

# IEA-Advanced Motor Fuels ANNUAL REPORT 2016

An aerial photograph of a city, likely Tel Aviv, Israel, showing a dense urban area with many buildings, a river, and a large green forested area in the foreground. A highway with several billboards is visible in the lower part of the image.

Israel

## Israel

### Drivers and Policies

In 2011, the Fuel Choices Initiative (<http://www.fuelchoicesinitiative.com/our-goals>), Israel's national program for alternative fuels and means of transportation, was launched as a joint governmental effort headed by the Prime Minister's Office. The Initiative aims to establish Israel as a showcase to the world for knowledge and industry in alternative fuels and smart mobility. Together with 10 partner government ministries, the Initiative aims to create a business-supportive environment for the market through simplification of bureaucratic processes and a means to quickly respond to market changes and needs. It supports Israel's interdisciplinary nature and Israeli entrepreneurs' operational agility, as well as cutting-edge academic research and exceptional cooperation between academic institutions and industry. The scope of work performed by Initiative partners within the various government ministries and related agencies is immense and affects about 500 companies, 220 research groups, and hundreds of entrepreneurs (see Table 1).

Table 1 Growth of Israel's Alternative Fuels Research Groups, Industry, and Investment, 2011–2016

Year	Research Groups	Companies	Cumulative Investments (€million)
2011	45	60	250
2016	220	500	2,000

### Standardization

A committee composed of Initiative members, including the Ministry of Environmental Protection, the Ministry of Energy, and the Ministry of Transport, works together with Government agencies such as the Standards Institution of Israel to:

- Create standards and regulations for new vehicle types,
- Adopt new fuel and mobility standards,
- Support training for industry professionals,
- Enable applied experiments of innovative solutions and technologies, and
- Promote propulsion and vehicular technologies.

### Recent Standards

The Standards Institution of Israel issued in 2016, a new standard for M15 (85% gasoline with 15% methanol). This is the first standard for a low percentage methanol fuel issued outside of China. Standards and methods of implementation for compressed natural gas (CNG) vehicles, fuel stations, and vehicle repair shops have also been issued in the last few years.

### Taxation

On March 2016, the 3rd Green Taxation Interministerial Committee released comprehensive policy recommendations to promote the use of oil substitutes through economic incentives, a focus on environmental benefits, and an emphasis on the country's energy security. The recommendations include a differentiated taxation policy ("Green" Progressive Taxation) for the three fields related to energy for transportation — infrastructure, fuel types, and motor vehicles.

### Advanced Motor Fuels Statistics

Table 2 presents fuel and vehicle use in Israel in 2016.

Table 2 Fuel and Vehicle Use in Israel in 2016

Parameter	Gasoline	Diesel				Jet Fuel
Type of Vehicle	Mainly Private Vehicles	Trucks	Buses	Private Vehicles, Minibuses, Taxis, and Other	Trains	Jet Planes
No. of	2,665,274	324,137	20,146	100,000	Not	Not specified

vehicles			specified
Total fuel consumption (thousand tons)	3,169	3,216	934
Current usage of fuel (%)	43	44	13

## Research and Demonstration Focus

Fuel Choices Initiative activities, some in cooperation with local authorities, include the following:

- *Subsidies for 500 Electric Vehicle (EV) taxis.* The Israeli Government issued 500 reduced rate taxi licenses (Medallion Licenses) for electric taxis.
- *Eilat EV taxi pilot.* Initiation of a pilot project in Eilat to examine the practical and economic aspects of operating EV taxis.
- *Support for the purchase of electric buses.* The Israeli Government provides budgetary support in order to encourage the purchase of electric buses. Egged, one of the largest public transport operators in Israel, was the first to win a grant for 25 electric buses in the Haifa area. The Initiative also supports the testing of other electricity-based technologies in buses, such as super-capacitors.
- *CNG buses and garbage trucks.* The Ministry of Transport allocates budgets for purchasing CNG buses for public transport operators. With the high number of annual kilometers traveled by buses, the use of CNG buses will make a significant contribution to reducing pollutant emissions and dependence on oil. Resolution 529 of the Israeli Government called for reducing air pollution and environmental risks in Haifa Bay. Egged and the Haifa Municipality are preparing for implementation by acquiring CNG buses and garbage trucks.
- *Promotion of public transportation tenders.* Resolution 1837 of the Israeli Government called for a provision of 50% mandatory electric or CNG buses in all future Public Transportation Operator tenders.
- *Railway network electrification.* A program that aims to upgrade Israel's rail infrastructure and train fleet to electrically powered propulsion. The upgrade will reduce oil consumption by 85%, increase energy efficiency, reduce pollutant emissions, improve operations and transportation system reliability, and save on energy maintenance costs.

## Major Research Centers and Grants

The following activities are being carried out by major research centers and grants:

- The Ministry of Science, Technology, and Space established a national foundation for engineering and applied sciences in order to bridge the gap between basic research and industrial research in different fields related to energy.
- The Ministry of Environmental Protection promotes research projects and coordinates knowledge in relation to the environmental impacts and aspects of alternative fuels for transportation.
- The Ministry of Transport promotes research projects for the advancement of scientific and technological innovation in the transportation sector, such as sustainable transport. In addition, it promotes tools to enrich data required for efficient and sustainable transport planning and encourages the application of innovative systems.
- The Ministry of National Infrastructure, Energy and Water Resources supports different programs that encourage entrepreneurship and innovation in the field of alternative fuels. The programs support research and development (R&D) in several stages of the development process, from academic research through support of pre-seed ideas, all the way to pilot and demonstration projects. In addition, the Ministry has a student scholarship program for academic institutions in Israel and abroad, in order to develop the human resources pool for different areas of expertise in the alternative fuel professions and research areas.
- The Ministry of Economy and Industry

### *One-Stop Center for Companies*

The Fuel Choices Initiative operates a special "onestop" center for businesses, together with the Ministry of Economy, under the auspices of the Israel NewTech Division and the Investment Promotion Center. The center assists businesses in overcoming obstacles in the regulation process.

### *Scale Up: Co-Invest Fund*

A 400 million NIS (\$100 million US) co-investment fund promotes large investments in venture-backed companies working in the field of alternative fuels and smart mobility. Companies benefit from the program by receiving additional funding from the Government, in the form of a conditional loan, on top of investment raised privately. The investor has the option of paying off the government loan and receiving additional shares in the company for the same terms of the original round of investment. If the investor does not exercise this option, the company must repay the loan only in the case of financial success, through royalties from sales.

### Ministerial Research Grants and Programs

The Fuel Choices Initiative, together with the Council for Higher Education, supports several major research programs at Israeli universities.

- The Israel National Research Center for Electrochemical Propulsion (INREP) is a multi-disciplinary center dedicated to the R&D of electric mobility. This includes development of advanced materials and technologies for EVs, batteries, and fuel cell-based propulsion for transportation.
- The Israel Science Foundation (ISF) has developed several programs aiming to promote, encourage, and support excellent research in the field of petroleum alternatives for transportation, including individual research grants and grants for holding international workshops.

### Outlook

Figure 1 shows the expected penetration rate for alternative fuels in Israel for 2015 through 2030.

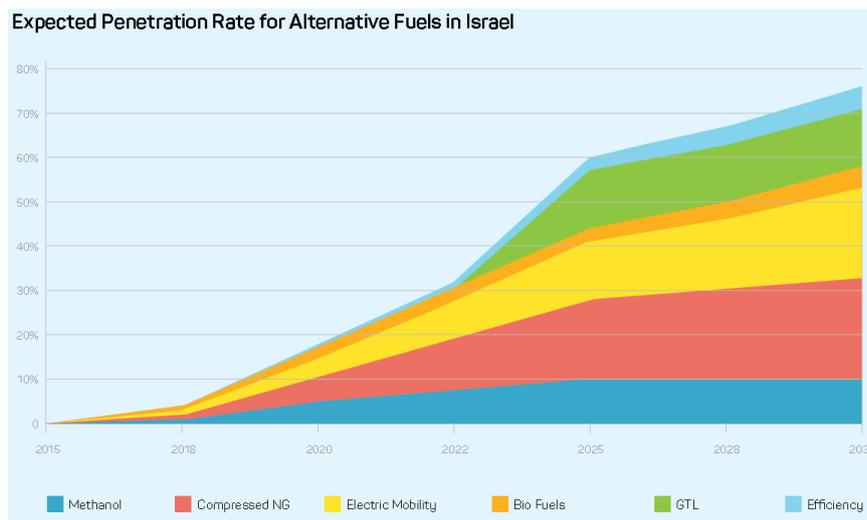


Fig. 1 Expected Penetration Rate for Alternative Fuels in Israel, 2015–2030

(Source: Prime Minister's Office, 2016, Fuel Choices Initiative Report, [http://www.fuelchoicesinitiative.com/wp-content/uploads/2016/07/Fuel\\_choices\\_initiative-WEB-2016.pdf](http://www.fuelchoicesinitiative.com/wp-content/uploads/2016/07/Fuel_choices_initiative-WEB-2016.pdf))

### Additional Information Sources

- Israel's automotive and smart mobility industry – Roland Berger's Study, <http://www.fuelchoicesinitiative.com/wp-content/uploads/2016/07/Israels-automotive-and-smart-mobility-industry.pdf>
- Fuel Choices Initiative Brochure, [http://www.fuelchoicesinitiative.com/wp-content/uploads/2016/07/Fuel\\_choices\\_initiative-WEB-2016.pdf](http://www.fuelchoicesinitiative.com/wp-content/uploads/2016/07/Fuel_choices_initiative-WEB-2016.pdf)

#### Benefits of Participation in the AMF TCP

Participation in the AMF TCP has given Israel greater access to the most relevant and up-to-date information and research on alternatives to traditional transport fuels. Leveraging this international expertise has helped Israel build its national research capabilities in support of its current and projected strategies.