web site of the Israel Export & International Cooperation Institute, Nov. 23, 2006,  
[http://www.export.gov.il/Eng/\\_Articles/Article.asp?ArticleID=4700&CategoryID=818](http://www.export.gov.il/Eng/_Articles/Article.asp?ArticleID=4700&CategoryID=818)

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