



Report of the State Comptroller of Israel |
November 2022

The Natural Gas Authority

The Natural Gas Distribution Network



The Natural Gas Distribution Network

Background

At the beginning of the 2000s, several natural gas reservoirs were discovered along the coast of Israel, and natural gas became the primary fuel in Israel, mainly for local electricity production and industry. As of 2021, the annual natural gas consumption is about 12 BCM¹. Natural gas saves costs compared to oil prices, reduces dependence on imported oil, and significantly benefits the environment compared to the petroleum distillates that were widely used until the introduction of the gas.

The natural gas from the reservoirs in the Mediterranean Sea reaches the consumers through two gas systems – the transmission system under the responsibility of Israel Natural Gas Lines Ltd. (INGL) and the distribution network developed by private concessionaires who won the Gas Authority tender.

In 2016, the State Comptroller's Office published an audit report on the connection of consumers to the natural gas distribution network (the previous audit)². This report, among other things, is a follow-up on rectifying the main deficiencies noted in the previous audit.

1 BCM - Billion cubic meters.

2 State Comptroller, **Report 67A** (2016), "Connecting Consumers to the Natural Gas Distribution Network", p. 903.



Key Figures

22%

the consumers' rate of natural gas in the distribution network in 2021 (102 consumers, whose total annual consumption was 0.3 BCM) from the target set by the government in 2020 (450 consumers)

**NIS
0.8–1.9
billion**

the loss of the cumulative saving to the economy in 2020–2025 due to the backlog in consumers connection, the lowering of the target, and the postponement of the target year by five years

**about
50%**

the rate the Natural Gas Authority reduced from the target set in a government resolution in 2015 regarding the number of consumers who are expected to be connected and consume natural gas by the distribution network in 2020

**NIS 217
million**

direct and indirect support (through the transmission system tariffs), not according to the distribution license tenders principles, that the distribution companies will bear the total costs of the distribution network

**4 residential
neighborhoods
and only one
town**

were connected to the distribution network in Israel (in the Negev region) as of March 2022. The town, previously connected by pipeline to an onshore gas reservoir, was converted to the regional distribution network. In addition, as part of a joint experiment by the Israel Lands Authority and the Natural Gas Authority to connect 18 residential neighborhoods, they began to lay the distribution network in three of these 18 neighborhoods

**about
55%**

of the factories (82 out of 149) that received connection and conversion grants from the Authority for Investments and the Development of Industry and the Economy at the Ministry of Economy were not connected to the distribution network

**about
4%**


of the 471 megawatts allocated in the 2018 regulation of the Electricity Authority are generated at the audit end by natural gas power generation facilities in the electricity distribution network

**170
vehicles
only**

powered by compressed natural gas were found in Israel in 2020 (about 0.05% of all heavy vehicles in that year), despite the government's plans to switch to natural gas




Audit Actions

 From June 2021 to March 2022 (the audit period), the State Comptroller's Office examined the status of the distribution network layout by the audit end, including the distribution network development policy, the government assistance to the distribution companies and end consumers, the bureaucratic barriers to the development of the distribution network and its economic model. The audit was conducted at the Ministry of Energy and Infrastructures, the Natural Gas Authority, the Ministry of Finance, the Electricity Authority (Electricity), the Ministry of Economy and Industry, the Ministry of Environmental Protection, the Ministry of Transport and Road Safety, the Israel Electric Company Ltd., and the Noga – Israel Independent System Operator Ltd. company.


Completion examinations were conducted at the Ministry of Health, Clalit Health Services, the Israel Standards Institute, the Israel Natural Gas Lines Ltd., and the Fire and Rescue Authority. Data was also received, and the attitude of the distribution companies that are private concessionaires (operating as companies in the infrastructure sector, which won the tenders published by the Gas Authority to establish the distribution network), was examined. It should be noted that although these companies are obligated to form the distribution network, they are private companies, not audited entities, and therefore the applicability of the audit does not apply to their work.

Key Findings



 **Failure to meet Targets Regarding Connecting Consumers to the Distribution Network** – 13 years after granting the first distribution licenses, the rate of consumers of natural gas in the distribution network is only about 22% of the set target (102 out of 450 consumers). The failure to meet the target and the postponement of the deadline for connecting half of the number of consumers set in the government's decision constitutes a loss of savings to the economy at NIS 0.8–1.9 billion³.



 **Procedure for Lowering the Targets for Connecting Consumers** – in November 2020, the Natural Gas Authority lowered the target of the number of natural gas consumers from the distribution network by about 50% (225 consumers) compared to the target set for 2020 (450 consumers), in Government Resolution 352 in 2015. The resolution also postponed the connection of these consumers by five years, to 2025,

3 See the calculation in the chapter "Development in the layout of the distribution network in the years 2016 - 2021".



both without an orderly discussion or approval of the change of targets in government resolutions.



Government Funding of the Distribution Network – until the audit end, the state invested NIS 537 million in the distribution network project. 40% (NIS 217 million) – not according to the distribution license tenders principles by which the distribution companies will bear the total costs of the distribution network, 23% (NIS 124 million) – according to the distribution license tenders principles, 25% (NIS 136 million) – support for connecting remote consumers and specific consumers, and 11% (NIS 60 million) – in conversion grants for end consumers.



Information on the Distribution Companies Investments – by the audit end, the Natural Gas Authority has no updated information regarding the scope of investment of the distribution companies, nor on the scope of investment of the distribution companies net of the support grants transferred by the state and net of the budgets diverted from the INGL. Moreover, even though the Natural Gas Sector Law authorized the Natural Gas Authority to demand information essential for supervising the implementation of the provisions of the law and the licenses, the Authority made do with the distribution companies' information at the times they believed they had met the milestones.







Connecting Factories that Received Connection and Conversion Grants to the Distribution Network – 82 factories out of 149 received grants from the Authority for Investments and the Development of Industry and the Economy at the Ministry of Economy (about 55% of all factories that received connection and conversion grants) were not connected to the distribution network. The Investment Authority examined the effectiveness of the grants track in July 2017, and since then, no such examination has been carried out. However, the Natural Gas Authority reviewed the financing of the conversion costs to natural gas in August 2021, and the Investment Authority and the Natural Gas Authority adjusted the CEO's Directive and changed it several times, according to the 2017 grant track effectiveness and the financing of the conversion costs reviews from 2021. It should be noted that the deficiency was raised in the previous report and was not rectified.



Development Barriers Arising from the Distribution Licenses Economic Model – even though the distribution licenses were first granted five years after the transmission license and the distribution and transmission licenses are granted for 25–30 years, the distribution network developed at a slow pace compared to the goals set by the government and to the development of the transmission system. The economic model of the distribution network, and particularly the rigidity in updating the distribution rates, the absence of anchor consumers, and the ability to charge for use only, compared to the transmission system economic model, may reduce the economic viability of expanding the network's deployment. It should be noted that the fundamental principles of this model were set in the distribution tenders and were known to those who took part therein.



-  **The Changes Effects on the Electricity Authority's Regulation** – in November 2019, the Electricity Authority published the list of the 166 electricity producers who won the competitive procedure for establishing electricity production facilities and the capacity allocated to them – 471 megawatts. In 2018–2021, ten winners established electricity production facilities with a total volume of about 20 megawatts (4.2% of the 471 megawatts allocated). At the audit completion, not one of the facilities established was integrated into the electricity network. The current regulation may harm the distribution network consumers who intend to develop electricity production facilities and the natural gas distribution network in general. According to some distribution companies, establishing these facilities may harm their profitability if the Electricity Authority updates the demand hour clusters.
-  **Conversion of the Heavy Transportation Sector to Natural Gas Use** – despite the goals set in the government's decisions and the various programs, as of 2020, about 170 vehicles powered by CNG (compressed natural gas) traveled in Israel including about 130 were buses, 15 garbage trucks and a small number of heavy vehicles of various types – about 0.05% of 340,000 heavy vehicles that travel in Israel as of 2019, and about 1.5% of the projection estimated by the Ministry of Energy for 2030 (11,600 vehicles powered by the CNG). Moreover, by the audit completion, eight CNG refueling stations were established – six mobile CNG refueling stations and two CNG refueling stations connected to the transmission system. Government Resolution 3080 charged the Ministry of Energy and the Natural Gas Authority to increase and expand the demand for natural gas in the distribution network through other potential sectors. Additionally, a series of government resolutions over the previous decade decided to convert the heavy transportation sector to natural gas – a new sector expected to generate considerable demand for natural gas in the distribution network. However, the Ministry of Energy and the Natural Gas Authority could not harness the Ministry of Environmental Protection and Ministry of Transportation to convert the heavy transportation sector to use natural gas on a significant scale.
-  **Converting the Domestic Sector to Natural Gas** – as of the audit completion, four residential neighborhoods in Israel were connected to the natural gas distribution network, and a town previously connected by pipeline to an onshore gas reservoir – all in the Negev region. In November 2019 they began to install the distribution network in three of the 18 neighborhoods defined in the pilot. In recent years, the Ministry of Energy and the Natural Gas Authority, an auxiliary unit thereon, converted the domestic sector to natural gas without coordination. In the last four years, the Natural Gas Authority promoted the connection of the domestic sector to the natural gas distribution network, and in contrast, the Ministry of Energy carried out feasibility studies for switching to electric technology without examining the natural gas alternative.
-  **Bureaucratic Barriers to the Network Deployment** – since the licenses were given to the distribution companies, they encountered various difficulties: objections from local authorities and infrastructure companies to the deployment of the network, payment demands of infrastructure companies, failure to centralize the information required for



planning the route in a nationwide system. The bureaucratic barriers make connecting consumers to the distribution network challenging and delay its development.



Changing the Conditions for Updating and Adding New Rates – upon the audit completion, the Budget Division of the Ministry of Finance and the Natural Gas Authority changed the legislation, so the Gas Council could update the distribution rates and even add different systemic rates from time to time, and not just every five years, as was the practice until now. These changes were incorporated into the Natural Gas Sector Law, 2002, in November 2021.

Allocation of Grants to Accelerate the Deployment of the Network in Peripheral Areas – it was raised that to connect peripheral areas such as the Galilee, Haifa, Hadera and the valleys to the distribution network, the Ministry of Energy and the Natural Gas Authority allocated 33% of the grant (at NIS 29 million) from the second acceleration program in 2019 and 97% of the grant (at NIS 97 million) from the third acceleration program in 2021. The allocation of these grants is consistent with the government's plans to promote and develop peripheral areas in Israel.

Key Recommendations



It is recommended that the Natural Gas Authority examine the distribution network targets, update them and approve them in an orderly procedure in government resolutions.



It is recommended that the Ministry of Energy and the Natural Gas Authority examine whether the distribution companies are fulfilling their part in the development of the distribution network, at the pace set in the license, frequently and proactively, to identify and deal with barriers. It is further recommended that the Natural Gas Authority demand all the companies to provide data of the volumes of their investment regularly and orderly and validate the information it has about the investment volumes. Furthermore, for formulating various assistance programs.



It is recommended that the Electricity Authority and the Natural Gas Authority cooperate to promote the development of the electricity and the natural gas sectors, considering the effects of the regulatory changes in the electricity sector on the viability of establishing power generation facilities in the distribution network.

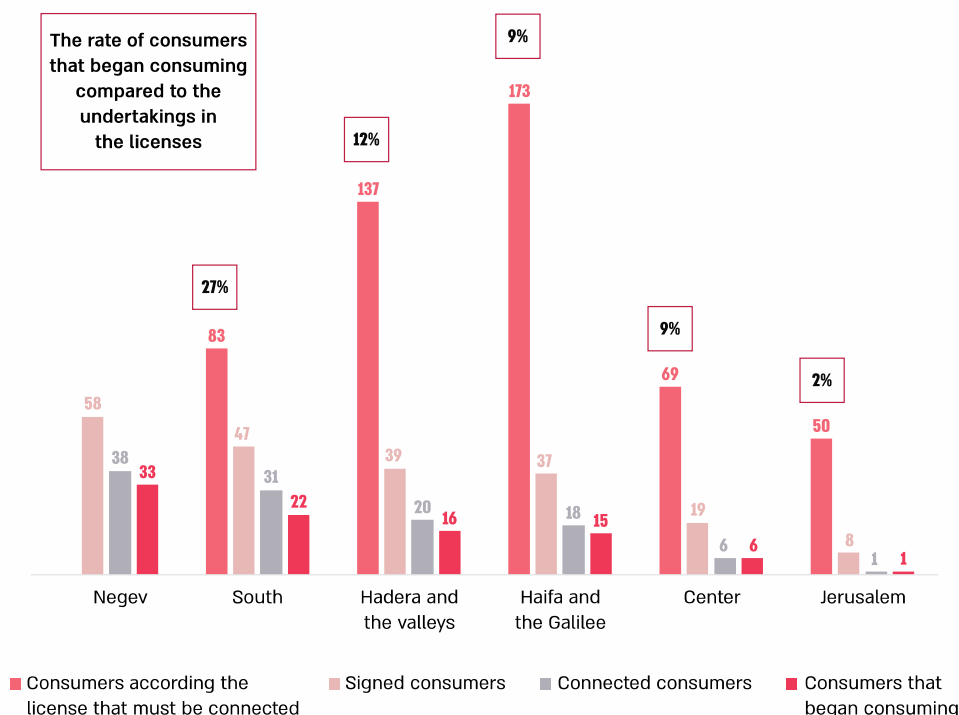


- 💡 It is recommended that the Noga Company⁴ and the Israel Electric Company Ltd. cooperate in developing and adapting the electricity network to accommodate new electricity production facilities in the network.
- 💡 It is recommended that the Ministry of Energy, Transportation, and Environmental Protection cooperate and formulate an agreed and appropriate short and medium-term goal plan regarding the heavy transportation sector.

⁴ A new government company responsible for managing, planning and developing the electricity system. The company works to ensure a regular supply of electricity with the reliability and quality required for all consumers in the electricity sector, in routine and emergency situations, and manages the trade in electricity under competitive and equitable conditions.



The Number of Natural Gas Consumers Compared to the Plan Set in the Distribution Licenses in each Distribution Area, December 2021⁵



According to the Natural Gas Authority data, processed by the State Comptroller's Office.

⁵ In the Negev region, a list included in the license of consumers that must be connected has not been determined, and therefore the performance ratio compared to the license is not shown. Consumers in respect of which it was determined in the license that they must be connected – consumers whom distribution companies have committed to connect to the regional distribution network. This list of consumers was added as Appendix C to the distribution licenses (see clarifications regarding this appendix in the chapter "Key findings of the distribution network by regions"); Signed consumers – consumers who have signed an agreement to connect to the distribution network with the distribution companies; Connected consumers – consumers connected to the distribution network; Consumers who have begun consuming – consumers who actually consume natural gas in the distribution network as of the completion of the audit. The chart data is based on the most recent detailed data (broken down into regions) provided by the Gas Authority. See slight updates provided by some of the distribution companies to the chart data in the chapter "Key findings of the distribution network by regions".



Summary

The transition to natural gas use as a significant energy source in Israel is a project of national importance as it has economic, political, and environmental benefits. However, over a decade after the beginning of the distribution network project, it was found that it is progressing at a slow pace compared to the set plan and projections. The demand forecasts of the Natural Gas Authority and the distribution companies at the beginning of the project, the basis of goals formulated for the network deployment later on, did not materialize regarding the consumers number connected to the distribution network and the scope of consumption. The failure to realize the demand forecasts is partly due to the continuation of the project beyond the schedules set in the licenses. In addition, the goals set by the government regarding the completion of the deployment were not realized, among other things, due to bureaucratic delays of infrastructure companies and local authorities, matters concerning the coordination of work with the distribution companies, the occurrence of technological changes in the energy sector, and ambitious goals for the transition to a low-carbon economy.

The conversion of new demand sectors, such as the heavy transport and the domestic sectors, to natural gas use, increasing the distribution network demand, was carried out slowly, as of the audit completion, only one town and four residential neighborhoods were connected to the distribution network and there is no natural gas refueling station connected to the distribution network. The slow conversion of these sectors, alongside technological changes in the mix of energy sources and the natural gas economy in particular, raise doubts about the feasibility of conversion on a significant scale. All this, while the economic model in the distribution licenses remains relatively rigid despite these changes. However, the economic model stipulated in the distribution licenses was known to the distribution companies during the tender submission stages. Moreover, the limitations of the economic model do not detract from fulfilling the conditions and obligations stipulated in the licenses. Some of the delays mentioned above were examined in the State Comptroller's Office's previous audit report, published in 2016.

By the audit in December 2021, only about 22% of the distribution network consumers used natural gas, according to the target set for 2020 in Government Decision 352. Failure to meet the set target, the rate of actual consumers, lowering the target by 50%, and postponing it for five years is expected to result in a loss of savings to the economy at NIS 0.8 to 1.9 billion.

The Ministry of Energy, in cooperation with the Ministries of Finance, Economy, and Environmental Protection, should promote natural gas use and develop the distribution network optimally, according to the government's resolutions, to save energy costs for the manufacturing industry in Israel and reduce air pollution.

