



Energy Sector Challenges For 2030

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This is a short summary, for the full paper (in Hebrew) see
<https://www.idc.ac.il/he/research/aiep/pages/policy-papers.aspx>.

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Energy Sector Challenges for 2030

There is general agreement on the importance of the energy sector to the economy. Improved quality of energy infrastructures increases the growth rate of various industries as well as GDP growth. In Israel, the energy and electric markets are regulated by several government offices: The Ministry of Energy, which is responsible for the overall policy of the energy sector; The Electricity Authority, which is responsible for determining electricity prices; and The Ministry of Environmental Protection. The government is expected to plan and manage an investment policy for the energy sector by setting goals for stable supply of clean, high-quality electricity at a competitive price.

The principles which make the setting of goals effective as a policy tool are:

1. Significant macroeconomic effect of goals on the economy.
2. Simplicity: setting clear, measurable goals which are monitored frequently through easily accessible data, allowing to plan government activity for a long-term duration, to monitor the situation in real time and to adjust policies accordingly, in order to ensure that the goals are met.
3. Operativity: setting goals that relate to the core activity of a specific government agency, which has the capacity to influence the realization of these goals.
4. Broad agreement: Setting meaningful strategic goals which are based on broad agreement, making it possible to maintain their relevancy, stability and durability throughout the designated period, regardless of changes in government.

In order to achieve the primary objective – a steady supply of clean, high-quality electricity to all consumers at a competitive price – the energy sector policy should focus on four key goals: reliability of power supply, quality of service, environmental consideration, and competitive electricity pricing.

These goals are interdependent and any investment or advancement towards attaining one goal affects, and sometimes replaces, investments towards the attainment of other goals. At the present, the state of Israel does not have an operative work plan for the realization of the energy sector goals, nor does it employ a quantitative model which enables consideration of investment alternatives in the energy sector in order to inform decisions regarding transition to renewable energy sources, development and improvement of the existing network, and the appropriate electricity pricing needed to support these changes. **Therefore, our recommendations are as follows: to determine the entire set of long-term goals for the energy sector, with a view to 2030; to examine investment alternatives towards realization**

of these goals, based on a dynamic model of the energy market; to formulate, according to the investment alternative selected, a detailed work plan of measures to be taken towards goal attainment in 2030; and to conduct a sustained policy aimed at meeting yearly and long-term goals, while accommodating the technological changes taking place in the energy sector.

1. Summary and conclusions

There is general agreement on the importance of the energy sector to the economy, since energy is a key manufacturing component of essential goods and utilities such as water, electric power, food, transportation, and so forth. The quality of the public infrastructures in general, and of energy infrastructures in particular, is one of the pillars of economic growth.¹ Improving the quality of energy infrastructures increases growth rate in various industries as well as GDP growth.² Insufficient energy infrastructure, inefficient conduct of the energy sector and unreliability of the power grid are all detrimental to national growth and to the public's welfare.

Energetic security is manifested in stable supply of clean, high-quality electricity to all consumers at a competitive price.³ Ensuring energetic security is a primary objective of the energy policy in every developed country. To achieve energetic security, the energy policy should focus on four main goals:

- reliability of power supply
- quality of service
- environmental consideration
- competitive electricity pricing

These goals are interdependent, so that any investment or advancement towards attaining one goal affects, and sometimes replaces, investments towards the attainment of other goals. Thus, given budget limitations, an increase in the investments in infrastructures for renewable energy production would come at the expense of investments towards the improvement of the existing grid or the development of infrastructures for generating electricity from natural gas. Accordingly, in order to plan and manage the energy market efficiently, investment alternatives for its development should be examined on the basis of a quantitative model which makes it possible to consider the energy sector goals in their entirety, while taking into account the constraints of the grid as well as the diversity of energy sources.

Despite the general agreement regarding the importance of the energy sector and its central role in the attainment of economic growth and prosperity, the Israeli administration does not

¹ See: Bank of Israel (2019), Chapter 4.

² See figure 16 in the appendix, which illustrates the positive correlation between electricity infrastructure and GDP per capita, and see also Isakkson (2010), Gakuo (2015), and: <https://thehill.com/blogs/congress-blog/energy-environment/281939-energy-infrastructure-investments-vital-to-economic>.

³ In this policy paper, the term "high-quality electricity" refers to the quality of service of electricity supply.

currently employ a quantitative model which would make it possible to consider investment alternatives in the energy sector, which would inform decisions regarding transition to renewable energy sources, development and improvement of the existing network, as well as the appropriate electricity pricing needed to support these changes.

As a result, Israel is lacking a plan outlining objectives and investments, which addresses the following issues **simultaneously**:

- Improving and developing the power grid.⁴
- Increasing the rate of electricity produced from gas and renewable sources.
- Increasing the use of alternative energy sources (gas or electricity) in transportation.
- Reducing pollutant emissions and number of deaths caused by air pollution.
- Improving the quality of service.⁵

The absence of a comprehensive government policy for development and advancement of the energy sector is detrimental to energetic security – it acts as a barrier to the development of the energy sector and to the required investment in infrastructure – and consequently it damages economic growth and the public's welfare.⁶

Therefore, we recommend:

- 1. To determine the long-term goals for the energy sector, with a view to 2030, in their entirety.**
- 2. To examine investment alternatives towards the attainment of these goals, based on a dynamic model of the energy sector.**

According to the investment alternative selected, a detailed work plan should be formulated, outlining measures to be taken towards goal attainment in 2030, and a sustained policy aiming to realize yearly and long-term goals should be enacted, while accommodating the technological changes taking place in the energy sector.

⁴ Specifically, there is a need for a plan outlining objectives and investments for the reduction of power outage minutes.

⁵ For example: reducing the waiting time involved in obtaining all the permissions required to operate a power plant, to build a new power plant, or to connect a new business to electricity.

⁶ In comparison to developed countries – Austria, Denmark, Finland, The Netherlands, Ireland, and Sweden (the benchmark countries) – the extent of infrastructure in Israel is around 20% lower and the GDP per capita is around 30% lower. See figure 16 in the appendix of this paper.