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UNITED ISRAEL APPEAL

Introduction
The Energy Sector in Israel

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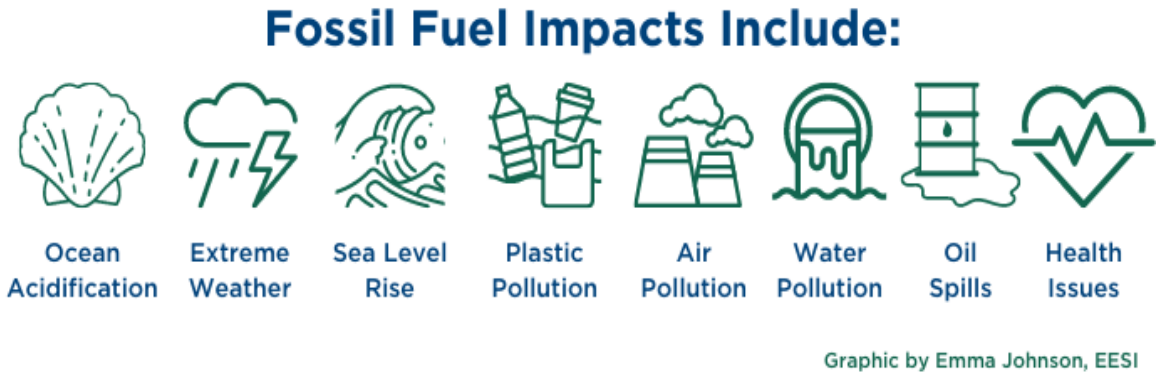
Energy embodied in fossil fuels

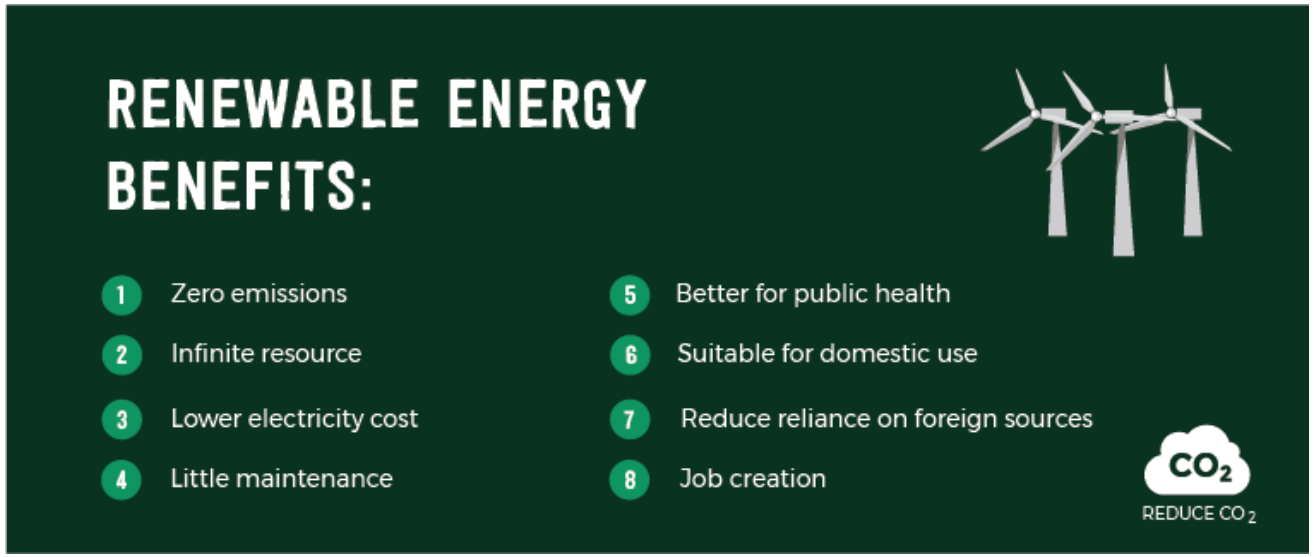
Fossil fuels - coal, oil and gas - are non-renewable resources that take hundreds of millions of years to form.
When burned to produce energy, cause harmful greenhouse gas emissions, such as carbon dioxide that trap heat in the earth's atmosphere and **contribute to climate change.**



https://www.youtube.com/watch?v=zaXBVYr9Ij0

Renewable energy

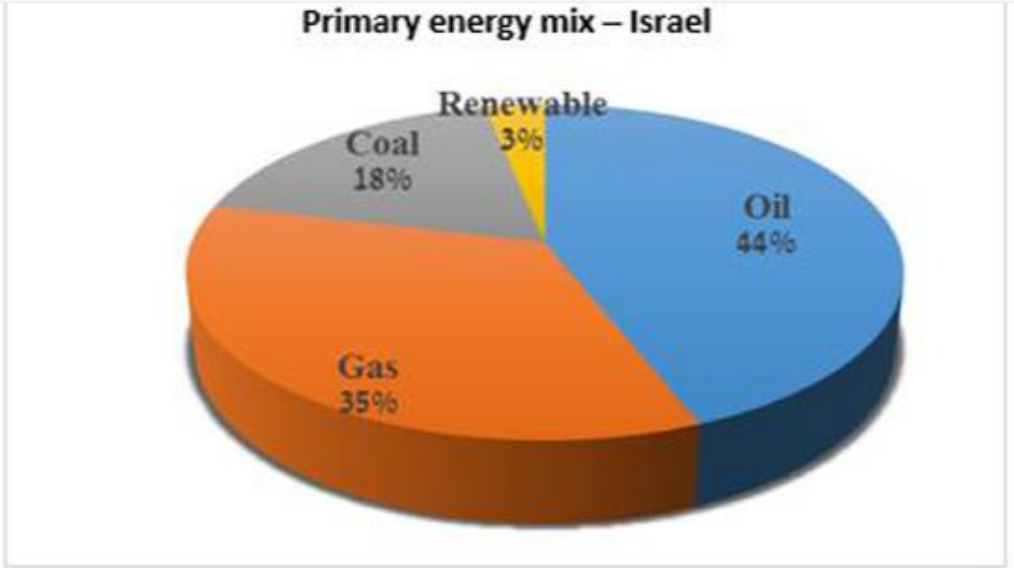
Renewable energy is energy derived from natural sources that are constantly being replenished (e.g., sunlight and wind- sources).
Generating renewable energy creates far lower emissions than burning fossil fuels.
Transitioning from fossil fuels to renewable energy is key to addressing the climate crisis.
Renewables are now cheaper in most countries
Renewables and generate three times more jobs than fossil fuels.

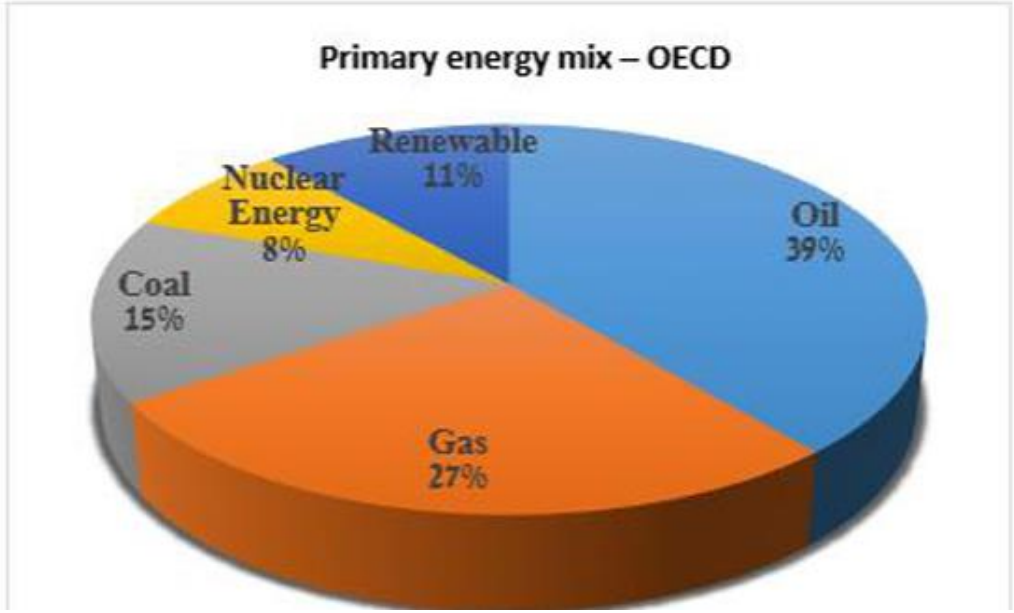


https://www.youtube.com/watch?v=1kUE0BZtTRc

Israel's Energy Mix (2018)

- The natural gas component in Israel is more significant than in OECD countries.
- Fossil fuels are widely used (about 63%), compared with more widespread use of renewable and nuclear energy in OECD countries
- The share of renewable energy in Israel accounts for only 3% of the fuel mix used for primary energy production, compared to 11% in OECD countries
- OECD countries also use nuclear energy (about 8% of the fuel mix).





Israel and OECD countries primary energy consumption mix for 2018

Israel's Energy Sector

- Nearly all of Israel's energy comes from natural gas and coal.
- The oil market in Israel is based on imports.

- Electricity demand in Israel is expected to grow by 2.1% per year due to:
  - Population growth
  - Rising standard of living
  - Increased electrification of end-uses (e.g. electric vehicles in transport)
  - Further need for desalination

Israel's Energy Sector

Challenges:

- an energy island
- Population growth
- Population density
- A shortage of available land

Opportunities:

- Natural gas reservoirs
- Climate (sun)
- Innovation

'Orot Rabin': Israel's largest power station

Rooftop solar thermal water heating systems

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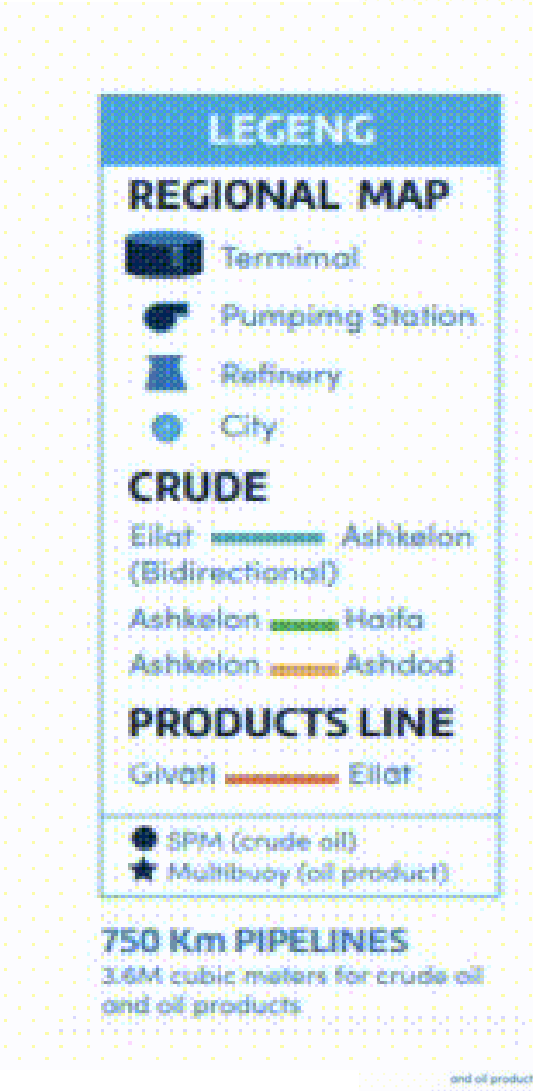
Europe Asia Pipeline Co. Ltd

- A government company
- In charge of the transportation of crude oil and petroleum distillates through pipelines between the Red Sea and the Mediterranean.

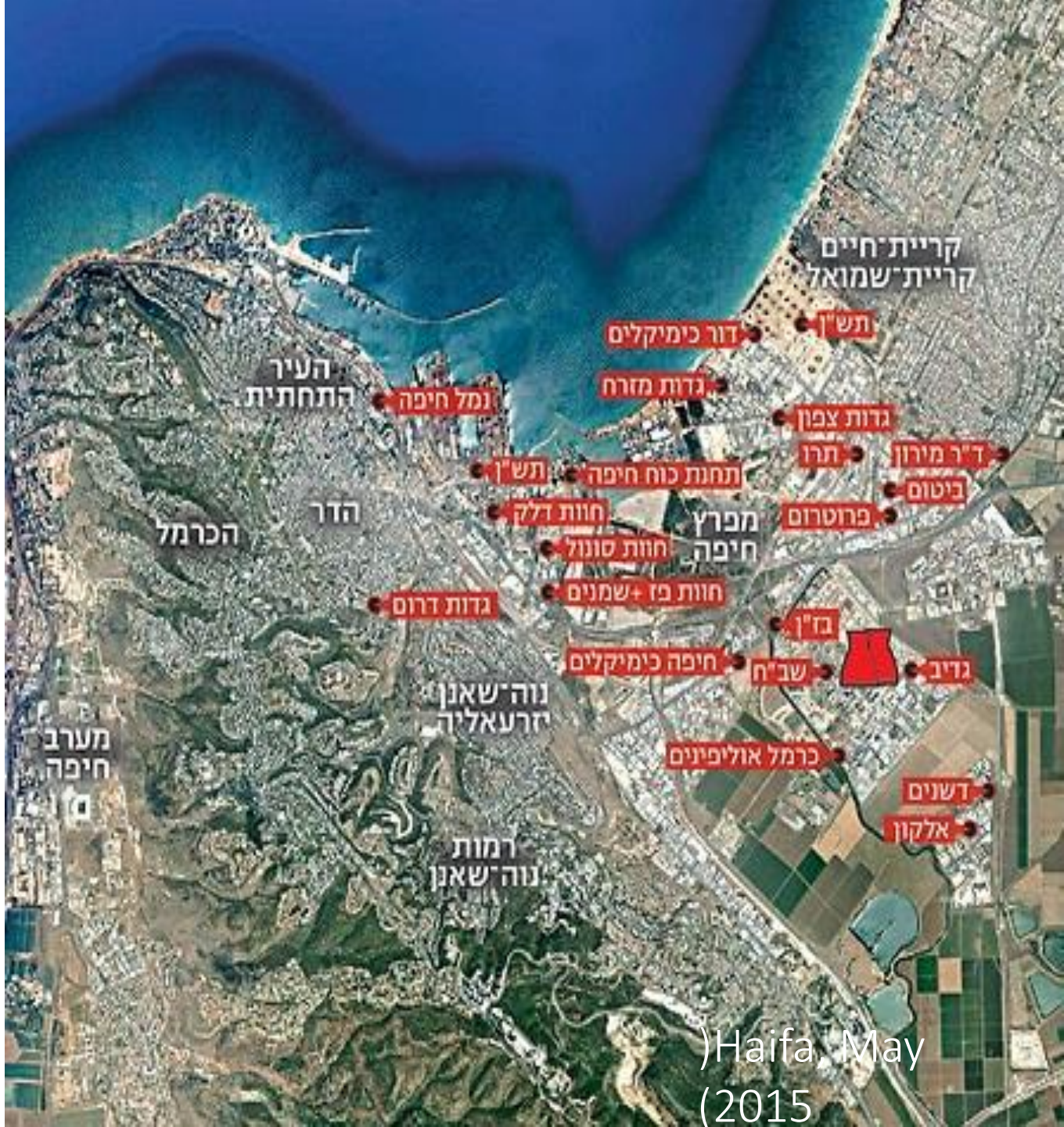
https://www.eapc.com/




H. Nativ - Morris Kahn Marine Research Station

Haifa Bay is one of Israel's air pollution hotspots due to its high concentration of industrial plants, including an oil refinery and chemical and petrochemical industries, alongside high transport loads and port activities

- a wide range of hazardous material sources, including an ammonia tank and fuel farms, are physically proximate to population centres
- Topographic and climatic conditions that aggravate air pollutant dispersion.



)Haifa, May (2015

Morbidity and ORL Bazan

- **A significant link** between the occurrence of exceptional pollution from the refinery complex and hospitalization.
- A significant link between exposure to SOX (Solphur Oxides) from the refinery complex and an increase in the incidence of cancer.
- An increase of 3-20% in the incidence of all cancers and 5-7% lung cancer due to air pollution originating in the refinery comple
- People in Haifa smoke less than the avg.

Ministry of Health, Nov. 2015

מדינת ישראל
משרד הבריאות
Israel Ministry of Health

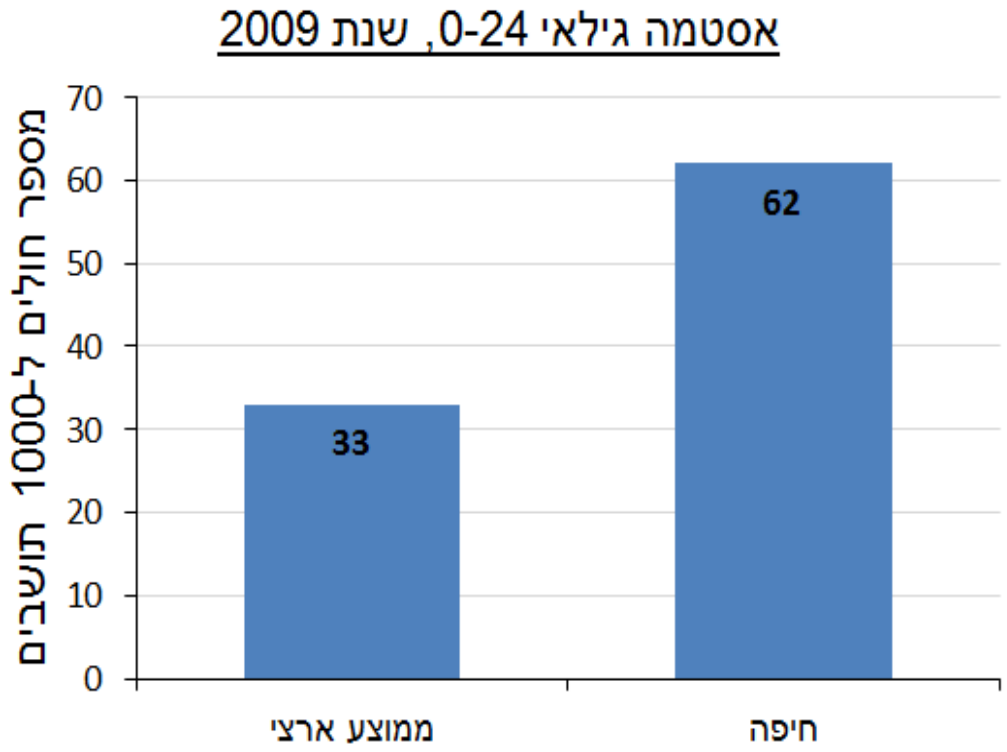
Asthma cases in young pop.

"The relationship between exposure to fine particles and morbidity was found when the concentration of particles in the air was low, and did not deviate from the environmental values prescribed by law in Israel, and therefore compliance with the environmental standard **does not necessarily guarantee** fo ecnesba eht ".egamad

Ministry of Health, DEC 2011

איזבלה קרקיס, יוני דובנוב, תמר ברמן, מיכאל גדלביץ, איתמר גרוטו, הקשר בין זיהום אוויר לממצאים בריאותיים – סקירת הידע העדכני בישראל, דצמבר 2011.

2.28 times more than the avg.



High prevalence of **childhood asthma in Northern Israel** is linked to air pollution by particulate matter: evidence from GIS analysis and Bayesian Model Averaging

Portnov et. al. 2012

Cancer Rates in Haifa

Kiryat Haim demonstration targets adjacent government-owned fuel storage facilities.

Noa Shpigel

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Published on 04.05.2015

10.04.2018

Hundreds of people demonstrated Sunday afternoon in Kiryat Haim near Haifa, protesting the pollution caused by the plants of the Haifa Bay area, and the lack of treatment of the pollution and disease it causes by the authorities. The demonstration started with a march along Degania Street, which is considered to have a high level of cancer incidence. The street is adjacent to a plant

The Israeli Ministry of Energy

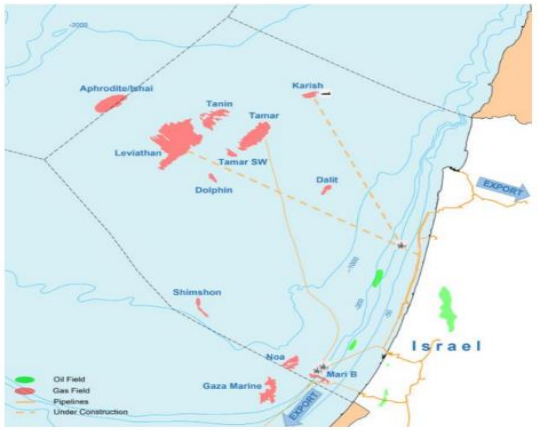
Transition to cleaner and more environmentally friendly energy sources:

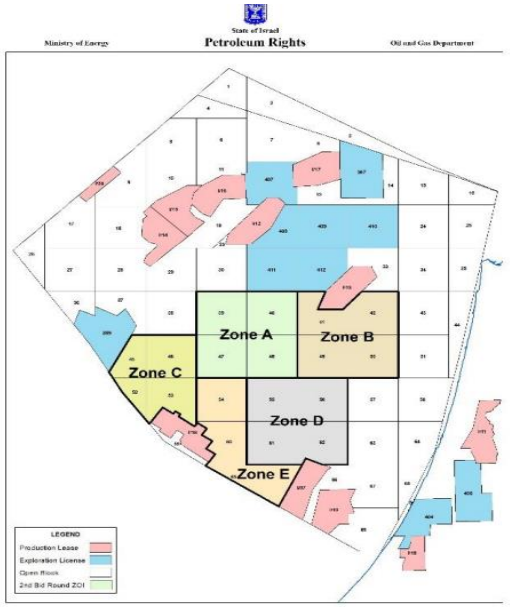
- Promoting reforms
- Developing infrastructure
- Investing heavily in R&D in the fields of conventional and renewable energy

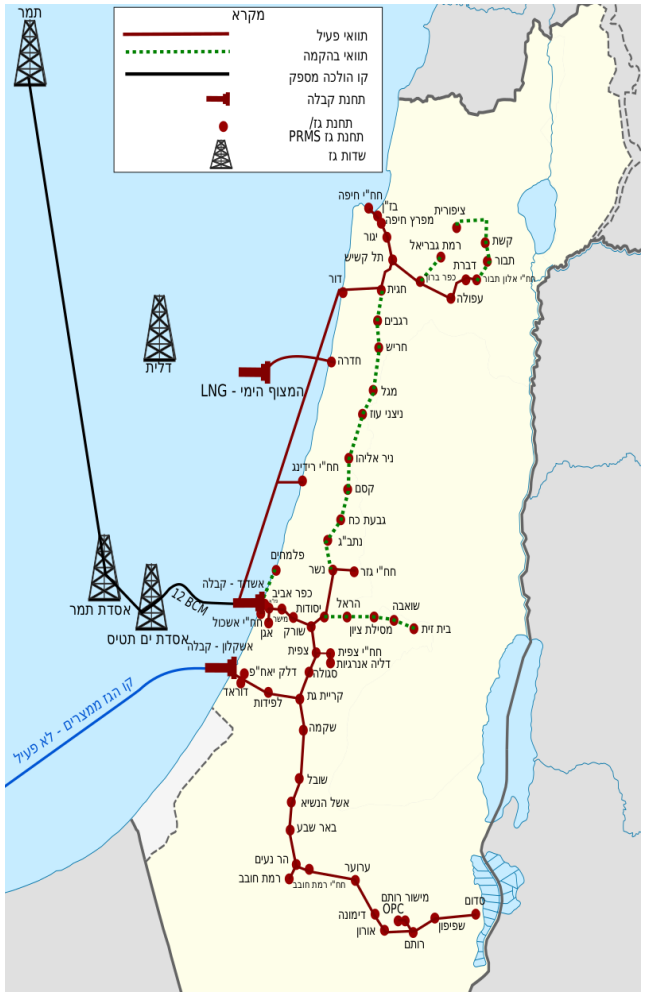
- Short term: the **use of natural gas** and other alternative fuels
- Long term: **renewable energy**

The Natural Gas Sector

- 2009: natural gas discoveries.
- By the end of 2019, the country's electricity sector was based on approximately **66% natural gas**, **approximately 7% renewable energies**, and the rest coal and other fuels; which gives Israel **energy independence.**





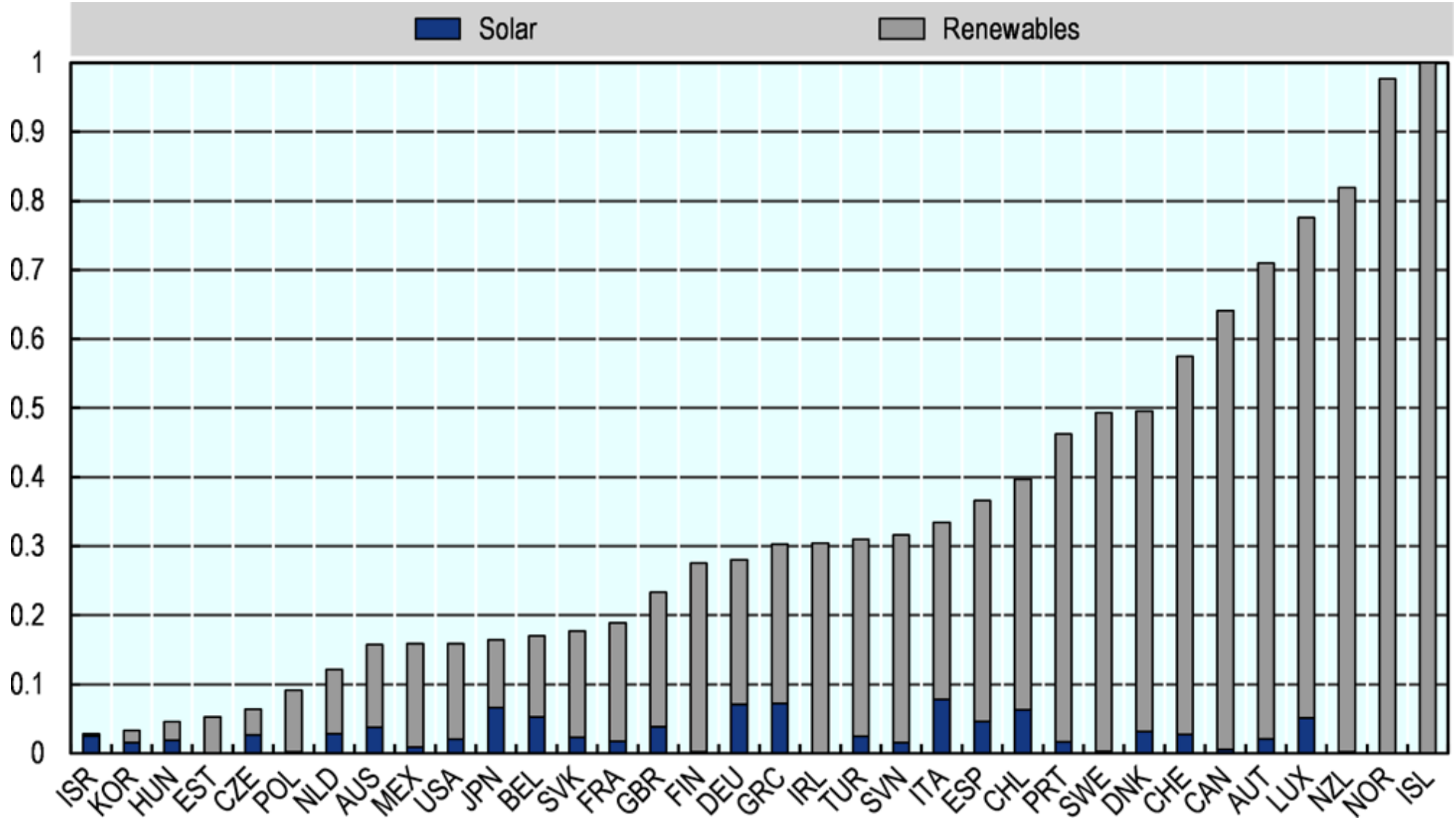


Solar energy

- Solar energy is the most abundant of all energy resources.

- Solar technologies convert sunlight into electrical energy either through **photovoltaic panels** (PV) or through **mirrors** that concentrate solar radiation.
  - They can deliver heat, cooling, natural lighting, electricity, and fuels for a host of applications.
  - They are affordable and often the cheapest form of electricity

Benefits: improvements in public health, rural development, creation of high-tech jobs and export opportunities.



Renewables and solar share of electricity generation across OECD countries in 2018

Solar energy in Israel

The future is bright — Why solar panels are the hottest trend in homes in Israel

In order to meet Israel's goal of increasing the production rate of green energy to 30% within a decade, the State is promoting legislation that allows owners of private homes and commercial buildings to set up a solar power plant on the roof. While the system can bring a double-digit return on investment for some, for the hundreds of thousands who own apartments in shared buildings, it is not yet profitable.

Solar field, Kibbutz Elifaz

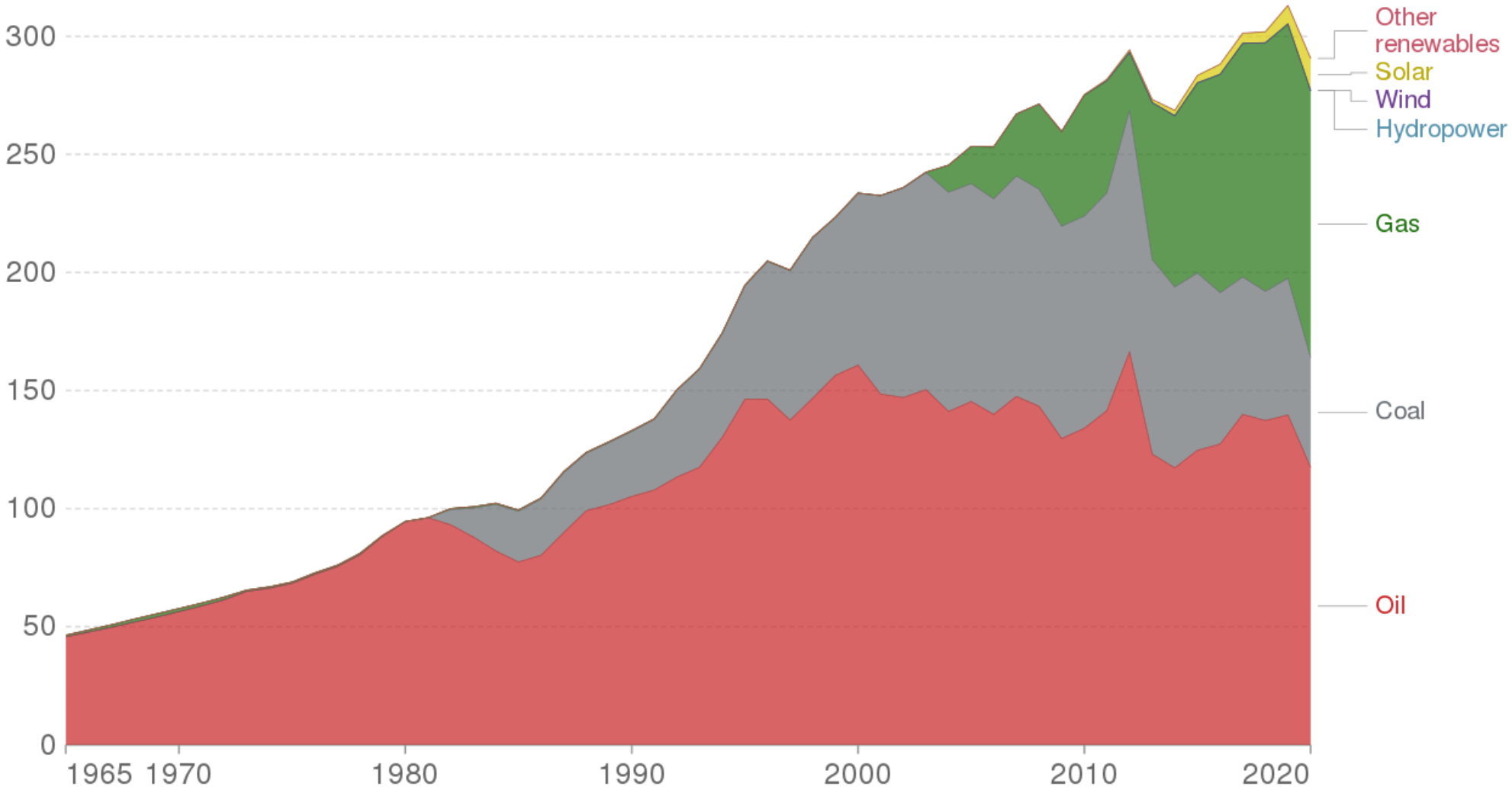
https://www.youtube.com/watch?v=TOoI0D8

The Ashalim Solar Power Station in the Negev desert
The station consists of three plots with three different technologies the station combines 3 kinds of energy: solar thermal energy, photovoltaic energy, and natural gas.

Energy consumption by source, Israel

Primary energy consumption is measured in terawatt-hours (TWh). Here an inefficiency factor (the 'substitution' method) has been applied for fossil fuels, meaning the shares by each energy source give a better approximation of final energy consumption.

Our World in Data



Source: BP Statistical Review of World Energy
Note: 'Other renewables' includes geothermal, biomass and waste energy.