

About the Koret-Milken Institute Fellows Program

The Koret-Milken Institute Fellows Program accelerates Israel's economic growth through innovative, market-based solutions for long-term economic, social, and environmental issues. The program focuses on connecting government, philanthropic, and business resources that are vital to national growth and development.

Directed by the Milken Institute Israel Center, the Koret-Milken Institute Fellows Program awards annual fellowships to outstanding graduates of Israeli and international institutes of higher education. Fellows serve yearlong internships at the center of the nation's decision-making—the Knesset, government ministries, and other Israeli agencies—and aid policymakers by researching and developing solutions for various economic and social challenges.

In addition, fellows craft their own policy studies aimed at identifying barriers to economic and employment growth in Israel. The fellows' studies, carried out under the guidance of an experienced academic and professional staff, support legislators and regulators who shape the economic reality in Israel. The program offers the ultimate educational exercise, combining real-life work experience with applied research five days a week.

Throughout the year, fellows receive intensive training in economic policy, government processes, and research methods. They acquire tools for writing memorandums, presentations, and policy papers, and they develop management, marketing, and communication skills. The fellows participate in a weekly workshop, where they meet senior economic and government professionals, business leaders, and top academics from Israel and abroad. They also participate in an accredited MBA course that awards three graduate-level academic credits that are transferable to other universities in Israel. The course, which focuses on financial and economic innovations, is taught at the Hebrew University of Jerusalem's School of Business Administration by Professor Glenn Yago, Director of the Milken Institute Israel Center and Director of Capital Studies at the Milken Institute in California.

Fellows Program alumni can be found in senior positions in the public and private sectors. Some serve as advisers to government ministries while others work at private-sector companies or go on to advanced studies at leading universities in Israel, the United States, and Great Britain. Within the program's framework, more than 80 research papers have been published, catalyzing reforms, reducing barriers, bringing about economic growth, and improving the quality of life for Israeli citizens.

The Koret-Milken Institute Fellows Program is nonpolitical and nonpartisan. It is funded by the Koret Foundation, the Milken Institute, and other leading philanthropic organizations and individuals in the United States and Israel.

More about the program: www.kmifellows.org

Contact us: info@kmifellows.org

REGULATORY BARRIERS IN THE ALTERNATIVE ENERGY MARKET

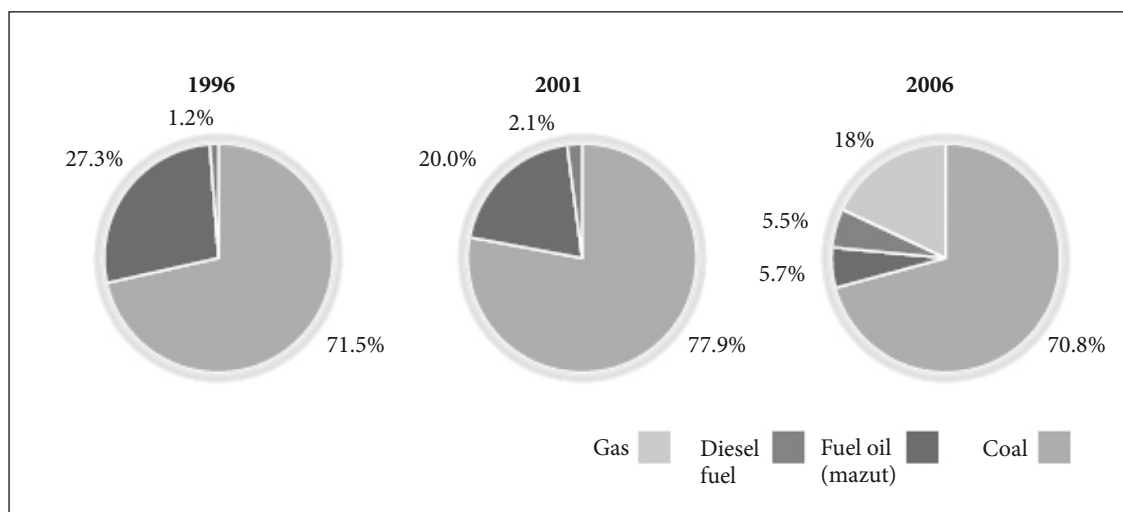
INBAL ROBBAS

In view of its R&D achievements in the domain of renewable energy – energy derived from non-consumable sources such as sun, wind, water, organic waste, sewage, etc. – Israel is potentially capable of exploiting its technological advantage and becoming a world leader in the field. Indeed, Israeli technologies are already used by alternative energy producers, only the technology is used mainly abroad. This paper identifies ways of producing electricity based on alternative sources within Israel. Decisions taken in Israel over the years are examined and compared with environmentally oriented examples throughout the world, from which emerge some practical recommendations for implementation of similar policies in Israel.

BACKGROUND

The market share of energy originated in alternative sources in Israel is rather small. Consisting mostly of home solar water-heating devices, energy produced from alternative sources amounts to some 0.7% of the Israeli energy market. Israel's main sources of energy and electricity production are few (see figure below), and all are imported: crude oil, coal and fuel oil. Only recently has gas (also imported) been introduced to the Israeli energy market.

PRODUCTION OF ELECTRICITY BY TYPE OF FUELS

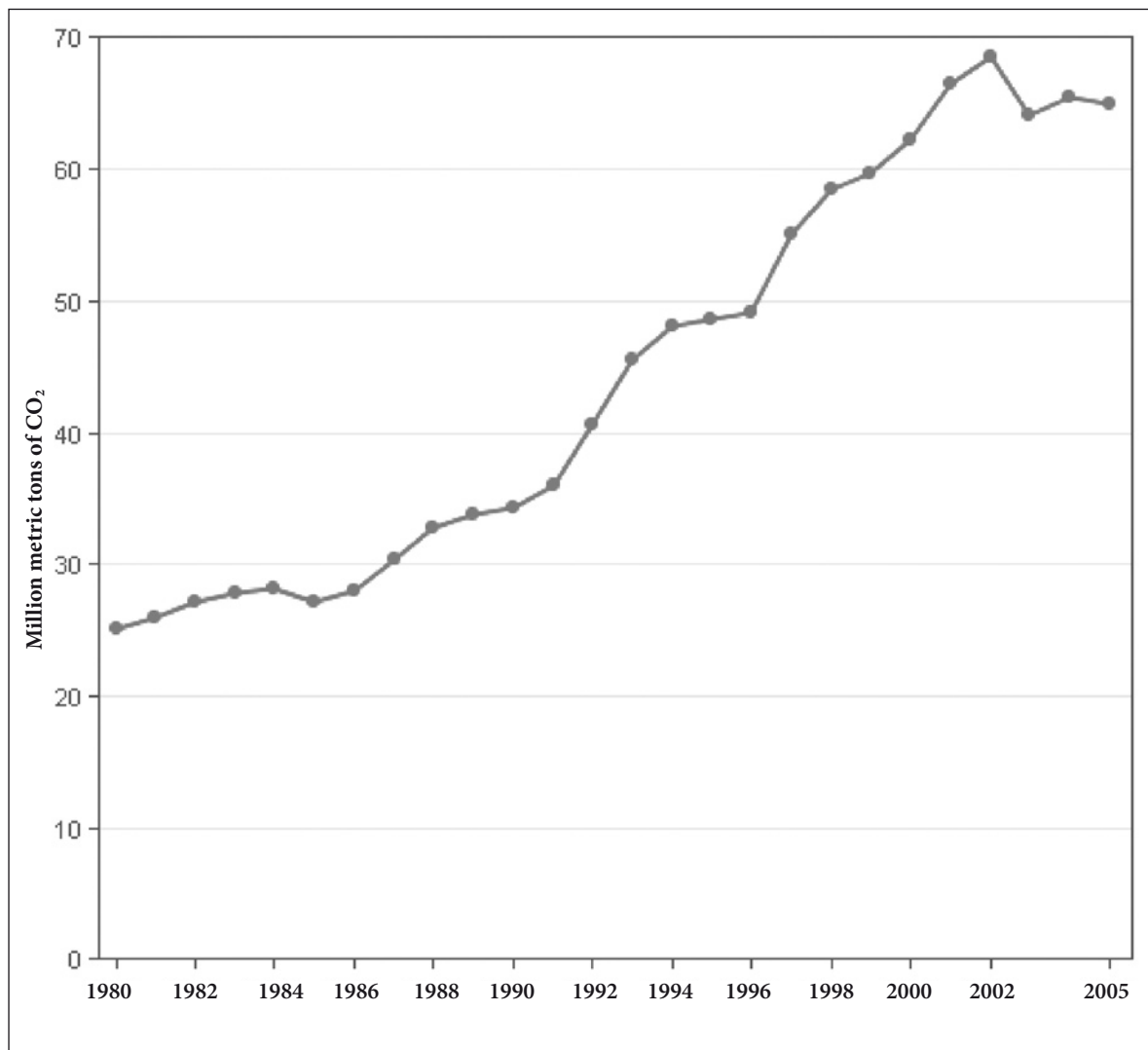


Source: IEC, Statistical Report, 2006, p. 10.

In 2007 energy sources worth \$8.9 billion were imported, and it is projected that by 2020 energy consumption will grow by 200 to 260%. Considering the rise in living standards, these forecasts might prove conservative. Moreover, should Israel increase its desalination and waste reclamation efforts – processes characterized by high energy consumption rates – *per capita* energy annual spending might be as high as \$1,200. Considering Israel's geopolitical situation, this restricted choice of energy sources

may prove to be a severe handicap. It is also environmentally hazardous, particularly in view of the sharp increase in pollution over the past decade, resulting directly from these carbon dioxide-emitting sources, as shown in the following figure. Attempts to change the fuel mix used for electricity production so as to decrease pollution-generating sources has only been partially successful.

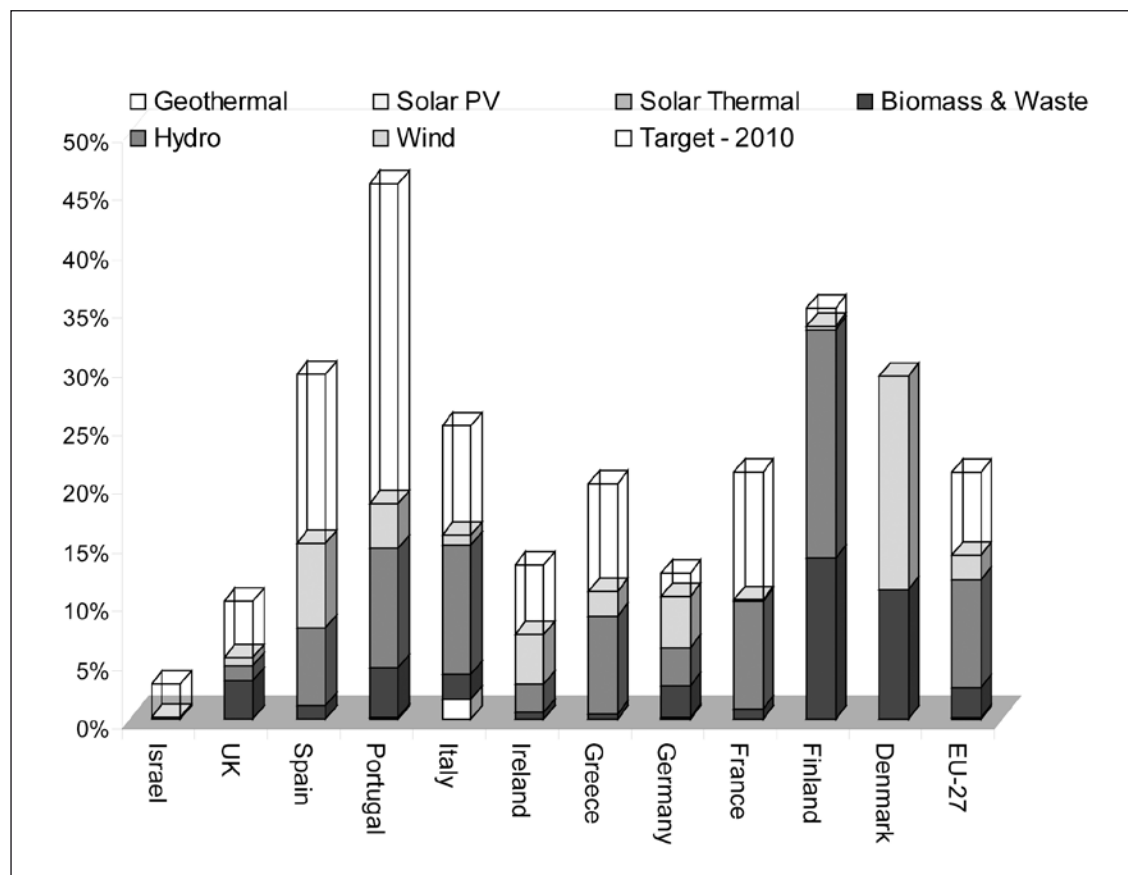
EMISSION OF CARBON DIOXIDE IN ISRAEL, 1980-2006



Source: Israel Energy Profile, International Energy Administration, March 2008,
http://tonto.eia.doe.gov/country/country_energy_data.cfm?fips=IS

The national goals set for energy based on alternative sources are not encouraging from either the environmental perspective or Israel's potential to secure future availability of current energy resources. Compared to the rest of the world, Israel's goals are acutely low, and the disparity between these goals and the current reality is prominent, as shown in the following figure.

ELECTRICITY PRODUCTION BASED ON RENEWABLE ENERGY SOURCES, 2005 AND GOALS FOR 2010



Source: Attorney Uri Noi, Senior Partner, Ardinest, Ben-Nathan & Associates, Forbs, Israel, Green Economics Conference, December 2007. Data for Israel are based on current actual and provisional licenses. Data for other countries were taken from the IEA-OECD report.

THE PROBLEM

Under uncertain conditions prevalent in the Israeli energy market, private organizations that have the technology, and even adequate financial backing, are unable to develop their products within Israel. Entrepreneurs interested in developing alternative energy sources face many difficulties. Israel's Electricity Authority impedes licensing prospects while also setting unrealistic tariffs for suppliers of alternative electricity. At the same time, Israel's Land Administration does not lease plots for the purpose of electricity manufacture, preventing companies with proven track records from realizing their potential in Israel. The Israel Electric Corporation (IEC), the national electricity company, uses its monopolistic status to further hinder competing ventures. The Ministry of National Infrastructures (MNI) refrains from setting a clear policy regulating the relationship between current suppliers in the electricity market and withholds assistance from renewable energy entrepreneurs. Both the MNI and the Ministry of Finance continuously base new operations on tenders. The tender process creates clear barriers in the market while also preventing fair competition. Elsewhere, licences are issued to encourage the development of renewable energy. The process of land allocation for energy plants takes years; since the first governmental decision encouraging alternative energy development, made back in 1998, and until January 2008, no tenders for the production of alternative energy were ever issued.

» WORLDWIDE EXPERIENCE

Since the energy crisis of the 1970s, responding to the sharp increase and fluctuations in the oil market, many countries began to support in-house electricity production based on alternative sources. Over time, environmental considerations also became prevalent in forming energy policies worldwide. The resulting goals of countries around the globe testified to their willingness to invest in the development of energies based on alternative sources.

» EUROPE

The European Union set a target of achieving 20% of electricity from alternative sources 2010. This decision is complemented by measures taken to encourage small producers and suppliers of alternative energy to the electricity markets, while also separating the production line from means of distribution.

» UNITED STATES

The federal government encourages the production of electricity based on alternative sources through its regulation, economic incentives, and individual R&D plans. The National Energy Act, passed in the 1970s as a response to the energy crisis, aims to reduce imported oil and has opened the market to alternative energy sources. Two states in particular, New York and California, have taken the cue and pursued the options made available by the law. Both states encourage investments in renewable energies and apply preferential pricing as well as taxation on polluting products. California granted tax benefits to solar energy producers as early as 1976.

The 1978 Energy Tax Act allowed businesses as well as private consumers tax credits for purchases of electricity based on alternative energy sources. The 1992 Energy Policy Act set the price for such electricity at 1.5 cent per KWH indexed to the rate of inflation for ten years. Two decades later, the indexation still holds. In 1996 ordinances and regulations were completed, setting the price of alternative energy for both the private and the business sectors and in 1999 a 1.5 cent credit per KWH was set for consumers of electricity based on alternative sources. New legislation in 2004 allowed manufacturers of electricity based on alternative sources to sell their product to central electricity networks.

» THE ISRAELI REALITY

While similar decisions were adopted by Israeli governments, none were implemented. The rather low targets (2% by 2007 and 5% by 2016) set for the Israeli energy market may indicate a lack of determination to change the current situation. Following are some examples of barriers that must be overcome to advance the viability of renewable energy.

Renewable energy rates. It was not until 2006 that a rate for renewable energy was set, and even then only the role of solar energy was determined; the rate does not constitute an incentive of any kind for potential manufacturers. Energies based on other sources such as wind or water are still waiting for rates of their own.

Tax breaks. Tax breaks that encourage the use of clean energy were set only in January 2008, in the *Green Taxation Report*. Government Decision No. 2935 from January, 13, 2008, exempting small installations from tax up to a ceiling of 18,000 NIS, still awaits implementation in the form of a Tax Authority ordinance.

From tenders to licenses. Recognizing the barrier posed by tenders, most European countries have developed a licensing system for new players in the energy market. In Greece, for instance, nearly all types of alternative energy may be produced subject to licensing, save for geothermal energy, whose resources are limited. The Israeli tender system has slowed potential operations in the energy market.

Self-consumption production. In most European countries, self-consumption production of up to 150 KW does not require licensing or even municipal approval. In Israel, only in July 2008, was home use production of photovoltaic energy regulated and exempted from IEC licensing. However, such production still requires construction permits from the municipality. The great similarity between such facilities and popularly used solar panels might help simplify the process and lead to an eventual exemption from construction permits.

Facilitating the connection to the electricity grid. In many countries, precedence is given to manufacturers of electricity based on alternative energy sources in their connection to national grid networks. This is, of course, a significant incentive for the production of alternative energy. In such countries, licenses, production, and supply are closely monitored to ensure national goals are fulfilled. There is no such procedure in Israel, nor there is any preference given to alternative energy.

RECOMMENDATIONS

While there are no magic formulas for successful implementation of alternative energy sources, the European experience provides some clear guidelines. The Israeli alternative energy market will only develop when a comprehensive policy is devised, by which significant goals and time limits are set, accompanied by appropriate regulation. To achieve this end, a designated authority must be established to follow up and execute national policies in the matter as well as assume responsibility as liaison between the various institutions dealing with energy. In tandem, production of electricity based on alternative sources must also be anchored in legislation:

- The market must make a transition from tenders to licensing for each alternative source, while self-consumption production systems should be exempted from licensing demands;
- Land should be made available for the purpose;
- The Electricity Authority must set realistic tariff rates for each source of alternative energy. These should take into consideration full production costs so as to provide an incentive for the development of alternative energy;
- Relationships between the IEC and private manufacturers of energy must be anchored in legislation and precedence should be given to the latter.

FURTHER READING

The Koret–Milken Institute Fellows Research Program aims to stimulate Israeli economic expansion through increased involvement of the private sector and new financial solutions for old problems. More on the issue of alternative energies can be found in the full research study published in Hebrew on the program website: www.kmifellows.org.

The research study by Inbal Robbas presents managerial and policy failures in Israel's prospective energy market and proposes strategies for encouraging the production of electricity from alternative sources. The first part of the paper describes the local energy market, with its imported and polluting sources. It also shows the upcoming projected shortage of energy and its implications for the economic viability of Israel. The second part of the paper looks into existing energy policy – or the lack thereof – and examines governmental failure to execute its own decisions. Part three presents the barriers encountered by potential local manufacturers while part four examines energy policies and practices worldwide. The fifth and last section of the paper presents recommendations to policy makers pertaining to the development of the Israeli energy market.

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תוכנית עמיתי קורת – מכון מילקן
בית מילקן, רחוב תל חי 13
ירושלים, 97102

info@kmifellows.org
www.kmifellows.org