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Israel

Bio-Fuels

Israeli Renewable Energy Market

2007

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Report Highlights:
Currently, there is no domestic production or import of bio-fuel ethanol and bio-diesel. Field experiments of bio-diesel plants began 3 years ago and are continuing. Experiments have been conducted on Castor bean and Jatropha curcas. Experiments are conducted at the Volkani Institute Agricultural Research Organization (ARO), the research division of the Israel Ministry of Agriculture. Volkani's strategy is focused on bio-diesel crops and not on bio-ethanol crops.

Includes PSD Changes: No
Includes Trade Matrix: No
Annual Report
Tel Aviv [IS1]
[IS]

Domestic Policy Environment

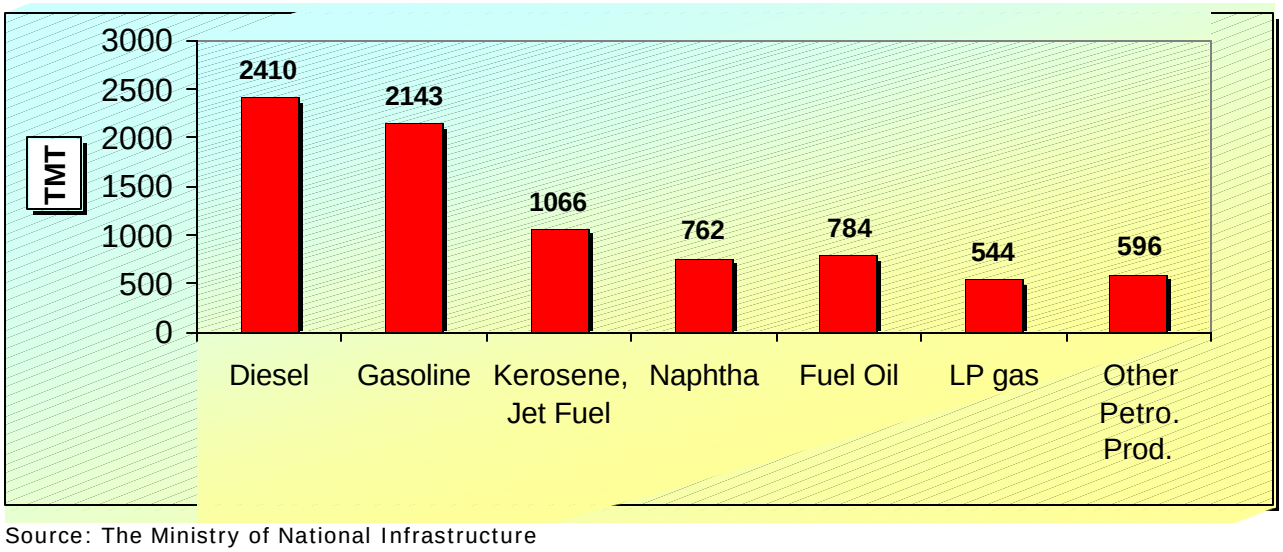
Israel is a newcomer to the renewable energy sphere; however, the Government of Israel (GOI) has set up a task force to develop a bio-fuels regulatory framework. Four Ministries are responsible for establishing the bio-fuel regulatory framework: Ministry of Infrastructure, Ministry of Transportation, Ministry of Environment, and Ministry of Finance. It is assumed that due to the complexity of the industry and the high number of interested parties, the renewable energy policy will not be implemented within the next two years.

Size of the Market

Israel is totally dependant on imported crude oil. In recent years, out of total crude oil imports, about 94 percent was imported from the Black Sea Basin (Russia and Ukraine), and the rest was imported from Egypt and Mexico. The Israeli fuel industry produces about 70 and 80 percent of Israel's gasoline and diesel requirements, respectively (see table 1).

In 2006, total local petroleum products consumption totaled 8,305 thousand tons. Israel consumes about 2.1 billion liters of gasoline and 2.4 billion liters of diesel annually, and there is a potential for a 5 percent voluntary or compulsory ethanol/bio diesel-blending ratio, which means a potential of 0.105 billion liters of ethanol and 0.120 billion liters of bio-diesel annually.

Chart 1: Consumption of Petroleum Products, 2006, TMT, Israel



Source: The Ministry of National Infrastructure

Table 1: Imports of Petroleum Products, Out of Final Consumption, Percent, Israel

CY	Gasoline	Diesel	Kerosene	Lpg	Naphtha
2003	32.5	27.4	39.1	20.3	23.8
2004	21.8	36.4	33.5	13.5	57.7
2005	25.9	44.6	27.2	25.7	31.2
2006	28.0	21.2	18.9	29.0	24.0

Source: The Ministry of National Infrastructure

Ethanol Trade, Bio-Diesel Trade, Corn Sweetener Trade

There is no domestic production or import of bio-fuel ethanol and bio-diesel.
No exports of ethanol and bio-diesel were recorded in recent years, and this situation is not expected to change in the coming years.

Ethanol and Sweetener Produced from Corn

Currently, there is no local production of ethanol from corn, and this situation is not expected to change in the future.

In MY 2005, local corn consumption totaled 1.17 million tons, 13 percent higher than in the previous year. In addition, crop year 2006 was the third consecutive year that corn for grain (yellow corn) was grown in Israel. Approximately, 1,000 HA were planted, and production totaled 13,300 MT. All local grain corn was non-biotech and was consumed by food manufacturers that export their products to Europe. Due to the increasing demand for Ethanol, the average price increased significantly in recent years, and as a result, local yellow corn production is expected to increase by 100-150 percent, and planted area will total 2,000-2,500 ha. The local production volume is determined by international prices for yellow corn and the availability of water for irrigation. However, corn production is not expected to increase significantly in the future, as corn production is not economical due to Israel's serious water shortage.

Ethanol Produced from Sugarcane or Sugar Beets

There is no ethanol produced from Sugarcane and Sugar Beets. This situation is not expected to change in the next years.

Bio-Diesel Produced from Oilseeds, Vegetables Oils, Palm/Coconut Oil (and other Oils of Fruit), Animals Fats/Oils

Currently, there is no Bio-Diesel produced from oilseeds and other feedstock, and oils.

Local Electricity Market and Renewable Electricity Sources

The Israel Electricity Corporation (IEC), a government –owned electricity utility, dominates Israel's electricity sector. In 2006, local electricity production supply totaled 47,153 million KWH (kilowatt-hours), of which 44.3 million KWH (0.09 percent) was produced by power plants using only renewable energy sources, such as bio gas (biomass), hydroelectric energy and wind energy. In addition, it is estimated that solar energy will be used in the next few years.

In November 2002, the GOI decided that the share of national renewable electricity production in national consumption would be 2 percent in 2007 and 5 percent in 2016. However, the GOI is still not on track to meet it's targets for 2007 and 2016.

From 2000 to 2006, total local electricity supply increased 21 percent, from 38,811 million KWH in 2000 to 47,153 million KWH in 2006, and it is expected to continue to grow by 2.5-3.5 percent annually, in the next years. In Israel, almost seventy percent of electricity production is produced from coal, and the remainder is produced mainly from natural gas (see table 2). IEC, the main end-user for natural gas is in the process of converting its oil-driven power stations to natural gas.

Israel does not import any electricity; however, the GOI might import electricity from Egypt and Eastern Europe in the future.

Table 2: Israeli Electricity Market

CY	Total Electricity Supply (million KWH)	Percentage of Coal In Total Inputs to Electricity Generation	Natural Gas Percentage In Total Inputs to Electricity Generation	Percentage of Residual Fuel Oil In Total Inputs to Electricity Generation	Percentage of Gasoil In Total Inputs to Electricity Generation
2000	38,812	68%	0%	25%	7%
2001	39,668	75%	0%	23%	2%
2002	40,927	76%	0%	19%	5%
2003	42,505	76%	0%	19%	5%
2004	43,867	73%	10%	13%	4%
2005	45,267	70%	13%	10%	7%
2006	47,153	68%	18%	8%	6%

Source: The Ministry of National Infrastructure

Bio Gas

Currently, one biogas plant exists in Israel. It has begun to produce electricity in July 2007. The plant uses manure collected from dairy farms and poultry in the area as raw material. The electric production capacity of the plant is about 2-2.4 MWH. In addition, three new regional biogas plants will be established in the next 2-3 years (two in the northern parts of the country and one in the southern part of Israel). GOI will fund the new biogas plants.

Testing for Bio-Diesel Crops in Israel

Field experiments of bio-diesel plants began 3 years ago. To date, experiments have been conducted on Castor bean and Jatropha curcas. In CY 2007 planted area for experimental bio-diesel crops totaled 2 hectares.
Experiments are conducted at the Agricultural Research Organization (ARO), the research division of the Israel Ministry of Agriculture. The field experiments are of genetically engineered Castor bean and Jatropha curcas. It is prohibited to conduct field experiments for biotechnology crops near seed fields, organic or commercial fields. In order to conduct an experiment an application must be submitted to the Plant Protection and Inspection Services of Israel (PPIS).

ARO strategy is focused on bio-diesel crops and not on bio-ethanol crops. Furthermore, ARO strategy is currently based on the idea that renewable energy will be produced from non-food crop sources. In addition, Castor bean and Jatropha curcas are suitable for developing countries, such as Ethiopia, Zambia, Brazil and China. However, in the future it is possible that ARO will conduct experiments on crops, such as Sweet Potato and Sugar Beets (for ethanol production).

Table 3: Bio-Diesel Crops

Crop	Kg oil/ha	Liters oil/ha	US gal/acre	Oil Content
Castor beans	**1,188**	**1,413**	**151**	**50%-55%**
Coconut	2,260	2,689	287	70%
Corn (maize)	145	172	18	12%
Cotton	273	325	35	13%-15%
Jatropha	**1,590**	**1,892**	**202**	**30%-50%**
Palm Oil	5,000	5,950	635	35%
Peanuts	890	1,059	113	36%
Rapeseed	1,000	1,190	127	37%
Soybean	375	46	48	15%
Sunflower	800	952	102	32%

Source: http://www.journeyforever.com/ - Jan. 2007 – This data is complied from a wide range of sources.