ENVIRONMENTAL REPORT FOR 2024



Israel Electric Corporation

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Introduction





Introduction

We are honored to present our 2024 Annual Environmental Report. This report has been published voluntarily since 2000.

The Israel Electric Corporation operates as an integrated and coordinated system, engaging in all stages of the electricity supply chain, from electricity generation, through transmission and transformation, to sale and distribution to its customers. As such, the Israel Electric Corporation is committed to supplying reliable, high-quality electricity from a diverse range of generation sources available to the national electricity market, both electricity generated by the Israel Electric Corporation's own generation system and that generated through the generation system of independent power producers operating under the framework of the Electricity Market Law, which came into effect in 1996.

The company's operations include five main fields of activity, which are identified in its financial statements as segments:

1. **The Generation Segment -** The company's operations in this field include all activities involved in electricity generation at the company's generation sites.

2. **The Transmission Segment -** The company's operations in this field include the transmission of electricity from both its own generation sites and those of independent power producers (IPPs), via 400kV transmission lines, to the company's switching stations, where it is transformed to 161kV. From there, electricity continues to be transmitted via 161kV lines to substations. A second transformation - from 161kV to high-voltage - occurs at the substations, and the energy is transferred to the high-voltage grid through power transformers. This segment also includes supervision, management, and control of the transmission and transformation system, through the Transmission Supervision Unit, as well as operation, maintenance and handling of malfunctions.

3. **The Distribution Segment -** The company's operations in this field include the transfer of electricity from substations to consumers via high-voltage and low-voltage power lines, including metering energy consumption at the customers' facilities (electricity meters). This segment includes transformation from high to low voltage through tens of thousands of transformers.

4. **The Supply Segment -** The company's operations in this field include the company's service and collection operations, which are responsible for preparing and issuing bills, collection activities and consumer services, including a customer service call center, reception hours and customer portfolio coordinators.

5. **Energy Storage -** The company's operations in this field include the establishment of storage facilities at substation sites, in accordance with government and the Electricity Authority's resolutions.

The report delineates the areas of the Company's environmental activity, the principles of its environmental policy, and its environmental targets and indicators.

Please note that the principles, indicators and targets presented in this document are based on underlying assumptions that may not materialize, or may materialize only partially or differently than anticipated, due, among other reasons, to circumstances beyond the company's control (such as regulatory decisions, changes in government policy, considerations of the "Noga" company – the Independent System Operator, including those related to the mode of operation of the production units, fuel mix, etc.). Accordingly, environmental principles, indicators, and targets may be updated from time to time.



Chapter 1
General



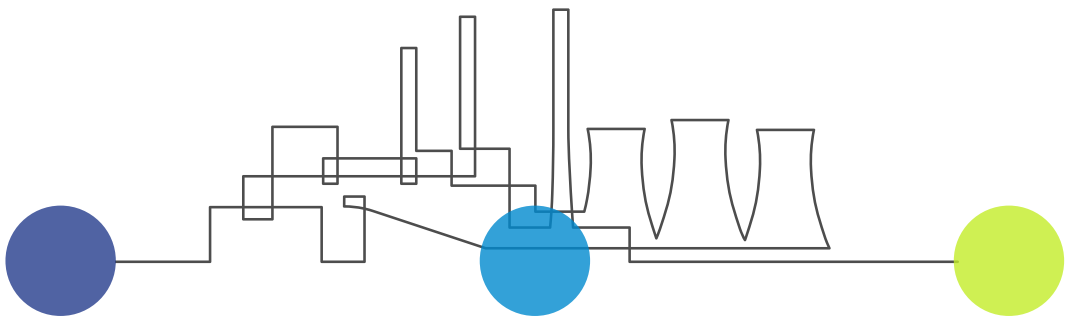
Electricity Generation System

The Israel Electric Corporation's electricity generation system is based on steam power plants and aero-derivative and industrial gas turbines, mostly Combined-Cycle gas turbines (CCGT).
The Israel Electric Corporation transmits, distributes and supplies most of the electricity consumed by the Israeli economy and possesses an essential service provider license.
In the framework of implementing the structural change, the company is reducing its operations in the generation segment.

The company's total installed generation capacity as of the end of 2024 was 9,474 MW.
During 2024 the Israel Electric Corporation maintained and operated 42 generation units at 14 power plant sites as follows:

Power Plant Sites **14**

Electricity Generation Units **42**



17
Combined-Cycle and Open-Cycle Industrial Gas Turbines

15
Aero-Derivative Gas Turbines

10
Steam-Electric Generation Units

9,474 MW
Generation Capacity

The company's total installed generation capacity as of the end of 2024 was 9,474 MW. During 2024 the Israel Electric Corporation maintained and operated 42 generation units at 14 power plant sites as follows:

Steam-Electric Generation Units:
The Israel Electric Corporation's steam-electric generation units generate electricity using steam turbines (at the Orot Rabin and Rutenberg power plants). The generation units are dual-fueled, some operate on coal as the primary fuel and on heavy fuel oil as the secondary fuel, and others operate on natural gas as the primary fuel and on coal as the secondary fuel.
During 2024 the Israel Electric Corporation operated 10 steam-electric generation units.

Gas Turbines:
These generation units generate electricity by the rotation of turbines using exhaust gases (gas turbines). Most of the gas turbines are dual-fueled and can operate on natural gas as the primary fuel and on diesel fuel as the secondary fuel.
In 2024 the Israel Electric Corporation operated 32 gas turbines of three categories: aero-derivative, industrial open-cycle and industrial Combined-Cycle (CCGT) Gas Turbines.

15 Aero-Derivative Gas Turbines:
Low installed capacity gas turbines. At the Israel Electric Corporation, the rated capacity of each aero-derivative gas turbine is up to 50 MW.
Since these generation units can be activated and deactivated relatively quickly, they are used as a targeted and fast-response solution for peak electricity demand. All aero-derivative gas turbine generation units operate solely on diesel fuel, and they are designated as backup units.

17 Combined-Cycle and Open-Cycle Industrial Gas Turbines:
Gas turbines that are based on the same operation principle as the aero-derivative gas turbine, but have a different structure, allowing for generation of electricity at a larger scale.
Industrial gas turbines are divided into two categories:

• **Open-cycle gas turbines:**
Most of these units operate on natural gas as the primary fuel and on diesel fuel as backup.

• **Combined-Cycle gas turbines (CCGT):**
A combination of an industrial gas turbine and a steam-electric turbine. In the CCGT, the industrial gas turbine generates electricity by activating a turbine using exhaust gases, and the residual heat from the exhaust gases is used to generate steam that drives the steam turbine to generate additional electric energy, without additional fuel. This method improves fuel efficiency.

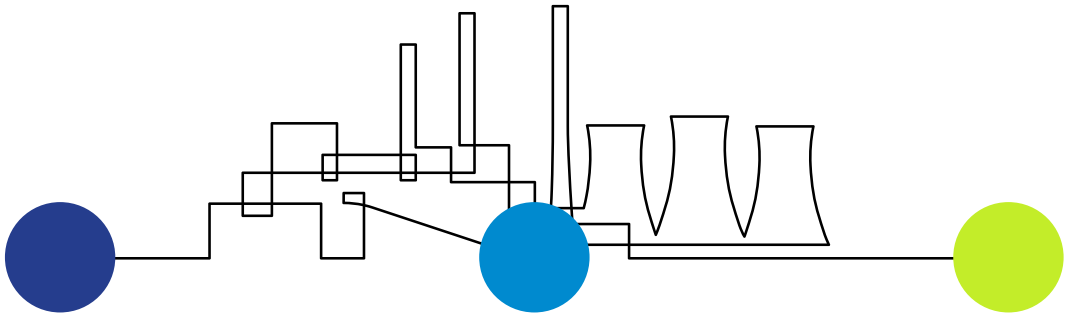


Table 1 below lists the generation sites and the installed generation capacity at each site

Table 1: List of the Israel Electric Corporation's Types of Generation Units and Generation Capacity (MW) as of December 31, 2024 – as Published in Financial Statements

Unit Type	Site	Number of Units	Installed Generation Capacity (MW)
Steam-Electric Generation Units			
Coal-fired units			
Coal as primary fuel, heavy fuel oil as secondary fuel (only at Units 5-6)	Orot Rabin (Maor David A, B)	6	2590
Coal as primary fuel	Rutenberg	3	1675
Total coal-fired units		**9**	**4265**
Units converted to natural gas			
Natural gas as primary fuel, coal as secondary fuel	Rutenberg	1	575
Total steam-electric units converted to gas		**1**	**575**
Total steam-electric units		**10**	**4840**
Gas Turbines			
	Tsafit	2	220
	Eilat	1	34
	Atarot	2	68
	Gezer	4	592
Total industrial gas turbines			
Aero-derivative gas turbines	Hartuv	1	40
	Eitan	1	40
	Raanana	1	11
	Caesarea	3	130
	Haifa	2	80
	Kinarot	2	80
	Orot Rabin	1	15
	Rutenberg	2	40
	Eilat	2	58
Total aero-derivative gas turbines		**15**	**494**
Total gas turbines		**24**	**1408**
Combined-cycle gas turbines			
	Hagit	2	734
	Gezer	2	744
	Tsafit	1	360
	Netiv Haor 70	1	640
	Haifa	2	748
Total combined-cycle units		**8**	**3226**
Total industrial gas turbines		**42**	**9474**

The Israel Electric Corporation's Environmental Protection Policy

The Israel Electric Corporation considers itself responsible for and committed to taking measures to protect the environment and reduce environmental hazards throughout the electricity value chain.

The company operates in accordance with an environmental vision and strategic policy.

The Israel Electric Corporation's Environmental Vision



The Israel Electric Corporation will act with responsibility toward society and the environment, guided by a sustainable, long-term, and forward-looking approach.

The company will minimize the environmental implications of its operations and take a leading role in preventing hazards and reducing environmental impacts.

The Principles of the Environmental Policy

The Israel Electric Corporation acts in compliance with the principles of the Environmental Protection Policy, first approved in 1997 and as updated from time to time. The principles include:

A. Integration of environmental considerations in all areas of activity, including decision-making processes:

A-1) Integration of environmental considerations in preparing company development plans.
A-2) Preparation of environmental guideline documents for central projects and activities.
A-3) Integration of binding environmental parameters in the company's procurement tenders.

B. Planning and operation of facilities while diligently ensuring continuous reduction of environmental impacts, taking into consideration sustainable development principles, while adopting best proven and economic environmental technologies:

B-1) Adoption of best available techniques (BAT).
B-2) Use of environmentally high-quality fuels – primarily natural gas.
B-3) Use of control measures and installation of facilities for prevention and reduction of environmental impacts, such as the installation at coal-fired power plants of facilities for the reduction of sulfur dioxide emissions (FGD) and nitrogen oxide emissions (SCR).
B-4) Adoption of the "Prudent Avoidance" principle to reduce electric and magnetic fields in the electricity transmission and distribution network.
B-5) Use of environmentally friendly materials.
B-6) Ongoing monitoring and control of soil, air, water, and marine environmental impacts.
B-7) Real-time transmission of monitoring data and information transparency.
B-8) Implementation of quality standards and an ISO 14001 'Environmental Management System'.

C. Adoption of advanced and proven environmental standards

C-1) Mobilization of work teams to promote multi-annual work plans and implement them in compliance with the company's environmental strategy policy.
C-2) Monitoring of local and international legislation and regulation, and assessment of future trends.
C-3) Involvement and participation in environmental legislation and regulation processes.

C-4) A structured, environment-focused company management framework, that operates through hierarchical oversight and, among other responsibilities, includes the staffing of necessary and relevant personnel, the allocation of required budgets, and the drafting of relevant procedures.

D. Informed use of natural resources and raw materials: soil, air, water and fuels:

D-1) Protection of air quality, by mitigating pollutant emissions.
D-2) Land-saving planning and construction of new facilities, optimization of land use at existing sites, and integration of infrastructures.
D-3) Ongoing fuel-saving activities.
D-4) Water resource integration and conservation.

E. Reduction and recycling of waste and by-products:

E-1) Waste management at company level and site level (reduction of waste production, recycling, and waste disposal).
E-2) Promotion of by-product utilization: gypsum and coal ash.
E-3) Promotion of reuse of on-site concentrate and treated wastewater, and use of lower-quality water from external sources.

F. Integration of landscape, spatial and environmental considerations in the planning of new facilities and the maintenance of existing facilities:

F-1) Continuous efforts to improve and enhance the appearance of existing facilities.
F-2) Establishment of new generation, transmission and transformation facilities, taking into consideration the environment and landscape character.
F-3) Integration of a landscape architect into the planning of new projects from the outset, to ensure proper regard for landscape and natural values.
F-4) Restoration of natural environment and landscape as part of project completion.

G. Maintaining an open and transparent dialogue with the public regarding plans with environmental impacts:

G-1) Ensuring transparency of information to the public regarding activities with environmental impacts.
G-2) Maintaining public participation and dialogue in planning processes concerning project locations and licensing.

G-3) Establishing collaboration and coordination with environmental bodies at the national, regional, and local levels, to reach agreements through an ongoing work process.
G-4) Strengthening and nurturing of existing relationships with nature organizations.
G-5) Maintaining relationships with public and private environmental non-profit organizations.
G-6) Publishing periodic environmental reports.

H. Reduction of Greenhouse Gas emissions, in line with international agreements to which the State of Israel is a party, by increasing the efficiency of power plants, expanding the use of environmentally friendly fuels and energy sources, and promoting electricity conservation:

H-1) Integration of natural gas, which is a clean fuel, as the primary fuel at existing power plants, thus contributing to the reduction of pollutant emissions, including the reduction of greenhouse gas emissions.
H-2) Establishment of high-efficiency generation facilities, such as Combined-Cycle power plants, which are based on natural gas as the primary fuel. These plants are characterized by particularly low emissions of air pollutants, including greenhouse gases.
H-3) Promotion of energy efficiency measures, both at the Israel Electric Corporation's sites, and by offering advice to the company's customers regarding energy conservation and informed electricity use. These efforts contribute to reducing electricity demand and thus reduce fuel consumption for electricity generation, and consequently reduce emissions of air pollutants, including greenhouse gases.

I. Joint activities with state, public and international environmental and academic entities, including participation in environmental research, and development and initiation of advanced technologies:

I-1) Assistance to the State of Israel in complying with its undertakings pursuant to international environmental agreements.
I-2) Promotion and performance of renewable energy projects, subject to regulatory restrictions applicable to the Israel Electric Corporation.
I-3) Development of mutual relations with electric companies abroad.
I-4) Allocation of environmental research and development budgets.
I-5) Monitoring and implementation of new technologies.
I-6) Promotion of environmental innovation by supporting and accompanying environmental research.
I-7) Collaboration with academic and research institutes.

J. Integration of environmental values in the organizational culture, strengthening of environmental commitment and awareness among the company's employees, and incorporation of environmental matters in its community activity:

J-1) Integration of the Environmental Policy's principles as part of the Israel Electric Corporation's organizational culture.

J-2) Nurturing commitment and awareness among the company's employees to environmental matters and to the company's environmental activities and targets.

J-3) Integration of environmental matters in the company's training courses.

J-4) Initiation of conferences, power plant visits, workshops and activities on the company's website.

Chapter 1 - General

The Israel Electric Corporation has established an Environmental Management Committee, headed by VP Engineering Projects, whose responsibilities include updating the company's Environmental Policy from time to time.

The company maintains an ongoing process of setting environmental goals and targets and operates in compliance with the requirements of environmental laws and regulations and global trends, alongside its technological capability and the unique conditions in the vicinity of the company's facilities.

The environment is an integral part of the operation, maintenance, design and development of the Israel Electric Corporation's facilities. The company's operations are subject to extensive regulation in this area.

The company **reviews** the implications of environmental legislation, **takes action** to prevent or minimize environmental risks that may occur in the course of its operations, **prepares for** the financial, legal and operational consequences of the environmental legislation, and allocates budgets to comply with current and anticipated environmental laws applicable to the company.



Implementation of Quality Standards and Environmental Management System

The company's environmental management is based, among other elements, on a structured management framework that operates through oversight and role definitions and, among other responsibilities, includes the staffing of necessary and relevant personnel, the allocation of required budgets and the drafting of relevant procedures.

In addition, the company has integrated management system (IMS) certified departments, as detailed below:

	ISO 9001	ISO 45001	ISO 14001	ISO 9301
The Generation and Energy Division The division's operations and the company's various generation sites are IMS-certified according to the following standards	✓		✓	
The Logistics and Property Department Is IMS-certified according to the following standards	✓	✓	✓	✓
The Transmission Projects Department Is IMS-certified according to the following standards	✓	✓	✓	
The Generation Projects Department Is IMS-certified according to the following standards	✓	✓	✓	
The Transformation Projects Department Is IMS-certified according to the following standards	✓	✓	✓	

ISO 9001 | Quality Management System
ISO 45001 | Occupational Health and Safety Management System)
ISO 14001 | Environmental Management System
ISO 9301 | Land Traffic Safety and Quality Management System

Promoting Environmental Awareness Among Employees

The Israel Electric Corporation works to raise environmental and sustainability awareness among its employees, and conducts activities for them at various levels, including:

- **Raising awareness at all work sites about informed water and electricity consumption** including through signage, information on water savings achieved through informed consumption, and guidance on preventing blockages and damage to sewage systems at the various sites.

- **Encouraging recycling and waste separation**, including through encouraging the use of reusable dishes and signage at company sites promoting recycling and waste separation.

- **Developing and implementing environmental curricula** for company employees and managers, aimed at enhancing environmental awareness and providing knowledge.

- **Supporting innovation projects** aimed at environmental improvement and optimization of the environmental performance of the company's systems and processes.



Transparency: Public Access to Environmental Information

In accordance with the Freedom of Information Regulations (Providing Environmental Information for Public Review) 2009, the Israel Electric Corporation publishes environmental information in its possession on its website.

Announcements published can be reviewe **on the company's website**

Additional information can be found on the Israel Electric Corporation's website, in the framework of the following publications:

- Reports from Voluntary Greenhouse Gas Emissions
- Annual Environmental Reports Since 2000
- A Carbon Dioxide Calculator
- Current 2024 Financial Statement
- Environmental Air Monitoring Reports
- Real-Time Environmental Air Monitoring Data from the Ministry of Environmental Protection's Website
- Emission Permit Reports

Stakeholder Relations

The Israel Electric Corporation maintains a long-standing relationship and productive dialogue with stakeholders, including local environmental organizations, and attributes significant importance to preserving and nurturing this relationship. The cooperation between the Israel Electric Corporation and its stakeholders, in general, and environmental organizations, in particular, takes place through multiple channels, including dialogues the Israel Electric Corporation maintains with environmental organizations in the framework of roundtable discussions and dedicated meetings on various issues. The Israel Electric Corporation also works to raise environmental and sustainability awareness among its employees and initiates activities for them at various levels.

Dialogue with Environmental Organizations

The company established a tradition several years ago of conducting roundtable discussions with environmental organizations, in which discussions on environmental issues related to the Israel Electric Corporation's operations have been held over the years.

In 2024, among other activities, a dialogue was conducted with the environmental organizations concerning activities to promote the undergrounding of overhead high voltage power lines in the western Negev and the northern region, as well as the "Spreading Wings" project, which is further elaborated upon in this report's Biodiversity chapter, as part of a collaboration with the Israel Nature and Parks Authority and the Society for the Protection of Nature in Israel.

Environmental Regulation Compliance

The company's operations are exposed to various environmental risks, including emission of fuel-combustion pollutants to the air, use and storage of hazardous materials and fuels, contamination of water sources and soil, industrial wastewater, asbestos, coal ash, noise, non-ionizing radiation and more.

Therefore, the company's operations are subject to extensive environmental regulation. In recent years, environmental requirements that are applicable to the company's operations (or in the process of being legislated) have become more stringent, as have the oversight and enforcement of these requirements. The company expects this trend to persist and even intensify in the coming years, driven by international awareness and requirements, and aligned, among other factors, with customary practices in Western countries.

Environmental legislation applicable to the company's operations include, among others, the Prevention of Sea Pollution from Land-Based Sources Law; the Hazardous Material Law; the Protection of the Coastal Environment Law; the Clean Air Law; the Prevention of Hazards from Asbestos and Harmful Dust Law; the Freedom of Information Law; the Non-Iodizing Radiation Law; the Energy Sources Law; the Environmental Protection (Emissions and Transfers to the Environment - Report and Register Requirements) Law; regulations by virtue of these statutes, as well as various by-laws.
The company examines the implications of the environmental laws, acts to prevent or minimize the environmental risks that may occur in the course of its operations, prepares for the economic, legal and operational implications arising from environmental laws, and allocates budgets for compliance with the provisions of applicable environmental laws and those that are anticipated to apply thereto.

The company acts in accordance with an environmental vision, with responsibility towards the environment, guided by a sustainable, long-term and forward-looking approach. It acts to minimize the environmental impacts of its operations and to prevent hazards that may result from its operations.

Failure to comply with the provisions of environmental laws and of the terms and conditions of permits and licenses granted to the company by virtue thereof, may expose the company and its managers to administrative and criminal liability, including the imposition of fines and sanctions, as well as exposure to environmental clean-up and restoration costs. In the company's opinion, as of the date of this report, it is in substantial compliance with all material environmental legal provisions. The company possesses the environmental licenses required for its operations and in cases where such are not in place, is working to obtain them.

Environmental Costs and Company Environmental Investments

A breakdown of the company's environmental investments between 2017-2024 is presented below:

Table 2 | Breakdown of Company's Environmental Investments (Data Aligned with Development and Operational Plans) [million NIS, current prices (net of remeasurements)] – for Year Ended on December 31.

Year	2017	2018	2019	2020	2021	2022	2023	2024
Total Investment in Environmental Facilities	Approx. **831**	Approx. **610**	Approx. **465**	Approx. **470**	Approx. **426**	Approx. **489**	Approx. **756**	Approx. **579**
Current Costs (without depreciation)	Approx. **88**	Approx. **82**	Approx. **142**	Approx. **156**	Approx. **160**	Approx. **178**	Approx. **159**	Approx. **144**

A. Investments during 2024

In 2024, the Company invested approximately NIS 501 million, in environmental protection aspects in the generating segment (in addition to approximately NIS 78 million in the transmission and distribution sectors and in special projects), inter alia, in the installation of air emission abatement measures at the Orot Rabin and Rutenberg Power Stations (such as, inter alia, "primary measures", scrubbers and construction of catalytic installations), and in conversion to gas at units 1-4 at Rutenberg and units 5-6 at Orot Rabin.

In addition to the investments that have been described above, the Company spent in 2024 within the framework of costs of operation of the power stations and ancillary expenses to fuels, approximately NIS 140 million for compliance by the production system with environmental protection requirements (and in addition, a total of approximately NIS 4 million which are not attributed to the production system). The Company estimates that the environmental costs that the Company bore in 2024 were invested mostly in future prevention and reduction of environmental damage.

B. Budget for 2025

The Company is allocating in its budget money for compliance with environmental conditions and laws. For 2025, the Company allocated within its current operation and development budgets a total of approximately NIS 981 million (after remeasurement and depreciation deduction) for compliance with environmental protection requirements including, among others, acts to protect fauna and flora, the air, land, underground water and surface water, asbestos removal, effluents treatment, noise reduction, protection from radiation and waste treatment.

The environmental costs the Company has allocated in its budgets for 2025 will be largely invested in preventing and reducing environmental damage.

C. Gas conversion budget

Within the framework of the seven-year budget which was approved by the Board of Directors in December 2024 the Company allocated a sum of approximately NIS 1.75 billion for converting the coal-fired power stations to gas (6 generation units) in respect of the whole of the aforesaid period. In 2025, a sum of approximately NIS 462 million was allocated for the project of conversion to gas.

The estimates of the management of the Company with respect to the expected scope of investments in the field of environmental protection is forward looking information, as per its definition in the Securities Law, which is based on the Company's budget and work plans. The estimates of the Company with respect to the expected volume of investments in the environmental protection field may fail to materialize or materialize partially or differently than estimated, inter alia due to factors that are not under the control of the Company, including a change in the regulatory requirements applying to the Company, a change in the volume of generating operations of the Company and the fuels with which the Company generates and other events, including those that stem from the lateralization of risk factors of the Company.

Environmental Incidents in 2024

During 2024, a small number of environmental incidents occurred at the Israel Electric Corporation. These incidents were reported to the Ministry of Environmental Protection in accordance with the requirements of the permits and licenses issued to the company. several related matters are currently under discussion with the ministry.

The material environmental incidents are described in detail in the Israel Electric Corporation's 2024 Financial Statements, Chapter A, Page 37, Section 7.12 "Environmental Risks and the ways they are managed – the generating segment".



Chapter 2
Air





Use of Materials, Energy Consumption, and Energy Efficiency

The raw materials used by the company to generate electricity are various types of fuels: coal, natural gas, heavy fuel oil and diesel fuel.

In addition, the company has a fleet of vehicles that uses gasoline and diesel fuel.

In the context of raw materials usage, it should be noted that recycled materials are not currently utilized in the electricity generation process. Projects that had previously examined their feasibility are not being pursued at this stage, due to preparations for the phasing out of coal and the transition to natural gas as the primary fuel.

Table No. 3 presents a breakdown of fuel consumption data in thousands of metric tons/thousands of liters, with most of the Israel Electric Corporation's fuel consumption being used for electricity generation.

As shown in the table, there has been an evident decline in the scope of coal usage and an evident increase in the scope of natural gas usage in recent years. This has contributed to the significant reduction in air emissions, as detailed further on in this report.

For information regarding the efforts to reduce gasoline and diesel fuel consumption for transportation (for the company's fleet of vehicles), see breakdown in the "Transportation and Distance Travelled" chapter further on in this report.



Table 3 | The Israel Electric Corporation's Fuel Consumption for Electricity Generation and Fleet of Vehicles, 2019-2024

	2019	2020	2021	2022	2023	2024
	Coal (as Published in Financial Statements)					
Thousands of Metric Tons	8,300	7,200	6,400	6,300	5,200	4,500
	Natural Gas, including LNG (as Published in Financial Statements)					
Thousands of Metric Tons	3,600	3,800	3,200	3,300	3,300	3,100
	Heating Diesel fuel (as Published in Financial Statements)					
Thousands of Metric Tons	107	30	16	31	27	30
	Heavy Fuel Oil (as Published in Financial Statements)					
Thousands of Metric Tons	20	13	9	21	15	9
	Transportation Gasoline (Company's Fleet of Vehicles Only)					
Thousands of Liters	3,431	2,206	2,214	2,256	2,240	2,345
	Transportation Diesel fuel (Company's Fleet of Vehicles Only)					
Thousands of Liters	10,034	9,780	10,081	9,960	10,263	10,767



Table 4 | Electricity Generation Fuel Mix Data, 2015-2024

Year	Electricity Generation Fuel Mix (in %) per year:				
	Coal	Natural Gas	LNG – Liquefied Natural Gas	Heating Diesel Fuel	Heavy Fuel Oil
2024	**34.9**	**64.7**	**0**	**0.3**	**0.1**
2023	36.8	62.8	0	0.2	0.1
2022	42.6	56.3	0.6	0.3	0.2
2021	44.3	53.1	2.4	0.1	0.1
2020	42.7	50.9	6.0	0.3	0.1
2019	45.8	45.1	8.0	1.0	0.1
2018	43.0	49.1	7.4	0.4	0.1
2017	45.2	48.5	5.0	1.1	0.2
2016	49.6	46.3	3.6	0.4	0.1
2015	57.6	40.3	1.3	0.7	0.1

A shift in electricity generation from coal and liquid fuels to natural gas is evident, contributing to significant reduction of air pollutants and greenhouse gas emissions.

Tables 5 and 6 below present the Israel Electric Corporation's total energy consumption data, along with energy intensity figures – the specific heat consumption for electricity generation. The improvement in the organization's energy consumption derives from a combination of a decline in electricity generation, and consequently, also in fuel consumption for electricity generation, due to the entry of independent power producers, along with a concurrent improvement in energy intensity, namely in the amount of energy required to generate one MWh. This improvement results from the shift in electricity generation from coal to particularly high-efficiency Combined-Cycle units, which are primarily fueled by natural gas.



Table 5 | The Israel Electric Corporation's Total Energy Consumption, 2019-2024

Energy Consumption	2019	2020	2021	2022	2023	2024
Coal						
TJ	207,504	180,003	160,003	157,503	130,002	112,502
Natural Gas, including LNG						
TJ	179,981	189,980	159,983	169,982	164,982	154,984
Heating Diesel fuel						
TJ	4,625	1,297	692	1,341	1,168	1,298
Heavy Fuel Oil						
TJ	760	494	342	798	570	342
Transportation Gasoline (Company's Fleet of Vehicles Only)						
TJ	118	76	76	77	76	80
Transportation Diesel fuel (Company's Fleet of Vehicles Only)						
TJ	365	356	367	363	374	392
Electricity Self-Consumption by Power Plants						
TJ	6,614	6,294	5,776	5,922	5,171	4,510
Estimated Electricity Self-Consumption by Administrative and Other Sites						
TJ	216	216	216	216	216	216
Total TJ	**400,183**	**378,716**	**327,455**	**336,201**	**302,560**	**274,323**



Table 6 | Electricity Generation Energy Efficiency: Energy Intensity - Specific Heat Consumption for Electricity Generation, 2015-2024

Year	Total Energy for Electricity Generation [TJ]	Total Electricity Generation [MWh*1000]	Energy Intensity – Specific Heat Consumption for Electricity Generation [GJ/MWh]
2024	**269,125**	**32,922**	**8.17**
2023	296,723	35,708	8.31
2022	329,624	39,286	8.39
2021	321,020	38,248	8.39
2020	371,774	44,363	8.38
2019	392,870	47,810	8.22
2018	393,203	47,905	8.21
2017	395,934	48,788	8.12
2016	397,706	48,718	8.16
2015	420,192	50,641	8.30



Table 7 | Electricity Self-Consumption by Power Plants, 2015-2024

Year	Actual Generation [MWh*1000]	Electricity Self-Consumption by Power Plants [MWh*1000]	Self-Consumption from Actual Generation [%]
2024	**32,922**	**1,253**	**3.80%**
2023	35,708	1,437	4.02%
2022	39,286	1,645	4.19%
2021	38,248	1,604	4.19%
2020	44,363	1,748	3.94%
2019	47,810	1,837	3.84%
2018	47,905	1,806	3.77%
2017	48,788	1,852	3.80%
2016	48,718	1,890	3.88%
2015	50,641	1,919	3.79%



Energy Efficiency at the Israel Electric Corporation's Facilities

In order to meet the national energy efficiency target and achieve energy savings of approximately 16.5 TWh by 2030, the Israel Electric Corporation established an Energy Efficiency Directorate, headed by the Head of the Generation Projects Department within the Engineering Projects Division. The directorate operates in accordance with the company's Energy Efficiency Procedure. The directorate brings together all the entities that engage in the field (energy efficiency teams in generation, administrative buildings, grid engineering, generation projects, and the company-wide energy officer) with the goal of enhancing collaboration, promoting efficient budget management, promoting the removal of barriers, and enabling consistent and structured reporting to company management. The directorate coordinates the submission of project funding requests from various company divisions and approves projects based on defined threshold values, determined by a dedicated team responsible for assessing the projects' economic feasibility. The directorate operates according to a five-year plan, which was completed in 2024, holds regular follow-up meetings, and publishes an annual summary report. Additionally, to further promote the Israel Electric Corporation's energy efficiency, there is also an active steering committee, headed by the Deputy CEO.
In the framework of the directorate's activities, energy efficiency steps have been implemented at company sites in recent years, including:

- Energy efficiency improvement at existing generation units
- Replacement of outdated air conditioning units with modern models featuring high energy efficiency rating.
- Replacement of light fixtures with modern and energy-efficient lighting
- Induced Draft fans upgrade project (Rutenberg 1)
- Installation of power (energy) meters on raw water system pumps
- Installation of a process gas heat exchanger, to improve the unit's efficiency
- Installation of an air dryer for the compressor, to improve system efficiency and reduce internal consumption, and procurement of temperature sensors and transmitters for detecting leaks and losses in the water and steam cycle.



In accordance with the government's resolution, the Israel Electric Corporation is constructing two natural gas H-class Combined Cycle gas turbine (CCGT) units at the Orot Rabin power plant in Hadera (Units 70 and 80) which will operate on natural gas as the primary fuel and on diesel fuel as backup, and are expected to emit significantly lower levels of air pollutants and greenhouse gases compared to the four long-standing coal-fired units at the "Orot Rabin" site. This is a very significant step in terms of energy efficiency, as the energy efficiency level of a coal-fired unit is significantly lower than that of a Combined Cycle unit. Due to the COVID-19 pandemic, the security situation, and considerations of the Noga company, there has been a delay in the commissioning of the CCGT units at the Orot Rabin site, and in the operation of natural gas operated Generation Unit 2 at Rutenberg. CCGT 70 began operating through the "Netiv Haor" subsidiary, after its generation license was received by "Netiv Haor" on January 26, 2025.

Summary:

- Since 2014 approximately NIS 50 million have been invested in energy efficiency projects, generating aggregate monetary savings of approximately NIS 210 million.
- During 2024, NIS 4.524 million were invested in energy efficiency projects achieving energy savings of 30.14 million kWh and monetary savings of NIS 9.04 million.
- During 2024, the energy efficiency rate was 0.41%, with the aggregate rate being 5.18% relative to the baseline year of 2013.

Maintaining energy efficiency at the company's facilities is not only a regulatory requirement, but also an economic strategy of the Israel Electric Corporation. In order to monitor and track the required energy efficiency level at company facilities, equipment and facilities undergo testing (such as annual testing of the energy efficiency of numerous pumping systems and inspections of chillers). Energy surveys are conducted for administrative buildings with significant annual consumption, and an annual energy survey is performed for a number of power plants operated by the company, in order to identify potential focuses for energy conservation at generation sites. In addition, ongoing monitoring, preventive maintenance (such as washing gas turbine compressors), and the replacement and upgrading of parts play a significant role in maintaining the target level of energy efficiency at the facilities.
Energy efficiency considerations are taken into account already at the procurement specification stages for new equipment and systems.



Environmental Emissions

The Israel Electric Corporation recognizes the importance of planning and operating its facilities while diligently ensuring continuous reduction of environmental impacts, taking into consideration sustainable development principles and adopting the best available technologies from both environmental and economic perspectives.
This chapter will review air emissions from electricity generation sites, which is a key area that the company addresses in the context of environmental emissions.
Additional information is available in the report submitted to the Ministry of Environmental Protection in accordance with the Environmental Protection (Emissions and Transfers to the Environment – Reporting and Register Obligations) Law, 2012, which was submitted in 2024 relating to 2023 data, for 14 Israel Electric Corporation sites subject to reporting requirements, via a digital form.

The reports submitted in 2025, relating to 2024 data, are expected to be published in the second half of 2025.

Also published on the Ministry of Environmental Protection's PRTR website

PRTR reports on the Israel Electric Corporation's website

The report includes, among other data, quantities of materials emitted into the air, water sources, and soil (exceeding the threshold values defined in technical guidelines); quantities of material discharged to the environment through wastewater, both routinely and as a result of malfunctions, as well as the types of discharged waste.

Main Emissions

In the course of the electricity generation process, various types of fuel-combustion gases are emitted into the atmosphere. The main gases are sulfur dioxide (SO_2), nitrogen oxides (NOx), and particulate matter (PM).

There is a continuous downward trend in air emissions, driven by several key factors:

- Expansion of natural gas utilization
- Completion of the emissions reduction project at the Orot Rabin site
- Completion of the emissions reduction project at the Rutenberg site
- Conversion to natural gas of coal-fired generation units
- Operation of particularly high efficiency Combined Cycle generation units
- Reduction in use of coal in accordance with the instructions of the Minister of Energy and in accordance with the provisions of the emission permits
- Use of liquid fuel with particularly low sulfur content, for backup purposes only.





Table 8 | Comparison of Actual Environmental Performance in 2024 vs. 2015 for Air Emission Reduction and in Accordance with Reduction Targets for Air Emissions from Fuel Combustion for Electricity Generation

Name of Pollutant Emitted to the Air as a Result of Fuel Combustion for Electricity Generation	Reduction Target for Air Emissions from Fuel Combustion for Electricity Generation [expressed in gram/gross-kWh] 2030 relative to 2015	Actual Reduction of Air Emissions from Fuel Combustion for Electricity Generation [expressed in gram/gross-kWh] 2024 relative to 2015
Nitrogen oxides (NOx)	-65%	-56%
Sulfur dioxide (SO_2)	-85%	-72%
Particulate matter (PM)	-40%	-39%



Table 9 | The Israel Electric Corporation's Air Emissions from Fuel Combustion for Electricity Generation, 2015-2024 [gram/gross-kWh]

Year	Electricity Generation [thousands of MWh]	NOx Emissions [gram/gross-kWh]	SO2 Emissions [gram/gross-kWh]	PM Emissions [gram/gross-kWh]
2024	**32,922**	**0.58**	**0.38**	**0.028**
2023	35,708	0.68	0.39	0.031
2022	39,286	0.64	0.39	0.028
2021	38,248	0.65	0.42	0.029
2020	44,363	0.75	0.41	0.030
2019	47,810	0.75	0.45	0.028
2018	47,905	0.88	0.63	0.032
2017	48,788	0.92	0.77	0.038
2016	48,718	1.07	1.08	0.042
2015 Baseline Year	**50,641**	**1.32**	**1.34**	**0.046**
2024 vs 2015	-35%	-56%	-72%	-39%
2024 vs 2023	-8%	-15%	-3%	-10%



Table 10 | The Israel Electric Corporation's Air Emissions from Fuel Combustion for Electricity Generation, 2015-2024 [metric ton/year]

Year	Electricity Generation [thousands of MWh]	NOx Emissions [metric ton/year]	SO_2 Emissions [metric ton/year]	PM Emissions [metric ton/year]
2024	**32,922**	**19,145**	**12,394**	**926**
2023	35,708	24,397	13,885	1,117
2022	39,286	25,094	15,435	1,089
2021	38,248	24,839	16,154	1,096
2020	44,363	33,116	18,198	1,317
2019	47,810	35,876	21,425	1,327
2018	47,905	41,957	29,951	1,516
2017	48,788	44,800	37,592	1,856
2016	48,718	51,888	52,663	2,041
2015 Baseline Year	**50,641**	**66,925**	**67,636**	**2,336**
2024 vs 2015	**-35%**	**-71%**	**-82%**	**-60%**
2024 vs 2023	**-8%**	**-22%**	**-11%**	**-17%**



Table 11 | Total Air Pollutant Emissions Relative to Sales Turnover, 2015-2024

Year	Total Nitrogen oxides (NOx) Emissions from IEC Power Plant Sites [metric ton/year]	Total Sulfur dioxide (SO_2) Emissions from IEC Power Plant Sites [metric ton/ year]	Total Particulate matter (PM) Emissions from IEC Power Plant Sites [metric ton/ year]	Nitrogen oxides (NOx) Emissions Intensity [metric ton/ million USD sales turnover]	Sulfur dioxide (SO_2) Emissions Intensity [metric ton/ million USD sales turnover]	Particulate matter (PM) Emissions Intensity [metric ton/ million USD sales turnover
2024	**19,145**	**12,394**	**926**	**2.67**	**1.73**	**0.13**
2023	24,397	13,885	1,117	3.58	2.04	0.16
2022	25,094	15,435	1,089	3.82	2.35	0.17
2021	24,839	16,154	1,096	3.49	2.27	0.15
2020	33,116	18,198	1,317	4.48	2.46	0.18
2019	35,876	21,425	1,327	5.03	3.01	0.19
2018	41,957	29,951	1,516	6.67	4.76	0.24
2017	44,800	37,592	1,856	6.65	5.58	0.28
2016	51,888	52,663	2,041	8.79	8.92	0.35
2015	66,925	67,636	2,336	11.33	11.45	0.40

- NOx Emissions Intensity (tons/USD million sales)
- SO_2 Emissions Intensity (tons/USD million sales)
- PM Emissions Intensity (tons/USD million sales)

Air Emissions Reduction Project for Coal-Fired Generation Units at the "Orot Rabin" and "Rutenberg" Sites

In recent years, the Israel Electric Corporation completed the construction of emission reduction facilities at the coal-fired units at the "Orot Rabin" site in Hadera and the "Rutenberg" site in Ashkelon. These were complex projects that took several years to construct, and their cost totaled approximately NIS 7 billion (excluding construction period interest).

The projects at the Hadera "Orot Rabin" and Ashkelon "Rutenberg" power plant sites included upgrades of all existing systems at the units (primary measures), construction of flue gas desulfurization (FGD) scrubbers for sulfur dioxide (SO_2) reduction, and selective catalytic reduction (SCR) facilities for further nitrogen oxide (NO_x) emission reduction. The operation of the FGD scrubber is based on a process in which limestone slurry is used to absorb sulfur dioxide. As a result of this "wet" absorption process, the remaining gases become saturated with water vapor, producing a visible white plume at the stack outlet, caused by the moisture in the flue gases.



A by-product of the sulfur oxide removal process is high-quality gypsum, suitable for use in the cement and construction industries, as well as in the production of gypsum wallboards.

Due to the "wet" gas absorption process, the remaining flue gases in the stack are saturated with water vapor. Therefore, when the scrubbers are activated, a visible white plume can be observed at the stack outlet. This plume is caused by the moisture in the flue gases and low temperature. This plume is not smoke, but rather water vapor, and indicates the success of the process and the proper functioning of the scrubbers.

With the completion of this project, which constitutes a milestone in the Israel Electric Corporation's environmental investment, and the concurrent completion of the development of the natural gas reservoirs and the gas transmission system in Israel, and in light of the principles of the Minister of Energy's policy to gradually convert coal-fired generation units to natural gas, the Israel Electric Corporation has begun an additional emission reduction project, by converting coal-fired generation units to operate on natural gas, while utilizing the investment made in upgrading all existing unit systems (primary measures), and continuing the operation of selective catalytic reduction (SCR) facilities for further reduction of nitrogen oxide (NOx) emissions.

Conversion of Coal-Fired Units to Natural Gas as Primary Fuel

The pilot project to convert Unit 1 at the Rutenberg site to operate on natural gas (while maintaining the ability to operate on coal at times of emergency or natural gas shortages), was completed during 2024. Following the completion of the pilot project, gradual conversion of the remaining units at the site is underway. The company has completed the conversion of Unit 2, and Unit 4 was also deactivated during 2024 for its conversion. Further on, once Unit 3 is also converted to operate on natural gas, the conversion project for all units at the Rutenberg site will be complete. In addition, the Board of Directors resolved to instruct the company's management to clarify in writing to the Electricity Authority and to the Ministry of Energy that the project completion date, as well as compliance with the target set for ending the coal era in 2026, are contingent upon the Noga company approving the parallel conversion of Units 5 and 6 at Orot Rabin. If this is not permitted, the completion date will be postponed to March 2027, and accordingly, it will be necessary to update the conversion completion dates in the emission permits received by the company. The conversion project to natural gas is expected to further reduce emissions and coincide with the State of Israel's undertaking pursuant to international agreements, while ensuring the continued supply of reliable, available, and increasingly clean and environmentally friendly electricity to the residents of Israel, as well as compliance with the government's target to phase out routine use of coal for electricity generation by 2030.



The Israel Electric Corporation's Air Quality Monitoring System

The Israel Electric Corporation has established and operates an air quality monitoring system, in the framework of which 25 air quality and meteorological monitoring stations operated in various regions across the country in 2024. This monitoring system is part of a national air quality monitoring system, established under the Clean Air Law, with participation from Environmental Associations of Cities (Haifa, Hadera, Ashdod and Ashkelon), the Ministry of Environmental Protection, industry representatives, and the Israel Electric Corporation.

In 2024, the Israel Electric Corporation's monitoring stations operated in the area of the following power plants:
3 stations in the Haifa region, 3 stations in the Hadera region, 7 stations in the Tel Aviv region, 3 stations in the Ashdod region, 3 stations in the Ashkelon region, 4 stations in the Gezer region, and 2 stations in the Eilat region.
During 2024, the Israel Electric Corporation's monitoring stations measured (some or all) of the following air pollutants: sulfur dioxide (SO2), nitrogen oxides (NOx), nitrogen dioxide (NO2), ozone (O3), inhalable particulate matter (PM10), and fine respirable particulate matter (PM2.5). At a few sites wind speed and direction and other meteorological parameters were also measured.

Findings from the air quality measurements obtained from Israel Electric Corporation's monitoring stations in 2024 indicate that sulfur dioxide concentrations (a typical pollutant of coal, heavy fuel oil or diesel fuel-fired power plants) are declining, and are significantly lower than the environmental air pollutant standards pursuant to the Clean Air (Air Quality Standards) (Temporary Order) Regulations, 2011. This coincides with the reduction of emissions from the Israel Electric Corporation's electricity generation units, as described above.

Regarding other air pollutants, during 2024 the various Israel Electric Corporation monitoring stations recorded occasional concentrations of nitrogen oxides, nitrogen dioxide, ozone and fine airborne particulate matter, which were relatively high and on occasion even higher than the air quality standards. It appears that these cases are not directly related to emissions from the power plants. High concentrations of nitrogen oxides and nitrogen dioxide are associated with transportation activity, high concentrations of ozone are attributed to photochemical processes in the atmosphere, and high concentrations of fine airborne particulate matter were measured during dust storms and hazy conditions.

During 2024, the process of upgrading monitoring devices, buildings and infrastructure at all existing monitoring stations continued, to ensure data reliability and availability.
The Israel Electric Corporation's air monitoring laboratory is ISO 17025-certified for monitoring and calibration of environmental air quality monitoring systems.

Figure 1: Air Quality Monitoring Stations – National Distribution





Table 12 | List of the Israel Electric Corporation's Meteorology and Air Quality Monitoring Stations, Their Location, Types of Air Pollutants Measured, Wind Speed and Direction Measurements in 2024

Station | Address		Altitude Above Sea Level	Measured Parameters
Haifa Region			
Central Carmel	Hugim high School, 4 Yair Katz St., Haifa	274(+20) m	SO_2 NO_2 NO_X O_3 w/s w/d
Carmel Park	Carmel Park Offices, Haifa	507 m	SO_2 NO_2 NO_X O_3 $PM_{2.5}$ w/s w/d
Einstein	135 Einstein St., Haifa	363 m	SO_2 NO_2 NO_X O_3
Hadera Region			
Katzir	Katzir Community Town	390 m	SO_2 NO_2 NO_X O_3 PM_{10} w/s w/d
Orot Rabin	Orot Rabin Power Plant Site	13(+13) m	PM_{10} w/s w/d
Caesarea	Caesarea Gas Turbine Site Opposite "Or Akiva" City	19(+7) m	PM_{10} w/s w/d
Tel Aviv Region			
Yad Lebanim	Yad Lebanim, 15 Maaleh Habanim St., Ramat Gan	77(+14) m	$PM_{2.5}$
Fire Department	Fire Station, 13 Ben Elazar St., Ramat Gan	50(+10) m	SO_2 NO_2 NO_X O_3
Bitzaron	Technical Center, 7 Krimnitzky St., Tel Aviv	17(+16) m	w/s w/d
Petach Tikva Road	Old Central Bus Station, 13 Petach Tikva Road, Tel Aviv	28(+20) m	SO_2 NO_2 NO_X O_3 $PM_{2.5}$ w/s w/d
Antokolsky	The People's University, 4 Antokolsky, Tel Aviv	34(+20) m	SO_2 NO_2 NO_X O_3 $PM_{2.5}$
Hamashtela	"Hamashtela" Meteorological Tower, National Inspection, Ramat Hasharon	65(+10+65) m	SO_2 NO_2 NO_X O_3 + Temp at two altitude + w/s w/d
Shikun Lamed	Aran School, 25 Burla St., Tel Aviv	17(+15) m	PM_{10}



Station | Address		Altitude Above Sea Level	Measured Parameters
Ashdod Region			
Nir Galim	Moshav Nir Galim	20 m	SO_2 O_3 PM_{10} NO_2 NO_X w/s w/d
Gan Darom	Moshav Gan Darom	45 m	SO_2 NO_2 NO_X O_3
Yavneh (City)	Clalit Health Clinic -HaDekel St., Yavne	38(+15) m	SO_2 NO_2 NOX O_3 PM_{10} w/s w/d
Ashkelon Region			
Bat Hadar	Hof Ashkelon Regional Council	59(+4) m	SO_2 NO_2 NO_X O_3 PM_{10}
Kfar Menahem	Tzafit High School, in Kfar Menahem	119(+11) m	SO_2 NO_2 NO_X O_3 w/s w/d
Luzit	Moshav Luzit, Farm 14	189 m	SO_2 NO_2 NO_X O_3 w/s w/d
Gezer Region			
Beit Hashmonai	Herzog High School, Beit Hashmonai	103 m	SO_2 NO_2 NO_X O_3 w/s w/d
Karmei Yosef	Commercial Center, Karmei Yosef	260 m	SO_2 NO_2 NO_X O_3 w/s w/d
Modi'in	Mekorot Facility, Modi'in	267 m	SO_2 NO_2 NO_X O_3 PM_{10} w/s w/d
Ahisamakh	Moshav Ahisamakh	80 m	SO_2 NO_2 NO_X O_3 PM_{10} w/s w/d
Eilat Region			
Eilat Office	IEC Regional Office, Eilat	68(+10) m	w/s w/d
Goldwater Eilat	Mekif Goldwater School, Eilat	49(+15) m	SO_2 NO_2 NO_X O_3 w/s w/d

Notes: Sulfur dioxide - SO2; Nitrogen oxides - NOX; Nitrogen dioxide - NO2; Ozone – O3;
Inhalable airborne particulate matter - PM10; Fine respirable airborne particulate matter - PM2.5;
Wind direction - w/d; Wind speed - w/s.

Monitoring and Sampling System of Pollutant Emissions from the Stacks of the Electricity Generation Units

In accordance with the requirements of the emission permits for the company's generation sites, the Israel Electric Corporation operates continuous monitoring systems to track pollutant emissions from the generation units' stacks. The data is transmitted online and in real time to authorized personnel at the Ministry of Environmental Protection. In addition, various operational data is also transmitted.

The company also operates a manual sampling system in accordance with a stack sampling procedure and work plan approved by the Ministry of Environmental Protection. The sampling is also used to calibrate the stack-installed continuous air pollutant monitoring systems.

Sampling is performed by the Laboratory for Sampling Pollutants at Source, at the Israel Electric Corporation's Environmental Monitoring Department, which is ISO 17025-certified for sampling pollutants and calibrating continuous monitoring systems in the stack.





Greenhouse Gas Emissions Mitigation

In 2016, the State of Israel signed the Paris Agreement, pursuant to which a government policy for reducing greenhouse gas emissions was established. To implement this policy, several national targets were set, including a renewable energy generation target, which was updated in 2020 and currently stands at 30% of the total electricity generation in the market by 2030.

In the framework of Government Resolution No. 171 from July 2021, concerning the transition to a low-carbon(1) economy, absolute greenhouse gas emission reduction targets were established at the national level (for the entire State of Israel):

- A reduction of at least 27% in the annual greenhouse gas emissions by 2030, relative to the annual levels measured in 2015.
- A reduction of at least 85% in the annual greenhouse gas emissions by 2050, relative to the annual levels measured in 2015.

In addition, sector-specific targets were set for Israel's electricity sector (including independent power producers) for the reduction of greenhouse gas emissions:

- A 30% reduction in greenhouse gas emissions from electricity generation by 2030 relative to emissions measured in 2015.
- A 85% reduction in greenhouse gas emissions from electricity generation by 2050 relative to emissions measured in 2015.

Government of Israel Resolution No. 171 dated July 25, 2021: (1)



The Israel Electric Corporation is contributing to the national effort to achieve these targets, focusing its efforts on the following fields:

1. **Expanding the use of natural gas** – The Israel Electric Corporation has expanded the use of natural gas from approximately 40% of the electricity generated in 2015, to approximately 65% of the electricity generated in 2024. The use of natural gas is characterized by significantly lower emissions of carbon dioxide compared to the use of coal and liquid fuels.

2. **Reducing the use of Coal** – Since 2016, restrictions have been imposed reducing the scope of coal-fired electricity generation, in accordance with the terms and conditions of emission permits granted pursuant to the Clean Air Law, and in accordance with the Ministry of Energy's instructions. In 2024, coal-fired electricity generation was reduced by approximately 60% compared to 2015 levels.

3. **Constructing Combined Cycle Generation Unit**s – Combined cycle generation units generate additional electricity from a steam-electric turbine, by using the residual heat from the gases emitted from the gas turbine, without additional fuel consumption. Meaning, units using this technology are extremely highly efficient, resulting in reduced air pollutants and greenhouse gas emissions. During 2024 two Combined Cycle generation units using the extremely highly efficient advanced H technology, were constructed at the "Orot Rabin" site near Hadera. These units operate on natural gas as the primary fuel and on diesel fuel as a backup fuel, and are designated to replace the four old coal-fired units at the site, which are expected to enter preservation. This move is expected to result in a significant reduction in air pollutants and greenhouse gases.

4. Converting Coal-Fired Units to Use of Natural Gas as the Primary Fuel – The pilot project to convert Unit 1 at Rutenberg to operate on natural gas, while preserving the ability to operate on coal at times of emergency or natural gas shortages, was completed during 2024. Following the completion of the pilot project, gradual conversion of the remaining units at the site is underway. The company has completed the conversion of Unit 2, and Unit 4 was also deactivated during 2024 for its conversion to natural gas. Further on, once Unit 3 is also converted to operate on natural gas, the conversion project for all units at the Rutenberg site will be complete.



In addition, the Board of Directors resolved to instruct the company's management to clarify in writing to the Electricity Authority and to the Ministry of Energy that the project completion date, as well as compliance with the target set for ending the coal era in 2026, are contingent upon the Noga company approving the parallel conversion of Units 5 and 6 at Orot Rabin. If this is not permitted, the completion date will be postponed to March 2027, and accordingly, it will be necessary to update the conversion completion dates in the emission permits issued to the company. The conversion project to natural gas is expected to further reduce emissions and coincide with the State of Israel's undertaking pursuant to international agreements, while ensuring the continued supply of reliable, available, and increasingly clean and environmentally friendly electricity to the residents of Israel, as well as compliance with the government's target to phase out routine use of coal for electricity generation by 2030.



Greenhouse Gas Emissions - The Israel Electric Corporation's Reporting to the Voluntary Greenhouse Gas Emissions Registry and Reporting Mechanism

Since 2010, the Israel Electric Corporation has been taking an active part in the voluntary greenhouse gas emissions registry and reporting mechanism, operated by the Ministry of Environmental Protection. This mechanism, established by the Ministry of Environmental Protection, allows participating companies to be part of the formulation of the reporting protocols, and to gain experience in collecting and processing the data required for reporting.

A description of the various calculation methodologies prescribed in the framework of the mechanism is available on the Samuel Neaman Institute's website:

A description of the various calculation methodologies prescribed in the framework of the mechanism

Since 2000, the Israel Electric Corporation has consecutively reported its greenhouse gas emissions resulting from fuel combustion for electricity generation, in the framework of its environmental reports. The reported emissions account for approximately 99.5% of all the direct greenhouse gas emissions deriving from the Israel Electric Corporation's activity.

Reports submitted under the voluntary greenhouse gas emissions registry and reporting mechanism, primarily deriving from fuel combustion for electricity generation, are available on the Israel Electric Corporation's website:

Reports submitted under the voluntary greenhouse gas emissions registry and reporting mechanism

Note: The 2024 report is being prepared in accordance with a letter from the Ministry of Environmental Protection and is expected to be published during 2025.

Reduction of Greenhouse Gas Emissions

More than 99% of the Israel Electric Corporation's direct (Scope 1) greenhouse gas emissions originate from fuel combustion for electricity generation. The remaining direct emissions originate mainly from the fleet of vehicles, SF6 which serves for electrical insulation, and greenhouse gas emissions from the chemical process in the FGD scrubbers.

Table 13 | Reduction of Greenhouse Gas Emissions from Fuel Combustion for Electricity Generation - 2030 Targets and Actual 2024 Performance Relative to 2015 Baseline Year

Greenhouse Gases Emitted to the Air as a Result of Fuel Combustion for Electricity Generation 	**Reduction Target for Greenhouse Gas Emissions from Fuel Combustion for Electricity Generation** 2030 Relative to 2015 Baseline Year [expressed in gram/gross-kWh]	**Actual Reduction of Greenhouse Gas Emissions from Fuel Combustion for Electricity Generation** 2024 Relative to 2015 Baseline Year [expressed in gram/gross-kWh]
Carbon dioxide (CO_2)	-30%	-13%
Carbon footprint (CO_2eq)	-30%	-13%



Below is a breakdown of the Israel Electric Corporation's main emission sources – direct and indirect emissions

Table 14 | The GWP (Global Warming Potential) of Various Greenhouse Gases as Prescribed in the Framework of the Voluntary Mechanism's Calculation Methodologies:

Gas	GWP (Global Warming Potential) Since 2020	GWP (Global Warming Potential) between 2014-2019	GWP (Global Warming Potential) Until 2013
CO2 Carbon dioxide	1	1	1
N20 Nitrous oxide	265	298	310
CH4 Methane	28	25	21
SF6 Sulfur hexafluoride	23,500	22,800	23,900



Table 15 | Data of Greenhouse Gas Emissions from Fuel Combustion for Electricity Generation, 2015-2024

Year	Electricity Generation [thousand MWh]	CO_2 Emissions [metric ton/year]	CO_2eq Emissions [metric ton/year]	CO_2 Emissions [gram/gross-kWh]	CO_2eq Emissions [gram/gross-kWh]
2024	**32,922**	**19,202,704**	**19,259,071**	**583**	**585**
2023	35,708	20,918,606	20,981,610	586	588
2022	39,286	24,120,681	24,197,590	614	616
2021	38,248	23,793,248	23,870,304	622	624
2020	44,363	27,300,821	27,387,896	615	617
2019	47,810	29,525,691	29,634,047	618	620
2018	47,905	29,006,456	29,109,700	605	608
2017	48,788	29,978,814	30,087,822	614	617
2016	48,718	30,938,165	31,055,231	635	637
2015 Baseline Year	50,641	33,757,748	33,893,752	667	669
2024 vs 2015	-35%	-43%	-43%	-13%	-13%
2024 vs 2023	-8%	-8%	-8%	-0.4%	-0.4%



Table 16 presents the distribution of greenhouse gas emissions reported in the local voluntary reporting mechanism for 2021-2024. It is evident that the dominant share of the Israel Electric Corporation's direct greenhouse gas emissions derives from fuel combustion for electricity generation.

Table 16 | Distribution of Greenhouse Gas Emissions in the Local Voluntary Reporting Mechanism, 2021-2024

Year	Source of Greenhouse Gas Emissions – Direct Emissions – Scope 1		Measuring Units
	Total Direct Emissions as a Result of Fuel Combustion for Electricity Generation	Total Direct Emissions Not as a Result of Fuel Combustion for Electricity Generation*	
2024	**19,259,071**	**119,495**	**Metric ton of CO2eq**
	99.38%	**0.62%**	**Percentage of total direct emissions**
2023	20,981,610	119,596	Metric ton of CO2eq
	99.43%	0.57%	Percentage of total direct emissions
2022	24,197,590	126,132	Metric ton of CO2eq
	99.48%	0.52%	Percentage of total direct emissions
2021	23,870,304	119,327	Metric ton of CO2eq
	99.50%	0.50%	Percentage of total direct emissions

* Mainly emissions from the fleet of vehicles, SF6 and emissions from the chemical process in the FGD scrubbers.

Table 17 | Summary of the Israel Electric Corporation's Reports to the Local Voluntary Mechanism of the Israeli Ministry of Environmental Protection, 2015-2024 – Segmentation of Direct Emissions According to Type of Greenhouse Gas

Year/Gas	CO_2eq **Carbon Dioxide Equivalent** Total Emissions [metric ton CO_2eq]	SF_6 **Sulfur hexafluoride** Total Emissions [metric ton CO_2eq]	CH_4 **Methane** Total Emissions [metric ton CO_2eq]	N_2O **Nitrous Oxide** Total Emissions [metric ton CO_2eq]	CO_2 **Carbon Dioxide** Total Emissions [metric ton CO_2eq]
2024	**19,378,566**	**64,643**	**7,614**	**49,374**	**19,256,935**
2023	21,101,205	63,882	8,189	55,413	20,973,722
2022	24,323,722	61,419	9,218	68,220	24,184,865
2021	23,989,635	59,962	8,962	68,626	23,852,085
2020	27,513,268	58,994	10,385	77,263	27,366,625
2019	29,761,504	55,501	9,984	99,030	29,596,988
2018	29,227,942	53,359	9,846	94,042	29,070,696
2017	30,188,779	51,659	10,169	99,394	30,027,557
2016	31,152,001	50,923	10,107	107,533	30,983,438
2015	33,997,496	50,435	10,773	125,834	33,810,454



Table 18 | Total Israel Electric Corporation Direct Greenhouse Gas Emissions and Specific Emissions (GHG Intensity) Relative to Sales Turnover and Electricity Generation, 2015-2024

Year/Gas	CO2eq Scope 1 Emissions [metric tons]	GHG Intensity [metric tons CO2eq/ USD million sales]	GHG Intensity [metric tons CO2eq/ gross MWh*1000]
2024	**19,378,566**	**2,699.11**	**589**
2023	21,101,205	3,100.30	591
2022	24,323,722	3,703.81	619
2021	23,989,635	3,368.29	627
2020	27,513,268	3,720.04	620
2019	29,761,504	4,175.78	623
2018	29,227,942	4,644.96	610
2017	30,188,779	4,478.58	619
2016	31,152,001	5,278.93	639
2015	33,997,496	5,755.46	671



Table 19 | Breakdown of Greenhouse Gas Emissions in gram/net-kWh (gram/kWh transferred to transmission and distribution network from the power plants, after deduction of electricity self-consumption for electricity generation facilities), 2015-2024

Year/Gas	Gram CO_2/ net-kwh	Gram N_2O/ net-kwh	Gram CH_4/ net-kwh	Gram CO_2eq/ net-kwh
2024	**606**	**0.00581**	**0.00854**	**608**
2023	610	0.00604	0.00849	612
2022	641	0.00679	0.00870	643
2021	649	0.00702	0.00869	651
2020	641	0.00679	0.00867	643
2019	642	0.00718	0.00865	645
2018	629	0.00680	0.00850	631
2017	639	0.00707	0.00864	641
2016	661	0.00767	0.00860	663
2015	693	0.00863	0.00881	696



Table 20 | Breakdown of Various Greenhouse Gas Emissions in gram/gross-kWh (gram/kWh representing emissions from power plants), 2015-2024

Year/Gas	CO_2 gram/gross-kwh	N_2O gram/gross-kwh	CH_4 gram/gross-kwh	CO_2eq gram/gross-kwh
2024	**583**	**0.00559**	**0.00821**	**585**
2023	586	0.00580	0.00815	588
2022	614	0.00651	0.00834	616
2021	622	0.00672	0.00832	624
2020	615	0.00653	0.00833	617
2019	618	0.00691	0.00831	620
2018	605	0.00655	0.00818	608
2017	614	0.00680	0.00831	617
2016	635	0.00737	0.00827	637
2015	667	0.00830	0.00848	669



Table 21 | The Israel Electric Corporation's Carbon Dioxide Emissions, Electricity Generation, and Carbon Intensity Data - Total IEC, 2018-2024

Total IEC	2018	2019	2020	2021	2022	2023	2024
Annual CO_2 emissions (Metric Tons)	29,006,456	29,525,691	27,300,821	23,793,248	24,120,681	20,918,606	19,202,704
Annual gross electricity production (MWH*1000)	47,905	47,810	44,363	38,248	39,286	35,708	32,922
Carbon intensity (Gram /kwh)	605	618	615	622	614	586	583



Table 22 | Coal-Fired Power Plants- IEC Carbon Dioxide Emissions, Electricity Generation, and Carbon Intensity Data, 2018-2024

Coal Power Plants - IEC	2018	2019	2020	2021	2022	2023	2024
Annual CO_2 emissions (Metric Tons)	18,447,933	19,486,999	17,020,507	15,198,929	15,036,992	11,988,993	10,590,463
Annual gross electricity production (MWH*1000)	20,599	21,885	18,943	16,944	16736	13,146	11,490
Carbon intensity (Gram /kwh)	896	890	899	897	898	912	922

Table 23 | Natural Gas-Fired Power Plants – IEC Carbon Dioxide Emissions, Electricity Generation, and Carbon Intensity Data, 2018-2024

Natural Gas + LNG Power Plants - IEC	2018	2019	2020	2021	2022	2023	2024
Annual CO_2 emissions (Metric Tons)	10,411,997	9,721,492	10,202,474	8,564,442	9,005,949	8,841,178	8,524,883
Annual gross electricity production (MWH*1000)	27,066	25,373	25,243	21,228	22393	22,442	21,301
Carbon intensity (Gram /kwh)	385	383	404	403	402	394	400

The Israel Electric Corporation Carbon Footprint

The Israel Electric Corporation's Main Sources of Emissions

Approximately 99% of the Israel Electric Corporation's direct greenhouse gas emissions (Scope 1) originate from fuel combustion for electricity generation. The remaining direct emissions originate from the fleet of vehicles, use of sulfur hexafluoride (SF6) for electrical insulation, and greenhouse gas emissions from the chemical process in the flue gas desulfurization (FGD) scrubbers.



Scope 2 emissions represent indirect emissions associated with the purchase of energy required for the company's operations. Considering the company's operations as an electricity producer, that generates nearly all the electricity it consumes, a significant portion of these emissions has already been presented under Scope 1 and presenting them once again under Scope 2 would result in double counting. In the Israel Electric Corporation's 2024 carbon footprint, Scope 2 associated emissions account for approximately 3% of the total combined Scope 1 and 2 emissions, and primarily result from electricity losses in the transmission and distribution segments of the power grid, specifically of electricity supplied to the Israel Electric Corporation's customers purchased from independent power producers using natural gas, which in 2024 totaled approximately 0.5 million metric tons CO_2eq.

As of 2024, the Israel Electric Corporation's information regarding Scope 3 emissions is partial and mainly pertains to emissions from the supply segment resulting from the purchase of electricity from independent producers. The company has initiated a comprehensive process to map, measure, and report its material indirect Scope 3 emissions.



Greenhouse Gas Emissions in the Israel Electric Corporation's Customer Supply Segment

Electricity supplied by the Israel Electric Corporation to its customers is comprised of electricity generated by the company itself, mainly produced from natural gas and coal (with negligible amounts from diesel fuel and heavy fuel oil), and of surplus electricity purchased from independent power producers using renewable energy and from independent power producers using natural gas.

Indirect Scope 3 greenhouse gas emissions **resulting from the purchase of electricity from independent producers using natural gas,** in the company's electricity supply segment, **totaled approximately 4.5 million** metric tons CO_2eq in 2024, **compared to about 3.6 million metric tons CO_2eq in 2023.**

The emissions intensity in the supply segment **was 467 gram/kWh supplied in 2024, compared to 495 gram/kWh supplied in 2023, due to the evident increase in the supply of electricity originating from renewable energy and natural gas, and a concurrent reduction in the supply of coal-based electricity** to the company's customers.

In total, the company supplied its customers approximately 48,692 million kWh of electricity in 2024, approximately 59% of which was generated by the Israel Electric Corporation, representing a 2% increase compared to the previous year (in 2023, total electricity sales were 47,853 million kWh). Concurrently, total electricity purchases from independent producers rose by approximately 21%, increasing their share of the total electricity sales from about 34% (in 2023) to approximately 41% (in 2024). This corresponds with the process of shifting the company's focus from the generation segment to the transmission segment.



Table 24 | Summary of the Israel Electric Corporation's Reporting to the Israeli Ministry of Environmental Protection's Local Voluntary Mechanism, 2015-2024

Year/Gas	Scope 1 CO_2eq Emissions [metric tons] Primarily from Fuel Combustion for Electricity Generation	Scope 2 CO_2eq Emissions [metric tons] As a Result of Losses in the Transmission and Distribution Network of Electricity Originating from Private Electricity Purchased by the IEC and Supplied to its Customers	Scope 1+2 CO_2eq Emissions [metric tons]
2024	**19,378,566**	**508,750**	**19,887,316**
2023	21,101,205	425,316	21,526,521
2022	24,323,722	399,632	24,723,354
2021	23,989,635	598,799	24,588,434
2020	27,513,268	434,751	27,948,019
2019	29,761,504	281,242	30,042,746
2018	29,227,942	237,083	29,465,025
2017	30,188,779	203,829	30,392,608
2016	31,152,001	196,583	31,348,584
2015	33,997,496	152,297	34,149,793



Greenhouse Gas Emissions - Electricity Transmission Segment

In recent years, the Israeli electricity sector has been undergoing a structural change. This includes, among other matters, a shift in the mix of the types and sources of energy used for generating electricity.

The scope of electricity generated by independent producers using fossil energy (primarily natural gas) and independent producers using renewable energy (primarily solar energy) has been steadily increasing over the years. Concurrently, the percentage of electricity generated by the Israel Electric Corporation relative to the total energy generated in the market has been declining. According to the State of the Electricity Market Report published by the Electricity Authority in September 2024, as of 2023, approximately 46% of the total electricity was generated by the Israel Electric Corporation and approximately 54% was generated by independent producers using fossil energy and renewable energy.

The Greenhouse gas emission factors in the Israel Electric Corporation's electricity generation segment are determined solely by the company's electricity generation methods, and their values are as specified in Tables 19 and 20 above.

The electricity transmission segment is the segment that transmits electricity generated in Israel by various entities, and not only by the Israel Electric Corporation. Therefore, unlike the greenhouse gas emission factors for the Israel Electric Corporation's electricity generation segment, the greenhouse gas emission factors in the electricity transmission segment represent a weighted average of the Israel Electric Corporation's emission factors and those of independent producers.
It should be noted that the electricity mix transmitted through the national grid is delivered to both customers of the Israel Electric Corporation and to consumers served by other electricity suppliers.

Accordingly, the Israel Electric Corporation deems it fit to include the greenhouse gas emission factors for the Israeli national power grid in its environmental report.

These greenhouse gas emission factors in the transmission segment (a weighted annual emission factor for the national power grid, which includes the factors of the Israel Electric Corporation and the independent producers) are calculated and published by the Ministry of Environmental Protection.

Note: As of the publication date of this report, the 2024 greenhouse gas emission factors in the transmission segment have not yet been released by the Ministry of Environmental Protection.

Table 25 | Annual Weighted average Emission Factors for the National Power Grid – The Israel Electric Corporation (IEC) and Independent Power Producers (IPPs), 2015-2023, as Published by the Ministry of Environmental Protection

Year/Gas	Gram CO_2/ net-kwh	Gram N_2O/ net-kwh	Gram CH_4/ net-kwh	Gram CO_2eq/ net-kwh
2023	446	0.00285	0.00549	447
2022	469	0.00362	0.00624	470
2021	469	0.00362	0.00624	470
2020	496	0.00414	0.00663	497
2019	543	0.00595	0.00703	545
2018	537.5	0.006	0.0071	539.5
2017	567	0.00522	0.00782	568.8
2016	600	0.00767	0.0152	602.7
2015	693	0.00863	0.00881	695.8

Source: The Voluntary Mechanism's Operation Rules Handbook, Part 3, Page 8

The Voluntary Mechanism's Operation Rules Handbook



The Israel Electric Corporation's Adaption to Climate Change

Acute Climate Risk Management

The company is preparing for operational continuity during extreme weather events. To this end, a senior steering committee, headed by the CEO, is active within the company, to address the company's preparation for extreme weather events resulting from climate change and global warming. The committee is responsible for identifying potential climate-related risks and defining the company's preparedness strategy for addressing them. The risk factors identified by the committee include: extreme precipitation, snow and frost, extreme winds, floods and inundation, fires, severe thunderstorms, heatwaves or cold spells, and sea level rise.

The management member responsible for managing this risk is the Deputy CEO and VP of Generation and Energy. The company collaborates with professional entities regarding weather event forecasting and scenarios, in order to anticipate the future frequency and severity of these events. Moreover, oversight of extreme weather risk management is carried out by the subcommittee for the company's emergency preparedness, headed by the Chairperson of the Board of Directors, which convenes once every six months, and in the framework of which the Board of Directors addresses, among other matters, the implementation of emergency plans in government-owned companies, including reference to the presentation of the company's summer/winter (extreme weather) drills.

The company works with the Ministry of Energy, the Power Authority and professional entities (the Meteorological Service) to receive short- to very-short-term forecasts of extreme weather, to optimally prepare and respond to prevent infrastructure damage and protect human life, and to receive immediate alerts of such events, if necessary. With regard to heatwaves, responsibility for managing the electricity system, developing redundancy in generation and transmission, lies with the Noga company. The Israel Electric Corporation collaborates with "Noga" to perform agreed and coordinated adjustments and procedures for demand-side management to strengthen the electricity system's ability to supply continuous electricity during heatwaves.



Operational Resilience Enhancement Measures

The company is conducting a divisional mapping process of weather phenomena and scenarios that could affect infrastructure and facilities under the divisions' responsibility. As part of this process, activities required to strengthen the operational resilience of the electricity system have been identified, including: transmission line design criteria; definition of requirements in the planning of new substations or switching stations, procurement of more weather-resistant equipment to withstand extreme weather phenomena (such as heat-resistant transformers), resistance of data centers to higher temperatures (air conditioning and ventilation), replacement of air conditioning units to withstand higher temperatures, and more.

In addition, ongoing preparedness efforts are implemented across the company's divisions, including:

- Preparation for demand peaks exceeding forecasted levels
- Maintenance of substation units
- Maintenance of transmission and distribution lines according to the work plan
- Vegetation pruning and clearing
- Refreshing divisional procedures on emergency operations center activation and readiness testing

Readiness Drills

The Israel Electric Corporation conducts two nationwide readiness drills annually, for summer and winter. These drills simulate extreme seasonal weather scenarios. Ahead of each drill, the readiness of the company's divisional and departmental emergency operations centers is reviewed, as is the readiness of the supporting control, information, and monitoring systems to handle seasonally typical emergencies or extreme weather scenarios. A structured lessons-learned process is conducted following each drill, with follow-up to ensure implementation of conclusions. The company also participates in national drills, military drills, and coordinated drills of the Ministry of Energy, the Electricity Authority, government ministries and various infrastructure agencies.

Preparedness for Extreme Weather Events and the Impacts of Climate Change

In the past year, the company undertook significant efforts to deepen its preparedness for extreme weather events as part of its overall climate change adaptation strategy.



Among these efforts, the company defined, for the first time, “extreme weather events” as a designated primary risk in its organizational risk assessment, including reference to several underlying risks: extreme high-precipitation events, extreme temperatures, strong winds, lightning, and rising sea level, sea surface temperature, and wave height.
In collaboration with the Rafael-Mechtzav company, IEC developed a series of relevant weather-related scenarios, including heatwaves and cold spells, floods and inundation, severe winds, and others. The company received the national weather scenarios and is currently developing operational response plans accordingly. This is being carried out in accordance with the IPCC’s RCP 4.5 climate scenario.

During 2024, the process of formulating detailed preparedness plans for the various scenarios continued. These plans are expected to be submitted for approval to the Ministry of Energy and the Electricity Authority, with the aim of having them recognized tariff-wise, and integrating the preparedness measures within the recognized regulatory framework . Additionally, in 2024, the Deputy CEO and VP of Generation and Energy, who is responsible for this risk management, was also appointed chair of the organizational committee leading the risk management and preparation process in this area.

Landscape Restoration and Mitigation of Urban Heat Island Effect at Company Sites

As part of landscape development and restoration activities, trees are planted at the company’s generation and transformation sites, among other reasons, to mitigate the heat island effect in staffed sites and to increase shade. In addition, trees are being planted along transmission lines as part of forest restoration efforts. Professional experts select the types of trees being planted to suit the various types of sites, taking into account factors such as security, climatic suitability, maintenance requirements, and more.

At generation sites: As part of the construction of Combined-Cycle units and capacity expansions at power plants in the past (Haifa, Tsafit, Hagit and others), landscape restoration was planned with a broad perspective, and hundreds of trees were planted on site.



In 2024, at the Orot Rabin site, as part of the construction of the new Netiv Haor 70 and 80 Combined-Cycle units, the landscape restoration plan included the planting of approximately 200 trees. Additionally, at the Gezer power plant, landscaping that was initiated by the regional power plant management included the planting of approximately 90 trees that were integrated into a landscaped area that was designed adjacent to the site's dining hall, for the employees to enjoy.

At substations and switching stations: These facilities are unstaffed and trees are planted in the perimeter of the operational area wherever feasible, to provide landscape and visual buffers as part of the landscape design.

Along transmission lines: Broadleaf trees are planted beneath transmission lines on KKL-JNF land, as part of forest restoration efforts in areas where tall trees were required to be removed for safety reasons.



Integration of Renewable Energy into the Power Grid

Renewable Energy

As the entity that owns and operates the transmission and distribution segments of the power grid, the Israel Electric Corporation acts relentlessly to meet the government targets and is a strategic partner in advancing the Government of Israel's national target that by 2030, 30% of generated electricity will be from renewable sources. This target poses a significant challenge for the power grid and meeting it requires substantial investment by the Israel Electric Corporation. To this end, the company facilitates the integration of renewable energy facilities into the grid and the transmission and delivery of electricity from renewable sources to consumers. The integration of renewable energy projects into the grid is carried out by the Israel Electric Corporation in accordance with applicable regulations and standards, and with quotas defined by Noga, in collaboration with regulatory bodies and other players in the market (including Noga, the Electricity Administration and the Electricity Authority), in order to advance regulation and policy in this field.

Key challenges in integrating renewable energy facilities and transitioning to distributed generation include:

- A Long-Term Development Plan: Renewable energy generation facilities are deployed across the country, in accordance with the developers' considerations and the entry into the market of new developers. This is contrary to the Israel Electric Corporation's grid development plans, which are long-term in nature due to their technical, regulatory, and budgetary complexity, making it difficult to adapt the grid to the evolving needs.

- Gaps Between Generation and Consumption Areas: Unlike traditional power plants, which were located relatively near the electricity consumption centers, renewable energy facilities are often built in regions that are not consumption-oriented. This creates difficulty in the transfer of the energy generated to the consumption centers and presents challenges in load management and voltage regulation across the grid.



Integration of Renewable Energy into the Power Grid

- Exhaustion of Transformer Capacity at Substations: Transformers at the substations are already operating at full capacity, making it difficult to integrate additional generation facilities. This creates a need for significant upgrades, including the addition of new transformers at existing substations and the construction of new substations.

- Grid Voltage Surges due to Generation Congestion: During times of renewable energy generation congestion (particularly solar energy, which is generally generated simultaneously at many sites during daylight hours) generation exceeds demand, which may lead to voltage surges on the grid, which could damage equipment and compromise grid stability. Therefore, technologies are required to balance generation with demand, including storage of excess energy.

To enable a grid architecture capable of facing the above challenges in a stable, effective, and optimal manner, the Israel Electric Corporation is required to invest in upgrading the transmission and distribution network. Among the actions required are the construction of additional lines, enhancement of the lines' transmission capacity, expansion of existing transformer sites and addition of new ones, deployment of various grid voltage regulation technologies (including storage), and establishment of additional integration points for renewable energy facilities. This is particularly necessary given that many of the renewable energy facilities in Israel are located far from the country's electricity consumption centers, in regions where available land reserves allow for the development of significant renewable energy projects. Through these investments, the Israel Electric Corporation has succeeded in recent years to lower the barriers to integrating renewable energy facilities into the grid. Continued development of the grid to enable the integration of additional facilities and meet the government's target, remains one of the core elements of the grid development plan for the upcoming years, that was published at the end of 2024 . (1)*

During 2024, the Israel Electric Corporation successfully connected 8,689 new renewable energy facilities, of various types and scopes, to the power grid, with a total installed capacity of nearly 1 GW, representing a 15% increase to the installed capacity as of the end of 2023, and to this end, approximately NIS 182 million was invested during 2024 in grid development works and the integration of these projects.

During 2024, the Israel Electric Corporation also connected privately owned renewable energy generation facilities, with an installed capacity of 976 MWp to the distribution network.

(1)* The Distribution Grid Development Plan 2024-2030.

Dialogue with Renewable Energy Developers

The Israel Electric Corporation actively supports renewable energy developers in advancing the integration of their projects into the grid, by making information accessible via various channels, sustaining diverse lines of communication and dialogue, and offering individual assistance when needed. The company operates a dedicated information portal for renewable energy producers (which includes information on topics such as facility integration design, facility inspection procedures, distributed generation, and additional professional information), meets with developers and their representative organizations, hosts webinars, and more. Additionally, the company provides developers with access to a map that reflects load levels on the channels of integration into the transmission network and on the grid's absorption capacity in various regions, as an initial indication that can be used for planning and developing renewable energy projects.



Upon receiving an integration request, the Israel Electric Corporation is obligated to respond within a limited timeframe, defined by regulatory guidelines. As a rule, 90% of project integration requests are approved. These projects represent about 60% of the installed capacity requesting to integrate into the grid. The Israel Electric Corporation is constantly acting to improve this, subject to regulatory limitations and the grid's technical constraints. Additionally, the Israel Electric Corporation offers an online fast-track registration process for integrating generation and storage systems of up to 15 kVA. Under this track, the producer receives an affirmative distributor response upon registration.



Energy Storage

The transition toward distributed electricity generation creates challenges related to imbalances in the power grid and mismatches between electricity supply and demand, for example during daylight hours, when solar energy production is on the rise and demand is lower than what is being generated. Energy storage provides a significant solution, offering additional benefits such as strengthening the resilience of the power grid against security-related threats, and preventing waste of surplus electricity. It is also a solution that facilitates managing the flow of electricity to consumers based on optimal supply and demand.

Since 2019, the Israel Electric Corporation has been proactively advancing the field of energy storage in the transmission and distribution networks, as a tool for addressing the various grid development and management challenges. To that end, an Energy Storage Directorate was established in the company, as a professional team that engages in compiling relevant information, promoting regulation, formulating business models for storage programs, establishing academic collaborations, and conducting feasibility studies for potential projects. Additionally, in 2024, the directorate's activities included system analyses and simulations to identify needs, initiate and accompany projects for the establishment of energy storage facilities at IEC sites.
The directorate includes representatives from all relevant company units (Network Services, Projects, Innovation and Strategy, Legal Affairs, Finance and Economics, Marketing, and Regulation). Alongside the directorate, a steering committee was established, headed by VP of Network Services, in collaboration with VP of Engineering Projects, the company's General Counsel, and other executive management members, to advance energy storage projects at the Israel Electric Corporation's sites, and the required resolutions are approved by the company's Board of Directors.

Electricity Authority Resolution no. 64701, dated January 18, 2023 regarding "Principles for the Integration of the Israel Electric Corporation in the Field of Energy Storage in the Transmission and Distribution Network", established the principles under which the company shall be permitted to construct storage facilities, as well as the storage scope that the company will be permitted to install, such that the Israel Electric Corporation's market share shall not exceed 15% of the private market's market share. In 2024, the Israel Electric Corporation completed the construction projects for integrating the company's first five energy storage facilities, each with a scope of 40 MWh. As of the end of 2024, the constructed facilities are awaiting final permits for commercial operation. The facilities were built at the Eilat, Faran, Dimona, Besor and Netivot substations.

These stations were selected based on various considerations, including the need to enable the integration of additional nearby solar facilities and support the system operator in stabilizing and sustaining the grid. The same resolution also approved the construction of facilities at 10 additional substations, which have been in tender processes since the beginning of 2025.

In addition to these stations, the Israel Electric Corporation, together with its Innovation Unit, is advancing small-scale energy storage facilities as pilot projects, as well as additional energy storage projects. The company collaborates with external entities, such as universities (Bar-Ilan University, Ariel University, and the Technion), consultants, and large international companies with extensive experience in the field (such as Schneider, SMA, and Siemens), from whose experience the company can gain knowledge.

Alongside significant progress in this area, the “Iron Swords” war, which continued throughout 2024, presented numerous challenges and caused delays in storage projects and in meeting the company’s targets. These delays were influenced, among other factors, by delays in equipment shipments due to attacks in the Gulf, the diversion of vessels from Ashdod Port and the return of a vessel, shortage of manpower for civilian tasks due to mobilization for war efforts, delays in permit approvals, and the non-arrival of foreign battery and inverter manufacturer teams for the assembly and installation of the facilities.



In the photo: Energy Storage Facility at Netivot Substation | Photo: Ehud Poznanski



Promoting Energy Innovation

As Israel's largest energy company, the Israel Electric Corporation plays a central role in promoting the energy-tech innovation ecosystem. The company contributes to the development of this field by creating platforms for collaboration with technology companies, developing experimental infrastructures ("sandboxes"), investing venture capital in startups, and investing in joint research and development with private and academic partners, all within the scope of its core activities.

Recognizing its influence in the field, the Israel Electric Corporation is actively working, among other efforts, to establish a test site that will provide the infrastructure for conducting experiments, research, demonstrations, and simulations in the field of power grids, as well as for testing innovative technologies, without posing risks to individuals or the operational grid.

As of the end of 2024, the Israel Electric Corporation has obtained relevant approvals and invested in four Israeli energy startups engaged in various matters such as monitoring transmission network malfunctions, enhancing the transmission network's capacity, and developing materials to improve electricity transmission along the network.

Advanced energy technologies offer a significant environmental solution and can help reduce greenhouse gas emissions, mitigate air and water pollution, and improve the efficiency of the energy market by reducing reliance on fossil fuels, increase the energy efficiency of both the company's facilities and those of its customers, enable effective operation of distributed facilities, store energy, and optimize real-time supply and demand.

Gas Emissions from Air Conditioning Systems, Including Ozone-Depleting Substances

The Israel Electric Corporation utilizes air conditioning and cooling systems both in office buildings and for cooling operational equipment at the Company's facilities.

The Israel Electric Corporation operates in accordance with the provisions of the Hazardous Substances (Implementation of the Montreal Protocol on Substances that Deplete the Ozone Layer) Regulations, 5764-2004. Large and medium-sized air conditioning systems introduced since 2000, and small air conditioners introduced since 2005, do not use refrigerants that deplete the ozone layer.

In recent years, the Israel Electric Corporation has conducted surveys to characterize its inventory of air conditioning systems, including the types and quantities of refrigerants in use. The annual release rate and global warming potential (GWP) were calculated according to the methodology prescribed in the voluntary reporting mechanism for greenhouse gas emissions. The ozone depletion potential (ODP) of R22 refrigerant is prescribed in the Montreal Protocol regulations.



Table 26 | Inventory of Refrigerant Emissions, Including Calculation of Ozone Depletion Potential and CO_2 Equivalent for PRTR-Reported Power Plants – 2024 Data

Name of Refrigerant or Refrigerant Mixture	CAS Number	Chemical Formula	Global Warming Potential GWP	Ozone Depletion Potential ODP	Total Quantity of Gas Released in 2024 [metric tons]	Total Quantity of Gas Released in 2024 as CFC-11 Equivalent [metric tons] [ODP of CFC-11=1]	Total Refrigerant Released in 2024 [metric tons CO2eq]
R22-HCFC-22	75-45-6	CHF_2Cl	1760	0.055	0.222	0.012	391
R-407C	Refrigerant Mixture:	Refrigerant Mixture:	1624	0	0.02009	0	33
	75-10-5	CH_2F_2					
	354-33-6	C_2HF_5					
	811-97-2	$C_2H_2F_4$					
R-410A	Refrigerant Mixture:	Refrigerant Mixture:	1924	0	0.4163955	0	801
	75-10-5	CH_2F_2					
	354-33-6	C_2HF_5					
R-134A	811-97-2	CH_2FCF_3	1300	0	0.159211	0	207
R-404A	Refrigerant Mixture:	Refrigerant Mixture:	3943	0	0.00495	0	20
	354-33-6	CHF_2CF_3					
	420-46-2	CH_3CF_3					
	811-97-2	CH_2FCF_3					
TOTAL					HCFC 0.222 HFC 0.601	HCFC 0.012	1452

Transportation and Distance Travelled

The company acts towards continuous improvement in the field of employee transportation and distance travelled, among other reasons, to reduce emissions of air pollutants and greenhouse gases, decrease road congestion, promote informed, economical, and environmentally-friendly use of resources by fostering positive changes in the driving culture, and create a work environment that supports environmental, economic, and energy efficiency.

As part of this effort, various initiatives are underway, including:

- Providing commuting alternatives to private vehicles, and encouraging the use of public transportation, particularly Israel Railways, to reduce individual car use.
- Significant use of video conferencing systems for meetings, resulting in a reduction in distance travelled.
- A campaign on proper tire pressure, leading to savings in fuel consumption.
- Training sessions on eco-friendly and efficient driving.
- Publishing comparative information for company vehicle users regarding fuel consumption and distance travelled, aimed at raising awareness about responsible vehicle use.
- Transitioning to hybrid work models, contributing to reduced distance travelled and decreased road congestion.
- Use of hybrid/plug-in/electric vehicles to reduce fuel consumption.
- Use of heavy equipment and vehicles equipped with advanced technologies such as urea injection \ systems, to reduce emissions and save fuel.
- Introducing electric vehicles to the fleet of vehicles and establishing a charging infrastructure at company sites for electric vehicles used by company employees. As of 2024, charging stations have been installed at 22 company sites, with plans for further expansion based on demand.



Gasoline-Powered Vehicles and Electric Vehicles:

Table 27 | Administrative Vehicles Data (Including Leased Vehicles), 2019-2024

Year	Number of Electric Vehicles	Number of Gasoline Vehicles	Number of Hybrid Vehicles	Number of Plug-In Hybrid Vehicles	Number of Micro-Hybrid Vehicles	Total Gasoline Consumption [Liters]	Annual Distance Travelled [km]	Km/Liter Gasoline
2024	214	176	556	71	272	2,330,676	42,584,797	18.27
2023	184	312	431	91	188	2,225,897	34,904,301	15.7
2022	24	404	600	71	-	2,240,169	42,102,193	18.8
2021	9	455	596	25	-	2,155,714	43,324,119	20.1
2020	9	478	565	1	-	1,811,493	39,779,252	22.0
2019	9	514	417	-	-	2,114,051	36,904,373	17.5

Table 28 | Breakdown of Number of Gasoline-Powered Commercial Vehicles, Light Commercial Vehicles and motorcycles (Including Leased Vehicles), 2019–2024

Year	Number of Vehicles (Gasoline-Powered Commercial + Light Commercial + motorcycles)	Total Gasoline Consumption [Liters]	Annual Distance Travelled [km]	Km/Liter Gasoline
2024	36	14,113	219,760	15.57
2023	61	14,500	260,096	17.93
2022	42	16,242	311,771	19.20
2021	55	58,041	794,135	13.68
2020	88	394,236	4,422,143	11.22
2019	286	1,316,586	15,037,839	11.42

Diesel Fuel-Powered Vehicles:

Table 29 | Breakdown of Number of Diesel-Fueled Vehicles and Fuel Consumption, Excluding Heavy Mechanical Equipment (Including Leased Vehicles), 2019-2024

Year	Number of Diesel-Fueled Vehicles	Total Diesel Fuel Consumption [Liters]	Annual Distance Travelled [km]	Km/Liter Diesel Fuel
2024	2,492	8,651,221	69,275,066	8.01
2023	2,437	8,025,092	63,172,880	7.87
2022	2,267	8,005,715	73,051,917	9.12
2021	2,292	8,034,016	73,572,518	9.16
2020	2,092	7,802,460	65,969,409	8.45
2019	1,885	6,900,132	52,599,419	7.62

Table 30 | Breakdown of Diesel Fuel Consumption and Distance Travelled in Heavy Mechanical Equipment, 2019-2024

Year	Total Diesel Fuel Consumption of Heavy Mechanical Equipment [Liter]	Annual Distance Travelled [km]
2024	2,115,750	1,373,748
2023	2,187,820	1,275,181
2022	1,953,865	1,277,608
2021	2,046,199	1,123,516
2020	1,977,870	927,535
2019	3,133,982	1,737,091

Chapter 3
Water and Wastewater

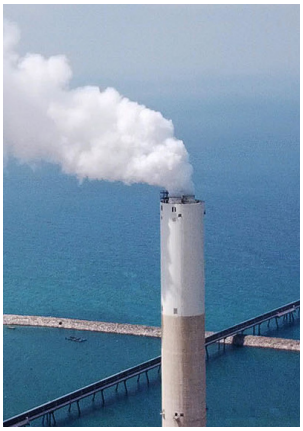


Responsible Use of Water Resources

The Israel Electric Corporation acts to promote responsible water use across its sites. Throughout 2024, the process of implementing responsible use of water at the company's power plants and administrative sites continued, through process improvements, oversight and increasing reuse of treated wastewater.

The Israel Electric Corporation makes extensive use of lower-quality water sources, both on-site and externally sourced, as detailed in the data tables in this chapter. Freshwater is supplied to the Israel Electric Corporation's power plants via the national water supply network and consists of a varying mix of aquifer water (wells), water from the Sea of Galilee (via the National Water Carrier), desalinated seawater, desalinated brackish water, and surface water from various sources.

Use of Treated Industrial Wastewater and Boron- Enriched Water in FGD Scrubbers as an Alternative to Freshwater



As part of the projects to reduce emissions from the coal-fired generation units, flue-gas desulfurization (FGD) scrubbers have been installed in recent years at the Israel Electric Corporation's coal-fired generation units, to reduce flue gas emissions (the "FGD System").

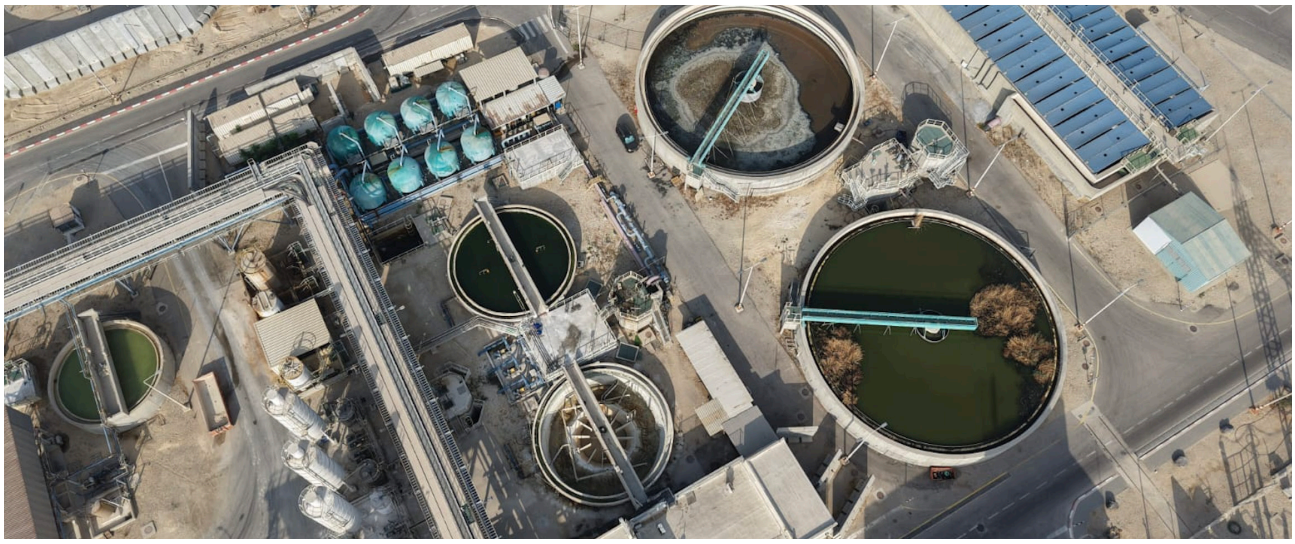
The core of the system is an absorber column, used to absorb sulfur. The FGD system's operation is based on the washing out of the flue gas using a lime-based alkaline slurry and injecting air into the bottom of the absorber, to complete the oxidation process. Conditions at the bottom of the absorber allow for the crystallization of gypsum from the slurry. Removing the gypsum crystal containing slurry to the by-product treatment system that separates solids and liquids in the slurry results in gypsum of a quality suitable for manufacturing gypsum wallboards or for the cement industry. The water remaining after the slurry is removed is emitted from the stack, creating a white plume of water vapor.

Due to the nature of the process, which involves using limestone slurry and massive water evaporation, large amounts of water are consumed during the process. As part of the national effort to conserve water resources, and in the framework of the efforts to reduce the quantities of purified industrial wastewater discharged (by permit) into the sea, and to reduce the consumption of freshwater at the power plants, reclaimed internal **Treated Industrial Wastewater** is transferred to operate the FGD scrubbers. Additionally, concentrate sourced from the desalination facility adjacent to the coal-fired "Orot Rabin" power plant in Hadera, is used. This water, referred to as **"Boron- Enriched"** water, originates from the final stages of the desalination process, which the desalination facility discharges to the sea solely because of the high boron levels which harm agricultural crops, but there is no reason not to use it for industrial purposes.

In 2024, the use of lower-quality water for FGD scrubbers both self-sourced **Treated Industrial Wastewater** and externally sourced (**Boron- Enriched** water from a desalination facility), amounted to approximately 835,000 m^3.

Use of Externally Sourced Treated Sanitary Wastewater in Cooling Towers at Combined Cycle Power Plants Cycle Power Plants

At the “Gezer” power plant site, the combined cycle electricity generation units are cooled by wet cooling towers. This method is based on water, rather than the common air-based cooling method. These cooling towers use **Treated Sanitary Wastewater** from a regional wastewater treatment facility. In 2024, the use of **Treated Sanitary Wastewater** for this purpose saved more than 3.7 million m³ of freshwater.



Treatment facilities for sanitary effluents reused as cooling water at the Gezer power station



Cooling towers utilizing reclaimed sanitary effluents for cooling generation units at the Gezer power station

Use of Treated Sanitary Wastewater and Concentrate for Landscaping Irrigation

Some of the power plants treat sanitary wastewater, using an on-site treatment facility. The **Treated Sanitary Wastewater** is used for on-site landscaping irrigation, as an alternative to freshwater, in accordance with a Ministry of Health permit. Additionally, concentrate originating from an on-site reverse osmosis desalination facility is also reused at the power plant sites for landscape irrigation. In 2024, the use of treated sanitary wastewater and concentrate for landscape irrigation saved more than 260,000 m^3 of freshwater at the company's various sites.

Industrial Wastewater

Industrial wastewater containing oil, fuel, and chemical residue is created as part of the generation process, and it is removed to licensed sites via tankers. Industrial wastewater attributed to the FGD facilities is treated in dedicated on-site wastewater treatment facilities and discharged into the sea in accordance with sea discharge permits, as is other non-reusable wastewater, such as brines and rinse water.





Chapter 3 – Water and Wastewater

The Israel Electric Corporation has set targets to reduce water use. In 2024, the company's total water consumption decreased by approximately 3.5% compared to 2023, and by approximately 10% compared to the 2013 baseline, on track with its targets (* the calculation does not include 77,542 m³ of freshwater water consumed by the Orot Pnina power plant which is not owned by the Israel Electric Corporation).

Targets Relative to 2013 Baseline Year

	Year 2025	Year 2030
Reduction in Freshwater Consumption	-20%	-30%

	Year 2030
Increase of Percentage of Lower-Quality Water from Total Company Water Consumption	+2%

Table 31 | Summary of Freshwater and Lower-Quality Water Consumption, 2022-2024 and in 2013 Baseline Year

			Lower-Quality Water Consumption					
Year	Total Water Consumption (without Withdrawal of seawater for cooling coastal power plants)	Freshwater Consumption	Externally Treated Sanitary wastewater Used for Cooling Towers	On-site Treated Sanitary wastewater Used for Irrigation	On-site Treated Industrial wastewater and Concentrate for Reuse	Externally-sourced Boron-enriched Water	Total Lower-Quality Water Consumption	Percentage of Lower-Quality Water Consumption from Total Consumption
2024	9,302,226*	4,429,017*	3,767,470	105,162	411,023	589,554	4,873,209	52%
2023	9,564,703	5,019,394	3,420,311	85,399	430,288	609,311	4,545,309	48%
2022	10,206,115	5,485,340	3,320,533	83,392	564,920	751,930	4,720,775	46%
2013 Baseline Year	10,193,225	5,096,584	4,349,836	94,643	652,162	0	5,096,641	50%

* Including 77,542 m^3 consumed for the "Orot Pnina" power plant which is not owned by the Israel Electric Corporation at the "Hagit" power plant site.

Table 32 | Seawater Withdrawal Data for Main Cooling of the Israel Electric Corporation's Coastal Power Plants, 2022-2024 [m3]

Year	Total Seawater Withdrawal for Main Cooling at the Israel Electric Corporation's Coastal Power Plant Sites [m3]
2024	3,954,615,349
2023	5,670,595,020
2022	5,723,629,472

* The decrease in flow volumes was mainly due to the sale of the Eshkol power plant (as part of the electricity sector reform) and the decommissioning of the Reading power plant.

Table 33 | Data for Treated Industrial Wastewater Discharged to the Sea Under Permit

Year	*Total Treated Industrial Wastewater Discharged to the Sea Under Permit from the Israel Electric Corporation's Power Plant Sites [m^3]
2024	778,371
2023	798,352
2022	748,536
2013 Baseline Year	1,612,995 (estimate)

* The data was retroactively recalculated compared to previous reports due to new requirements issued by the Ministry of Environmental Protection concerning permits for non-saline discharges to the sea.

Table 34 | Summary of Volume of On-Site Treated Sanitary Wastewater Discharged by Quality and Destination

	2024 Volume [m3]	2023 Volume [m3]	2022 Volume [m3]
Total On-Site Raw Sanitary Wastewater	323,310	323,820	321,480
On-Site Sanitary Treated Wastewater for Landscape Irrigation	105,162	85,399	83,392
On-Site Raw Sanitary Wastewater Removed to Licensed Wastewater Treatment Facilities	218,148	238,421	238,089

Table 35 | Summary of Volume of On-Site Treated Industrial Wastewater Discharged by Quality and Destination

	2024 Volume [m3]	2023 Volume [m3]	2022 Volume [m3]
Total On-Site Treated Industrial Wastewater and On-Site Concentrate	1,189,394	1,228,640	1,313,456
Reuse of On-Site Concentrate and Treated Industrial Wastewater	411,023	430,288	564,920
Total Treated Industrial Wastewater Discharged to the Sea Under Permit	778,371	798,352	748,536

Table 36 | Total Water Consumption Intensity by Type, Relative to Sales Turnover, 2022-2024

	Total Water Consumption Intensity [m3/ USD million sales]	Lower-Quality Water Consumption Intensity [m3/ USD million sales]	Freshwater Consumption Intensity [m3/ USD million sales]
2024	1295.6	678.8	616.9
2023	1405.3	667.8	737.5
2022	1554.1	718.8	835.3
2013 Baseline Year	1281.9	640.9	640.9

- Freshwater Consumption Intensity [m3/USD million sales]
- Lower - Quality Water Consumption Intensity [m3/USD million sales]
- Total Water Consumption Intensity [m3/USD million sales]

Table 37 | Total Water Consumption Intensity, by Type Relative to Electricity Generation, 2022-2024

	Total Water Consumption Intensity (m3/ gross-MWh*1000)	Lower-Quality Water Consumption Intensity (m3/ gross-MWh*1000)	Freshwater Consumption Intensity (m3/ gross-MWh*1000)
2024	282.5	148.0	134.5
2023	267.9	127.3	140.6
2022	259.8	120.2	139.6
2013 Baseline Year	178.5	89.2	89.2

- Freshwater Consumption Intensity [m3/gross-MWh*1000]
- Lower - Quality Water Consumption Intensity [m3/gross-MWh*1000]
- Total Water Consumption Intensity [m3/gross-MWh*1000]

Chapter 4
Waste and By-Products





Hazardous Materials and Hazardous Waste

The company handles, uses, and stores hazardous materials at some of its sites.

At sites where the quantity of hazardous materials exceeds the threshold defined in the Hazardous Materials (Classification and Exemption) Regulations, a toxic substances permit is in place, regulating the site's operations in accordance with the law.

The company continuously works to reduce the potential risks associated with the use of hazardous materials involved in the electricity generation value chain. This includes reducing consumption of hazardous materials in the generation processes at source, replacing hazardous materials with materials that pose lower environmental risks, seeking environmentally friendly substitutes, conducting employee training, and more.

In the framework of its legal obligations, the Israel Electric Corporation disposes of hazardous waste to licensed facilities via dedicated agreements.

During 2024, the Israel Electric Corporation's hazardous waste amounted to approximately 8,050 metric tons, of which over **6,700 metric tons (83%) were transferred for recycling or reuse.**



Solid Waste

The Israel Electric Corporation manages waste generated from its ongoing operations by applying a Total Waste Management approach. According to this approach, a range of actions are taken throughout the entire waste management chain (prevention, reduction, collection, and treatment) to minimize the waste's environmental impact. Efforts include reducing consumption and preventing the generation of waste, decreasing the volume of waste sent to landfills by separating various types of waste at source and transferring them for reuse and recycling, subject to the development of the recycling market in Israel.

Periodic inspections and waste surveys are also conducted at company sites to explore opportunities for greater efficiency and to identify solutions for the streams of waste used at the sites.

During 2024, a total of approximately 61%* of the solid waste originating from the Israel Electric Corporation's generation operations was transferred for reuse or recycling.

* Excludes coal ash and gypsum by-products, which are discussed in detail later in this chapter.

During 2024 several waste reduction actions were taken at the various sites:

- Reuse of wood waste for the benefit of the community – The company collaborates with local authorities, non-profit organizations, and public entities to repurpose wood waste into outdoor furniture and recreational and playground structures. In addition, wood waste is used as protective wall cladding in the company's logistics centers.
- Collection and transfer of decommissioned plastic items accumulated at the company's logistics centers, such as electrical insulating gloves and helmets, to the Hiriya Visitor Center for reuse and community activities.
- Plastic sheeting is transferred to KKL–JNF and used to protect endangered trees. The company continuously examines the reuse of plastic materials.



Use of plastic sheeting transferred to KKL-JNF to protect endangered trees.



Electrical insulating gloves transferred for reuse and community activities



Use of wood waste for wall cladding in the company's logistics centers.

Green Procurement

Green procurement is a means to reduce the company's environmental impacts. Prioritizing green products is expected, among other outcomes, to contribute to a circular economy, reducing waste and emissions throughout the products lifecycles. Furthermore, evaluating procurement procedures through an environmental lens enables the organization to identify purchased products and integrate sustainability aspects into the procurement processes.

In recent years, the Israel Electric Corporation has taken various steps to integrate green procurement, including:

- Transitioning to digital tendering processes
- Transitioning to innovative printing centers
- Using recycled paper as the primary paper source for the company's needs
- Evaluating environmentally acceptable oils as substitutes for long-used oils
- Transitioning to green cleaning products
- Using water-based silicone
- Using environmentally acceptable paints
- Procuring energy-efficient air conditioners and lighting
- Using green absorbent materials for absorbing oils
- Promoting reusable packaging in warehouses
- Monitoring green products and suppliers
- Promoting procurement of energy-efficient countertop dishwashers
- Procuring eco-friendly lighting fixtures



Below is a Breakdown of the 2030

Environmental Waste Targets

Relative to 2020 Baeline Year



-10%

Decrease in amount of solid waste transferred to landfills



-15%

Decrease in amount of hazardous waste



10%

Increase in percentage of solid waste transferred for recycling



5%

Increase in percentage of solid waste reused

Table 38 | Total 2024 Transfers of Hazardous and Non-Hazardous Waste from the Israel Electric Corporation's Power Plant Sites

Site	Total 2024 Hazardous Waste Transfers [metric tons]	Total 2024 Non-Hazardous Waste Transfers [metric tons]	Total [metric tons]
Orot Rabin	4,855	295,938	300,793
Rutenberg	512	204,724	205,237
Haifa	628	435	1063
Netiv Haor	0	1,629	1629
Hagit	260	551	811
Gezer	57	9,449	9506
Tzafit	305	2,741	3046
Eilat	3	137	140
Atarot	16	7	23
Kinarot	93.0	0	93
Caesarea	50	151	201
Hartuv	29	0	29
Eitan	20	0	20
Total	**6,828**	**515,762**	**522,591**

* Data reported in the framework of the PRTR Pollutant Release and Transfer Register

Table 39 | Breakdown of Hazardous Waste Quantities 2020-2024, Segmented by Type of Treatment [metric tons]

DATA	2020	2021	2022	2023	2024
Total Hazardous Waste	6,105	4,800	5,631	9,224	**8,050**
Total Hazardous Waste Transferred to Landfills	1,191	690	638	1,371	**1,253**
Total Hazardous Waste Transferred for Recycling	690	3,913	4,827	7,639	**6,711**
Total Hazardous Waste Transferred for Disposal	4,224	197	166	214	**87**

Table 40 | Breakdown of Non-Hazardous Waste Quantities, 2020-2024, Segmented by Treatment Type [metric tons]

DATA	2020	2021	2022	2023	2024
Total Solid Waste excluding by-products detailed below	19,993	25,294	22,699	23,368	**23,437**
Total Solid Waste Transferred to Landfills	8,512	8,086	7,003	7,224	**9,239**
Total Solid Waste Transferred to waste to energy facilities	2,704	4,360	4,537	2,935	**2,414**
Total Solid Waste Transferred for Recycling	8,777	12,848	11,159	13,210	**11,783**
Total By-Product – Gypsum Transferred for Reuse	134,330	103,570	120,560	86,320	**78,101**
Total By-Product – Coal Ash (Dry Basis) Transferred for Reuse (*including coal ash from field excavation operations intended for the construction of combined cycles units)	646,670	583,700	560,200	414,400	**416,295**

Table 41 | Total Waste Transfer Intensity at the Company's Power Plants, Relative to Sales Turnover, 2020-2024 According to PRTR Data

Year	Non-Hazardous Waste Intensity [metric tons/USD million sales]	Hazardous Waste Intensity [metric tons/USD million sales]	Total Waste Intensity [metric tons/ USD million sales]
2020	108	4	113
2021	101	1	102
2022	108	1	109
2023	77	1	78
2024	72	1	73

Non-hazardous Waste Intensity (tons/ USD million sales)
Hazardous Waste Intensity (tons/ USD million sales)
Total Waste Intensity (tons/ USD million sales)



By-Products

The coal-fired electricity generation process involves the generation of two by-products: coal ash and FGD gypsum. Coal ash is a by-product formed from the mineral fraction of the coal remaining after combustion. FGD gypsum is produced in flue gas desulfurization facilities through a reaction between sulfur dioxide and limestone.

The reuse of the by-products, in line with the principles of circular economy and sustainable development, provides significant environmental benefits. It offers an alternative to extracting raw materials from natural resources, prevents landfilling, reduces greenhouse gas emissions, and minimizes harm to nature, including by preserving open areas and protecting biodiversity.

Production and Uses of Coal Ash from the “Orot Rabin” and “Rutenberg” Power Plant Sites

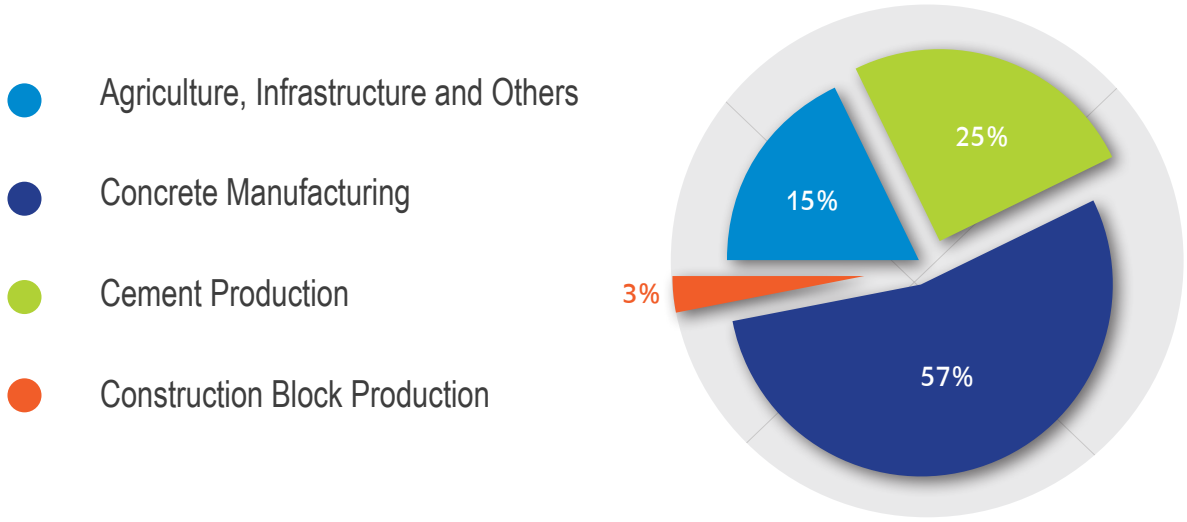
Coal ash is a by-product of coal combustion at the “Orot Rabin” and “Rutenberg” power plants.

In 2024, approximately 416,000 metric tons of coal ash were generated from coal-fired generation operations. The amount of coal ash has been declining in recent years due to the transition to natural gas for electricity generation, reduced operating hours of coal-fired units, and their operation at partial load.

Approximately 90% of the coal ash is fly ash, captured by electrostatic precipitators installed in the coal-fired units and approximately 10% is bottom ash, which accumulates at the bottom of the boiler.

Since 1999, the ash generated by the Israel Electric Corporation has been repurposed for use in local agriculture, infrastructure, and industry. In recent years, its primary applications have been in the production of cement and concrete (similarly to common practices in most developed countries).

Coal Ash Uses



In 2024, 25% of the coal ash was used in cement production, 57% in concrete manufacturing, and 3% in the production of construction blocks. Approximately 15% was directed for use in agriculture and infrastructure, while the remainder (other uses) was used for covering hazardous waste at landfill sites.

Thanks to its cementitious properties (fly ash is a pozzolanic material), adding ash to products in the construction industry is beneficial and contributes to the concrete's properties: reduced specific weight, strength, insulation, and improved corrosion resistance. Using coal ash as a raw material in cement and concrete production also mitigates harm to the environment and to open areas that is caused by quarrying raw materials that are replaced by the ash, such as limestone, clay, and sand (which is becoming increasingly scarce in Israel).

Coal ash use is based on regulatory approvals, including from the Ministry of Environmental Protection.

Like other geologically sourced materials, coal contains low concentrations of naturally occurring radioactive elements. The use of coal ash is monitored from a radiation perspective, since construction products containing coal ash must comply with Israeli Standard 5098, which limits the radioactive element content in all construction products marketed in Israel. It is important to note

that according to the International Atomic Energy Agency's 2014 International Basic Safety Standards, GSR Part 3, coal ash with concentrations of radioactive elements in the range found in Israel is cleared from radiation risk control. The Israel Electric Corporation conducts semi-annual monitoring of the environmental quality of coal ash (concentrations of trace elements and radioactive elements). Results consistently comply with the criteria for classifying the ash as usable.

In coordination with regulatory bodies, groundwater monitoring is conducted near the coal ash storage sites at the "Orot Rabin" and "Rutenberg" power plants, to track potential impacts on water sources.



Table 42 | Production and Uses of Coal Ash, 2020-2024 [thousands of metric tons]

	2024	2023	2022	2021	2020
Total Coal Ash Production	**416**	414	564	605	657
Total Coal Ash Uses	**416**	414	560	584	634
Cement Production Use	**105**	171	226	243	268
Concrete and Other Concrete Products Manufacturing Use	**239**	244	334	341	361
Infrastructure Use	**45**	0	0	0	0
Agriculture and Other Uses	**11**	0	0	0	5



Production and Uses of FGD Gypsum from the Sulfur Dioxide Emission Reduction (FGD) Facilities at the "Orot Rabin" and "Rutenberg" Power Plant Sites

Flue gases at the coal-fired power plants (generation units 1–4 at the "Rutenberg" power plant when operating on coal, and units 5 and 6 at the "Orot Rabin" site) are treated by Flue Gas Desulfurization (FGD) systems. In these systems, the flue gases are washed with a limestone slurry, triggering a reaction between sulfur dioxide and limestone that produces gypsum as a by-product. The gypsum generated through this process is of a quality comparable to that of natural gypsum.

In 2024, the Israel Electric Corporation produced an amount of 78,100 metric tons of gypsum, of which approximately 33,000 metric tons were produced at the "Rutenberg" power plant and approximately 45,100 metric tons at the "Orot Rabin" power plant.

The entire amount of gypsum produced by the Israel Electric Corporation was supplied for cement manufacturing (gypsum is a required component of ground cement, serving as a setting-time retarder) and for production of gypsum-based products.

Table 43 | Consumption of Limestone and Production of Gypsum by FGD Scrubbers at Coal-Fired Power Plants, 2020-2024 [metric tons]

Year	FGD Gypsum Production	Limestone Consumption
2020	134,330	72,689
2021	103,570	58,834
2022	120,560	67,530
2023	86,320	50,359
2024	**78,100**	**44,905**

Chapter 5
Noise and Magnetic Fields





Addressing Noise Nuisances

The process of generating, transmitting and supplying electricity may be a source of environmental noise. Noise is primarily generated by equipment used for generating electricity at power plants, and to a lesser extent, by transformers at substations or insulators along transmission lines. Most of this equipment is located at a distance from populated areas.

Other components in the transmission, transformation, and distribution systems (including power lines, distribution transformers, electrical cabinets, and switchgear) that are located closer to populated areas generally do not constitute a significant source of noise. However, they are inspected when necessary, and acoustic treatment is applied at source or through protective shielding, as required.

The Israel Electric Corporation operates in compliance with the noise level standards specified in the Noise Regulations and also acts to comply with other requirements and obligations incorporated in the licensing processes for the construction and operation of its facilities. Environmental noise levels are monitored throughout the equipment's entire lifecycle: from the planning and procurement stages, through the initial commissioning stage, and throughout its operational lifespan, to ensure continuous operation without causing noise nuisances.

During the planning stage of new electrical facilities, expected noise levels in populated areas adjacent to the site where it is to be installed are forecasted. The findings of the forecasted noise levels are submitted to the environmental authorities as part of environmental impact assessments, environmental opinions, or the construction permit processes. Based on these findings, environmental monitoring requirements and other measures are determined, if necessary.

At the procurement stage, acoustic requirements are integrated into the equipment's technical specifications to ensure compliance with permissible noise levels in the vicinity of the facilities. Subsequently, during the initial commissioning stage of new facilities, noise measurements are taken around the site and in nearby populated areas, to verify compliance and ensure that the defined threshold values are not exceeded.

During the ongoing operational stages, no exceedance of noise levels is expected, and noise inspections and measurements are carried out on a case-by-case basis, in response to inquiries received or specific issues that are discovered.

Environmental Aspects of Electric and Magnetic Fields

What Are Electric and Magnetic Fields?

The transmission of electrical energy through electrical facilities generates electric and magnetic fields around them. The levels of the electric and magnetic fields are primarily determined by the levels of voltage and current (respectively) applied to the facility, as well as the distance from it.

These fields alternate in direction at a frequency of 50 cycles per second (50 Hz), which is classified as extremely low frequency [ELF]. The energy associated with this frequency is extremely low and effectively negligible.

Effects of Electric and Magnetic Fields

Over the past four decades, numerous studies worldwide have been investigating a link between prolonged exposure to magnetic fields from power grid facilities or household electrical appliances, and the possibility of increased incidence of certain illnesses. In November 2010, the International Commission on Non-Ionizing Radiation Protection (ICNIRP) published guidelines regarding a maximum exposure limit to magnetic fields from the power grid of 2,000 milligauss for short-term effects on the general population. This limit is based on known health effects resulting from the induction of electric fields within the body.

According to the commission, the epidemiological research published to date on this topic does not present sufficient evidence of the existence of long-term health effects in humans, nor enough information to establish health-related threshold values.





Chapter 5 – Noise and Magnetic Fields

In response to concerns about the formation of long-term health effects from prolonged exposure to magnetic fields, the World Health Organization (WHO) and other global bodies support applying the precautionary principle, according to which even in the absence of certainty regarding the existence of risk and its limited extent – if any – some, non-extreme, measures should be applied with regard to exposure to magnetic fields.

A detailed summary of the findings can be found in the WHO's June 2007 report, titled: Environmental Health Criteria 238: Extremely Low Frequency Fields", available at:

Report by WHO's

As well as in the November 2010 report by ICNIRP, titled:
(GUIDELINES FOR LIMITING EXPOSURE TO TIME-VARYING ELECTRIC AND MAGNETIC FIELDS 1Hz TO 100 kHz)

Report by ICNIRP

The International Agency for Research on Cancer (IARC), which operates under the auspices of the World Health Organization, has classified magnetic fields in Group 2B / in the third level of linkage "possibly carcinogenic to humans", considered the lowest classification level. This category also includes emissions from gasoline engines or hot beverages, and certain types of pickled vegetables.
Further information can be found in IARC's summary report, available at:

Research by IARC



Israeli Legislation and Policy

In March 2005, a report was published by the Expert Committee on Magnetic Fields from the Power Grid (hereinafter: the **"Expert Committee"**). The Expert Committee adopted the ICNIRP's maximum threshold for exposure to magnetic fields from the power grid at the time, namely 1,000 milligauss, and concurrently prescribed the need to apply the precautionary principle when planning new facilities and operating existing ones. The company is working to gradually implement the precautionary principle at its existing facilities, in line with the Expert Committee's report's recommendations. In addition, according to the company's assessments and based on tests it has conducted, the electrical facilities it owns comply with ICNIRP's guidelines.

In 2006, the Non-Ionizing Radiation Law was enacted. According to the Non-Ionizing Radiation Law, maximum levels of permissible human exposure to radiation from a radiation source are to be determined by regulations, which were scheduled to be promulgated by January 1, 2007. The law stipulates that as long as such regulations have not been promulgated in matters concerning the electricity sector, decisions of the Radiation Commissioner at the Ministry of Environmental Protection, such as terms and conditions in construction and operating permits, relating to matters concerning the electricity sector, shall be in accordance with the recommendations in the Expert Committee's report.

The Expert Committee's report is available at:

Expert Committee's report

Additionally, the law stipulates that a decision by the Commissioner relating to the law, regarding matters that affect costs in the electricity sector, for which the Commissioner has received written notice from the Minister of Environmental Protection or the Minister of Energy, requires approval of the Minister of Environmental Protection, the Minister of Finance, and the Minister of Energy. Draft regulations under the Non-Ionizing Radiation Law were published for public comment in January 2019.

The Israel Electric Corporation's Operations

For the establishment and operation of radiation sources, as defined by the Non-Ionizing Radiation Law, the company is required to possess appropriate permits issued by the Ministry of Environmental Protection in accordance with the law.

The company possesses the required permits for the construction and operation of radiation sources, and where such are not in place, is working to obtain them. The company constructs and operates new and existing electrical facilities in compliance with the terms and conditions specified in the construction and operating permits, in all that relates to the implementation of measures to limit exposure levels, restrict access, post warning signs, fulfill reporting obligations, and the like.



Chapter 6
Biodiversity



Managing Biodiversity Impacts

Some of the Israel Electric Corporation's facilities are located within or near natural and open areas. The environmental and biodiversity impacts stem from the mere location of the facilities in the area and the associated environmental effects deriving from their ongoing operation. In addition, the Israel Electric Corporation owns tens of thousands of kilometers of power lines of various voltage levels, spanning the length and breadth of the country. The Israel Electric Corporation assesses the impact of its facilities on biodiversity and natural values in the framework of the environmental documentation required for project implementation.

During the planning and construction stages, alternative locations for new facilities and power lines are reviewed, with consideration given to the need to minimize routing through biodiversity-rich areas, to reduce negative impacts and harm to these surroundings, and environmental-ecological restoration is also carried out upon completion. In recent years, in parallel with global developments and awareness concerning the importance of biodiversity conservation, the scope of biodiversity-related issues under review has expanded.

The following are facilities located near declared nature reserves under National Outline Plan 8 – the National Outline Plan for National Parks and Nature Reserves (up to 500 meters from facility):

Hagit Power Plant – adjacent to the "Nahal Tut" Reserve,
Yavne Switching Station – adjacent to the "Shita Malbina" Reserve,
Hula Substation – adjacent to the "Ein Tao" and "Nahal Kadesh" Reserves,
Nazareth Substation – adjacent to the "Nazareth Iris" Reserve,
Safed Substation – adjacent to the "Har Meron" Reserve,
Tefen Substation – adjacent to the "Har Sne" Reserve,
"Mifalei Plada" Substation – adjacent to the "Holot Hamifratz" Reserve,
Ma'ale Efraim Substation – adjacent to the "Sartaba" Reserve

The following are facilities located near declared national parks under National Outline Plan 8 (up to 500 meters):

Sha'ar Haguy Substation – adjacent to the "Harei Yehuda" National Park
Ein Harod Substation – adjacent to the "Ma'ayan Harod" National Park
Yokne'am Substation and Daliyat al-Karmel Substation – adjacent to the "Carmel" National Park
Kinarot Substation - adjacent to the "Kfar Nahum" National Park
Givat Ella Substation – adjacent to the "Tzipori" National Park

For 400 kV and 161 kV transmission lines in the planning or construction stages that traverse areas of high environmental value (including nature reserves and open areas), measures are taken to reduce the environmental footprint. These include environmental restoration of work zones and access roads, installation of protective measures on high-voltage distribution poles in areas sensitive to bird electrocution, management of invasive species, and additional actions to preserve valuable areas and unique habitats.

Terrestrial Biodiversity Aspects

- The company takes into account the need to minimize routing through biodiversity-rich areas in order to reduce the impacts on these areas, and examines alternative locations for new facilities, poles, and power lines. Additionally, in ecologically sensitive areas (such as nature reserves or open areas), line construction is carried out in collaboration with the Israel Nature and Parks Authority, in compliance with various environmental requirements, and while diligently reducing the ecological footprint, to the extent possible. This includes reducing the construction of access roads and staging areas, using local substrate materials that will blend into the natural environment and will prevent the spread of invasive species, avoiding work in certain areas during periods of high ecological sensitivity (for example, near seasonal pools in winter or near nesting sites during the nesting season), avoiding work near stream banks, relocating or fencing trees to minimize damage to them, and conducting diligent environmental-landscape restoration upon the completion of the construction works.

- Ecological Reports – Construction projects of power lines and substations in ecologically valuable areas are accompanied, where relevant, by an ecologist's report, that includes a survey of the flora and fauna in the area of the planned project, with reference to the "Red Book of Vertebrates in Israel", which defines and classifies endangered species requiring action to prevent their extinction (the Red Book's definitions align with the definitions of the IUCN Red List of Threatened Species. Based on the findings of the ecological opinion, guidelines and measures are developed to reduce the projects' ecological footprint.

- Increasing internal organizational awareness of the importance of biodiversity conservation by making information accessible to employees and using geographic platforms such as GIS to integrate environmental aspects into line planning.

- Collaboration with the Society for the Protection of Nature in Israel, the Israel Nature and Parks Authority, KKL-JNF, and the Ministry of Environmental Protection through "calls for proposals" and in joint forums to formulate strategies and mechanisms to address the issue of invasive species and to integrate biodiversity conservation considerations among infrastructure companies.

- Proactive measures to reduce harm to birds, including the development of geographic models for bird-sensitive zones, formulating planning and construction guidelines for power lines, and supporting the development of pilot projects, groundbreaking projects, and work plans in this field.

Policy and Targets for Improving Terrestrial Biodiversity

Mapping Sensitive Sites and Areas

In 2023, as part of the company's strategic targets, the Israel Electric Corporation completed the mapping of the company's sites according to protected areas (nature reserves, etc.) and areas of high ecological value that have not been declared as protected. Accordingly, the company's ability to provide relevant environmental planning guidelines improved, and this supports the company's planners in minimizing environmental impacts when planning new power lines and maintenance work for existing lines. The mapping data is available on the company's Geographic Information System (GIS).

Additionally, in recent years, a national geographic model was developed which presents areas sensitive to bird electrocution, and during 2023, this model was integrated into the company's GIS platforms to serve as a planning and operational tool for overhead or underground power lines.

Light Pollution

As part of the Israel Electric Corporation's efforts to reduce the impact of its infrastructure on biodiversity, the company decided that, beginning in 2022, all new substations located in ecologically valuable areas, will not be illuminated during routine operations, except in cases of emergency, operating malfunctions, or (rare) maintenance activities that require nighttime work. This policy will prevent light pollution from leaking into open areas, disturbing wildlife and vegetation.

Additionally, in 2024, a successful pilot project to reduce light pollution at generation sites (power plants) was completed. As part of the pilot project, the lighting at the "Caesarea Gas Turbines" site, as a representative site of such facilities (that require illumination), was replaced with lighting compliant with the recommendations of the "Ecological Code – Environmentally Friendly Lighting, Prevention and Reduction of Light Pollution in Infrastructure Planning." The recommendations include turning off lighting where and when it is not needed, and designing shielded, directional lighting with intensities and colors that prevent and minimize light pollution to the extent possible.

Relevant company personnel, from security, occupational safety, lighting design, various site operations, and other disciplines, are now able to evaluate and provide their professional opinion regarding the quality of the lighting.

In parallel, the company is drafting rules for lighting design at new sites and for the upgrading of lighting at existing sites. It is also establishing technical specifications for procurement of "environmentally friendly" lighting fixtures, which include specific parameters tailored to various areas, based on site-specific lighting needs (such as road lighting, security lighting, operational lighting, etc.), to reduce light pollution at the generation sites. Substations that are routinely not illuminated will also be built in accordance with the pilot project's conclusions according to the Ecological Code for Planning Infrastructure Lighting.

The "Spreading Wings" Project

The project was launched in 1996 as a collaborative initiative between the Israel Electric Corporation, the Israel Nature and Parks Authority, and the Society for the Protection of Nature in Israel, with the aim of protecting Israel's raptor population, and as is part of the company's corporate sustainability policy.

The project's main objectives are to reduce harm to raptors caused by electrocution and collisions with power lines, and to conserve this population through active interfaces, such as operating feeding stations and acclimatization enclosures, GPS telemetry of raptors, research, monitoring, and importing vultures when necessary

In its early years, the project focused exclusively on the population of vultures, as at that time dozens of electrocution incidents involving vultures occurred annually in sensitive areas. However, over time, and as a direct result of the project's efforts, including the installation of protective anti-electrocution measures on high-voltage distribution poles, these incidents slowly declined, to the extent that they have become a negligible cause of mortality among vultures. In fact, since 2019, only one electrocution incident involving vultures has occurred. Given the project's success, it was decided to expand its scope to include treating and saving additional raptor species vulnerable to electrocution, such as eagles, including the Bonelli's eagle, golden eagle, eastern imperial eagle, and white-tailed eagle, among others.

The project is currently based on applied research aimed at developing protective measures for power poles, which are the primary source of electrocution for large birds due to their tendency to use these poles for perching, roosting, lookout points and even nesting. The project currently operates along three main axes: installing protective measures on poles against electrocution, installing protective measures on lines against bird collisions, and conserving the raptor population.

The conservation interface includes proactive measures to expand breeding nuclei, monitor at-risk raptor species, and reduce poisoning incidents, by supplying high-quality food to vultures and maintaining feeding stations, purchasing GPS transmitters and monitoring telemetry data, importing vultures from abroad, and carrying out educational and awareness activities.

In recent years, telemetry efforts for endangered raptors have intensified, and as a result, monitoring capabilities of bird flight data have significantly improved, assisting active protection of raptor populations, contributing to knowledge and research on the matter, and supporting the development of more accurate work plans for installing protective measures on poles.

Preventing Bird Electrocution

As part of the “Spreading Wings” project, protective measures were installed on approximately 3,000 distribution poles by 2021, at a pace of approximately 100 poles per year. The project has significantly reduced electrocution incidents involving vultures, from dozens of electrocution incidents per year in the 1990s to an average of a single incident once every three years.

During 2021, a geographic sensitivity model was developed to predict the risk of electrocution for the Bonelli’s eagle, whose population in Israel is currently facing a severe risk of extinction, as well as for other eagles in Israel (the eastern imperial eagle, steppe eagle, booted eagle, and others). The model mapped out 6,000 high-voltage poles with the highest risk of causing electrocution and was integrated into the company’s work plans for installing protective measure on power poles. In response to the development of the model and the identification of the need to accelerate the process of installing protective measures, the Israel Electric Corporation decided in 2021 to double the pace of installing protective measures to 200 poles per year. Simultaneously, the company supported a joint appeal by the Israel Nature and Parks Authority and the Society for the Protection of Nature in Israel

to the Electricity Authority regarding the need for broader installation of protective measures and to recognize this in the electricity tariff. After receiving the Electricity Authority's approval in principle to the acceleration of the pace of installation of protective measures, and recognition of the costs according to actual performance, and in order to save the Bonelli's eagle, a decision was made to increase the pace of installation of protective measures to approximately 1,000-1,200 poles per year, and the company began preparations to accelerate the pace of installation of protective measures, including training professional teams to perform the work, procuring appropriate equipment, developing multi-year work plans, logistical preparations, and setting up a computerized project management module.

Upon completion of these preparations, and commencing from the second half of 2022, the company began actual works of installation of protective measures, and during the second half of 2022 protective measures were installed on approximately 650 high-voltage poles.



Israel Electric Corporation Employees Installing Protective Measures on a High-Voltage Pole to Prevent Raptor Electrocution, Tal Shachar Area

In the photo: Short-toed Eagle on a bird-safe pole | Photo: Yossi Atias



In 2023, intensive works of installation of protective measures were performed on an additional 1,101 high voltage poles in the framework of the project in regions particularly sensitive to electrocution of Bonelli's eagles and other endangered raptors. The program focused on the Shfela region, the central Arava region, the Jezreel Valley, and the Beit She'an Valley. It should be noted that despite a temporary halt in the works of installing protective measures, due to the "Iron Swords" War, the Israel Electric Corporation met its ambitious work plan.

In 2024, although the overall volume of project activity decreased, due to the company's intense operations during the "Iron Swords" War, it was decided not to withdraw from the project and to continue the installation of protective measures, albeit at a slightly reduced scale. As a result, protective measures were installed on approximately 500 high-voltage poles. Having said that, the Israel Electric Corporation remains committed to resuming the project in its original format, after the war ends and provided no further constraints arise deriving from the company's operations during the "Iron Swords" War.



- **Drone-Based Pole Protection Pilot Project**:
  A pilot project using drones to install protective sleeves to prevent bird electrocution was completed. The pilot project aimed to accelerate the pace of installation works and reduce environmental impact by eliminating the need for lifting platforms and the construction of access roads to the poles. As part of the pilot project, protective measures were successfully installed on 12 high-voltage poles in the most sensitive regions - the Golan Heights and the Jordan Valley - with close professional accompaniment from both environmental - ecological and engineering-electrical experts. The research, development and actual implementation of the drone-carried installation device took approximately three years.
  This pilot project is innovative, groundbreaking, and the first of its kind worldwide.

- Continued Research and Development of Protective Measures: An in-depth study was conducted of all protective devices and their upgrades. A process was carried out to optimally customize and supplement the protective equipment, both to meet the needs of grid employees and to enhance its effectiveness in preventing electrocution.

- Dismantling of a High-Voltage Power Line Near a Vulture Feeding Station: In collaboration with the Israel Nature and Parks Authority, the company led a voluntary effort of dismantling a non-operational high-voltage power line located in an open area near Dimona. This was done due to the uniqueness of the line, that crossed a high-value undisturbed area and ran close to one of the largest and most important vultures feeding stations in the Negev, which attracts numerous raptors, particularly vultures and Egyptian vultures, on a daily basis. The work included dismantling approximately 10 kilometers of power line, 60 poles in total, and carrying out ecological-landscape restoration upon completion of the works. Dedicated environmental guidelines were developed and implemented on site throughout the works. Additionally, in light of the project's success and its environmental contribution, the Israel Electric Corporation, together with the Israel Nature and Parks Authority, is examining the dismantling and undergrounding of additional power lines located near feeding stations and nesting areas of raptors at risk of extinction.

- Supplying high-voltage Poles for Vulture "Training": The Israel Electric Corporation voluntarily led an initiative of supplying dismantled wooden high-voltage poles (along with associated equipment) to the Israel Nature and Parks Authority, to be reinstalled as decoy poles near vulture feeding stations and acclimatization enclosures. The goal is to condition vultures to avoid perching on poles by connecting the crossarms and insulators of the poles to low voltage, thereby "training" the vultures not to land on high-voltage poles, to reduce the chance of electrocution and collision.



Photo: Israel Electric Corporation Employees Loading Wooden Poles to the Israel Parks and Nature Authority's Vehicles

Preventing Bird Collisions with Power Lines

Since 2013, the Israel Electric Corporation has been collaborating with the Society for the Protection of Nature in Israel, the Israel Nature and Parks Authority, and the Ministry of Environmental Protection, in the framework of "calls for proposals" to integrate biodiversity considerations among companies. Further to previous projects aimed at reducing harm to biodiversity caused by bird collisions with power lines, and a nationwide mapping of areas with significant potential for harm to birds due to collisions with power lines, a study was launched in 2022 that includes the installation of bird collision prevention devices in the Jezreel Valley and Beit She'an Valley regions. In the framework of this pilot project, approximately 2,600 devices were installed along approximately 8 kilometers of 161kV lines and 8 kilometers of high-voltage lines in open bird collisions sensitive areas. Unmarked control segments were also designated.

In 2023, following the completion of the installations, the segment monitoring phase began. This phase, conducted by a researcher and a dog handler, aims to identify field evidence such as feathers, bones, and the like. Project steering committee meetings were held which reviewed the various diverters installed during the experiment and addressed scientific, operational, and practical questions related to large-scale implementation of the diverters. The research phase was completed during 2024, and the Israel Electric Corporation, in collaboration with the Electricity Authority, the Society for Protection of Nature in Israel, and the Israel Nature and Parks Authority, is currently evaluating the establishment of large-scale implementation mechanisms.



"Before and After" pictures during the dismantling of the power line in the Dimona area - as can be seen, complete ecological-landscape restoration of the area of the pole and the works, was performed.

Conducting Ecological Surveys

In the framework of the ecological surveys carried out to assess biodiversity impacts of planned projects (included in environmental documents), a survey is conducted of existing flora and fauna in the planned project area. To gather as comprehensive information as possible, botanical and zoological field surveys are conducted alongside a literature review of various sources, including reference to the "Red Book of Vertebrates in Israel", which defines and classifies endangered species requiring action to prevent their extinction. The Red Book's definitions align with the definitions of the IUCN Red List of Threatened. These environmental and ecological reports are prepared as needed for the planning, construction, and operation of new company facilities (including substations, distribution and transmission lines), when required in the outline plan process (under the responsibility and authority of the Noga company), and as a condition for obtaining permits, and when working in ecologically and environmentally sensitive areas. The aspects assessed in the process of preparing ecological reports for the various projects are quite extensive, and their findings are used for delivering detailed guidelines for the planning, construction, and operation stages.

Actions Taken by the Israel Electric Corporation Based on Ecological Survey Findings:

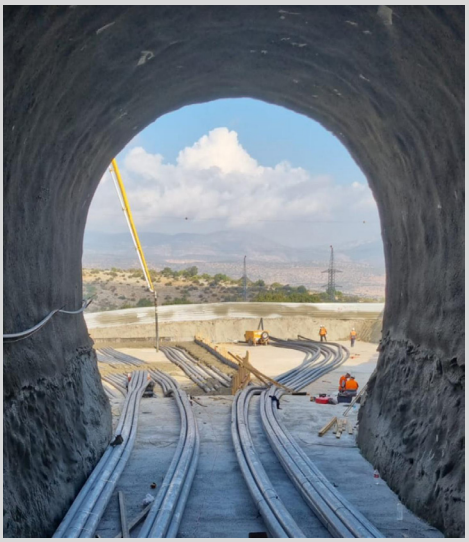
- Based on the ecological report, **adjustments are made to the actual location of power lines** and various company sites (mainly substations).
- **Specific undergrounding and installation of protective measures on high-voltage poles located** near bird-sensitive water reservoirs, to prevent electrocution and collisions.
- **Dismantling sections of existing lines** in bird and landscape sensitive areas.
- **Invasive Species Management** – During construction of transmission infrastructure in ecologically-sensitive areas, and as needed or where required by regulation, surveys are conducted of invasive plant species that may establish and spread due to infrastructure construction. To this end, the Israel Electric Corporation has engaged an ecologist (agronomist) who conducts these surveys and outlines courses of action to manage invasive plant species. At times, this management includes work before the commencement of the infrastructure works, management during the works and continued monitoring and management over a 3 - 5 years period after the completion of the construction, to ensure there is no regrowth of invasive species which could spread as a result of the infrastructure works. In some cases, the work zone is cleared and the removed material is stored in a designated area so it can be returned after completion of the works, to enhance and accelerate restoration and prevent the introduction of invasive plant seeds and reproductive material which could arrive with material from other locations. Additionally, geophyte surveys and relocations are conducted as needed, to prevent harm to protected plant species.

- **Environmental-ecological restoration of worksites** – An environmental-ecological worksite restoration plan is developed as part of the construction works for power lines and substation facilities. Restoration is carried out in areas where work was conducted, such as access roads, pole construction platforms, staging areas, equipment-storage areas, etc. Restoration activities include returning the worksite to its original condition, camouflaging access roads, using local substrates, restoring natural land slopes, and more.

- **In 2024, following previous** ecological surveys and in cooperation with various environmental entities, the company completed two projects of rerouting and undergrounding 400kV and 161kV
  - **power lines:**
    Rerouting a 161kV power line to connect the Western Galilee desalination plant to the electricity grid.
  - **Excavating a tunnel to lay 161kV cables** from the Eastern Galilee switching station through the Mamlach ridge, in the Arbel Nature Reserve, at a cost of approximately NIS 160 million.

Both projects were carried out in alignment with the company's commitment to preserving natural values, landscape and scenic visibility, open areas, mature trees, and heritage sites.





In the photos: Tunnel excavation for the installation of high-voltage cables

An example of the Company's Efforts to Manage Invasive Plant Species Following Ecological Surveys:

The Israel Electric Corporation is committed to biodiversity conservation and the preservation of natural environments. Management of invasive plant species stems from this commitment, as well as from the provisions of the outline plans and the requirements of environmental entities, such as the Israel Nature and Parks Authority and/or KKL-JNF, which serve as conditions for obtaining permits to perform works. Accordingly, the company addresses this matter in the framework of the planning, construction and operation of transmission, distribution and transformation projects.

Invasive plants, by their very nature, are very dominant and tend to "compete" with native species for resources, sometimes leading to their complete extinction and to the disruption of the natural habitat. This alters the habitats and harms the entire ecological system and the services it provides.

Infrastructure construction in open areas creates favorable conditions for the establishment and spread of invasive plant species, due to disturbances such as earthworks, significant heavy machinery use in previously undisturbed areas and the import of foreign infrastructures and elements like quarry fill. The higher the value of the site, the greater the impact of invasive species.

A Review of Activity Performed by the Israel Electric Corporation

In order to examine how the company addresses this issue, a guiding pilot project was conducted, and required implementation phases were defined for any project that must comply with outline plan provisions or requires obtaining a permit, and a protocol of actions for managing invasive species was established:

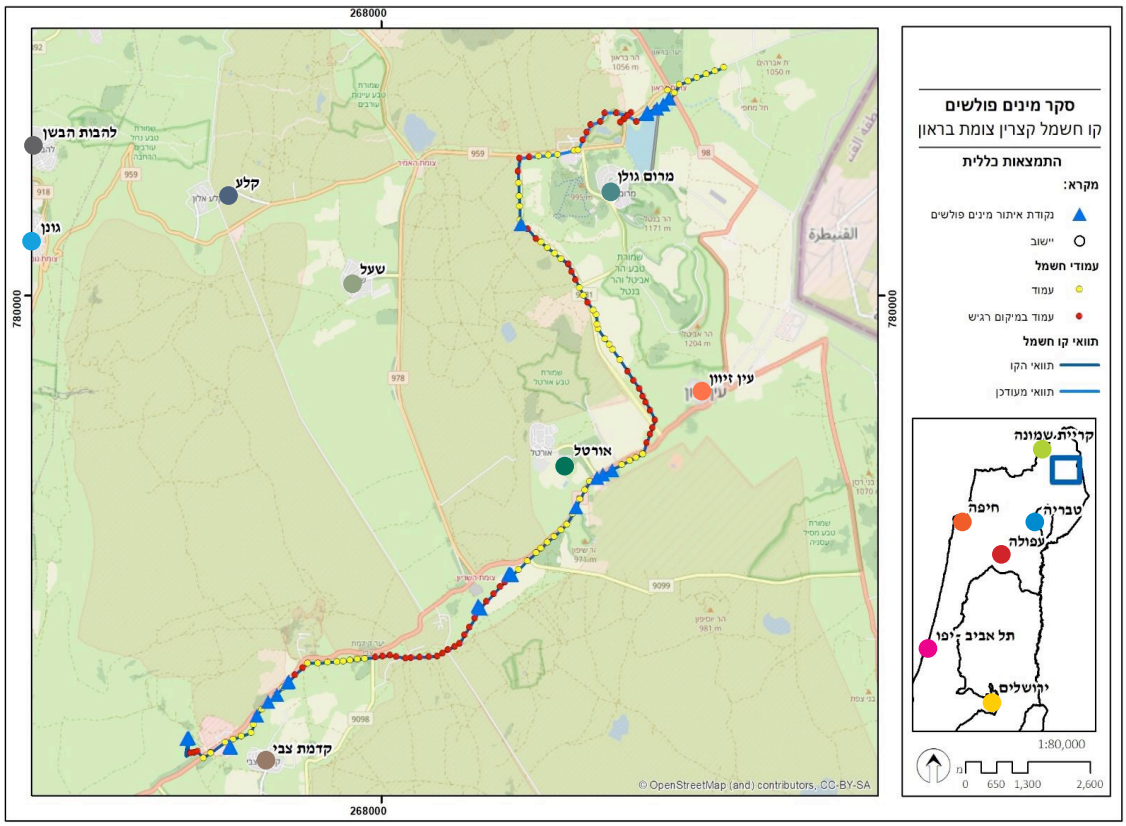
- Project Planning Phase:
  - Receipt of all regional data for the project: coordinates, plan boundaries / pole locations, access roads, staging areas, equipment storage areas, etc.
  - Coordination of a dedicated site visit with the participation of the project manager, an environmental regulation representative, a landscaping contractor (actual executor), a botanist (external consultant), and a representative of the requiring authority (Israel Nature and Parks Authority, KKL-JNF, etc.).
  - Development of a work plan for managing invasive species on the ground, based on the findings of the site visit. The plan includes management timelines and monitoring plan, estimated work hours, work methods (mechanical, manual pruning, heavy machinery), etc.

- Project Construction Phase:
  - Emphasis on adherence to the protocol for management and prevention of the establishment and spread of invasive species in the work area (guidelines of the Israel Nature and Parks Authority, the Society for Protection of Nature in Israel).
  - Application of recommended management protocol (actual implementation).
  - Additional sample site visit and actual oversight during construction, together with relevant entities.

- Post-Construction Phase:
  - In accordance with the botanist's recommendations and with the monitoring plan that was prepared.
  - Sample site visit in 3–5 years after project completion and management of invasive species based on findings.

Example of Invasive Species Management in Construction Project on the Golan Heights

Figure 2 | Advance Survey and Mapping of Areas Affected by Invasive Species



Invasive Special Surve

Katzrin-Baron Junction Power Line

Legend:

- Invasive Species Detection Point
- Town

Power Poles:

- Pole
- Pole in Sensitive Location

Power Line Route

- Line Route
- Updated Route

City

- Kiryat Shmona
- Tiberius
- Haifa
- Afula
- Tel Aviv-Jaffa
- Jerusalem

Areas

- Merom Golan
- Shaal
- Kela
- Lahavot Habashan
- Gonen
- Ein Zivan
- Ortal
- Kidmat Tzvi

Preparation of Detailed Chart of Location and Nature of Invasive Species

Sites	X	Y	Species	Comments	Pole Number
1	273546.2	783672	*Amaranthu.sp*		17685
2	273543.9	783638	*Amaranthu.sp*		17685
3	274003.6	783946.6	*Amaranthu.sp*	Many seedlings	17688
4	273882.5	783827.6	*Amaranthu.sp*		17687
5	273745.6	783747.4	*Xanthium strumarium*		17686
6	270918.9	781434.5	*Amaranthu.sp, Solanum nigrum*		17661
7	272815.4	776489.7	*Amaranthu.sp*		17626
8	272805.6	776493.1	*Solanum nigrum*		17626
9	272619.7	776407.8	*Amaranthu.sp*		17625
10	272504.7	776339.5	*Amaranthu.sp*		17624
11	272496.8	776340.8.5	*Amaranthu.sp*	Access road full of *Amaranthus* seedlings	17624
12	272063	775748.4	*Xanthium strumarium*		17620
13	270716.5	774395.9	*Amaranthu.sp, Conyza bonariensis*	Numerous individuals	Equipment storage next to pole 17610
14	270703.4	774407.1	*Conyza bonariensis*		Equipment storage next to pole 17611
15	270678.4	774421.9	*Conyza bonariensis*		Equipment storage next to pole 17612

Photos of Invasive Species at Various Worksites
(assists in locating and identifying plants requiring management)



Example of Conclusion and Recommendations

In this survey, a total of five invasive species were identified across 41 sites. A relatively high density of individuals was found in pole and equipment storage areas, where invasive species were observed around the equipment, caravans, and beneath poles laid on the ground. Along the power line, invasive species were identified on the basalt stone platforms around and between the poles. The survey was conducted in close proximity to the time of construction, and it is likely that some invasive species are not yet visible above the surface. Therefore, we recommend managing the invasive species at the sites that were identified in this survey and conducting an additional survey in six months.

Marine Biodiversity Aspects

The main impacts on marine biodiversity stem from the coastal power stations' use of seawater for cooling and condensing the steam that drives turbines during electricity generation. As a result of seawater being drawn into the cooling systems, heated, and then discharged back into the sea, there is an impact on biodiversity both within the cooling system pipelines and condensers, as well as in the vicinity of the discharge points of the heated water being returned from the plants to the sea. Accordingly, the company diligently monitors and tracks marine biodiversity in the area of the discharge points.

Biodiversity of Marine Fauna in the Heated Water Discharge Areas at the "Orot Rabin" and "Rutenberg" Power Plants

Monitoring of Benthic Invertebrate Population - In the framework of the marine environmental monitoring programs conducted in accordance with the Ministry of Environmental Protection's requirements, surveys are conducted once every two years at the coastal Rutenberg and Orot Rabin power plants, to assess the composition of benthic faunal populations near the discharge points of the heated water (from the cooling of the power plants' generation units) and the saline water (desalination brine discharged via the power plants' discharge points). The next monitoring is scheduled for 2025.

Due to the circumstances of the "Iron Swords" War, the annual monitoring of prevalence of algae in the vicinity of the Rutenberg power plant's discharge points did not take place in 2024. These discharge points include heated water from the Rutenberg and Dorad power plants, brine from the VID desalination facility, and desalination concentrate from "Mekorot" wells (nitrate-enriched). Monitoring is expected to take place in 2025.

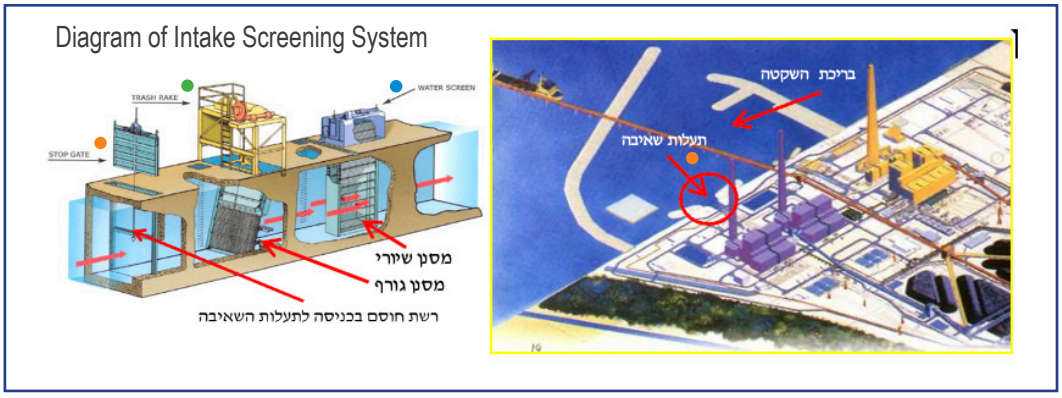
Detailed information about the most recent marine environmental monitoring, that was conducted in 2023, at the heated water discharge areas of the Orot Rabin and Rutenberg power plants is available in the 2023 Environmental Report.

Pilot Project to Detect Turtles in the Water Settling Basin

As part of the Environmental Regulation Department's work with the Engineering Projects Division's Innovation Team, a pilot project is underway to detect sea turtles in the water settling basin and cooling water intake channels of the Haifa power plant.

Coastal power plants use seawater to cool turbines and auxiliary systems during electricity generation. To this end, large volumes of seawater are drawn from water settling basins protected from the open sea by breakwaters, through channels protected by a screening system to safeguard the plant's cooling system (Figure 3).

Figure 3 | (a) A Diagram of a Coastal Power Plant's Water Settling Basin (b) Screening System

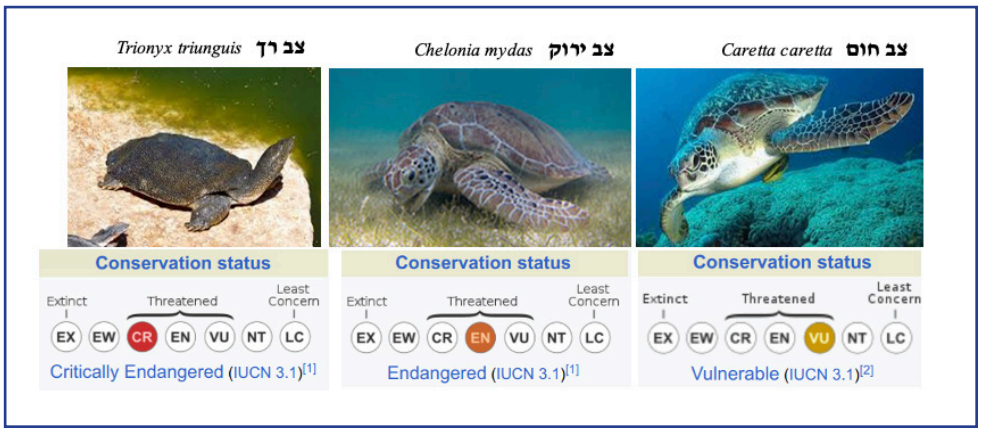


- Water Screen
- Trash Rake
- Stop Gate

Water Settling Basin
Cooling Water Intake Channels

On rare occasions, sea turtles or softshell turtles (Figure 4) enter the coastal plants' water settling basins, where they are at risk of entering the cooling water intake channels and getting trapped in the screening system. According to the International Union for Conservation of Nature's (IUCN) Red List of Threatened Species, the three species of turtles are at varying levels of risk of extinction. The loggerhead sea turtle (Caretta caretta) is classified as vulnerable, the green sea turtle (Chelonia mydas) is endangered, and the softshell turtle (Trionyx triunguis) is critically endangered (in the Middle East).

Figure 4 | Sea turtles and softshell turtle. Species of turtles that could enter the intake channels.



To enable timely detection, rescue, and transfer of turtles to the Sea Turtle Rescue Center in Mikhmoret for rehabilitation, the Israel Electric Corporation conducted a pilot project with the "SightBit" company, which developed software that receives live video feeds from cameras and uses artificial intelligence to learn to identify user-defined objects (such as turtles) and send real-time alerts to the end user.

The Pilot Project Stages:

- System infrastructure planning with all relevant functions at the Israel Electric Corporation.
- Selection of optimal camera locations, following a site survey.
- Installation of cameras and connection to internet infrastructure, while considering physical and information security requirements.
- Training of the software to identify selected objects.
- Receipt of alerts when the software identifies the selected object.

As part of training the software to identify sea turtles, a visit was conducted to the Sea Turtle Rescue Center in Mikhmoret, where turtles were photographed in the center's pool. In addition, a model of a loggerhead sea turtle was printed in a 3D printer (Figure 5).

Figure 5 | (a) A Printed Turtle; (b) A Received Telephone Alert



Pilot Project Status and Next Steps:

As of 2024, the pilot project for detecting turtles in the cooling water intake channels and sending real-time alerts to end users has been successfully completed. Unfortunately, at this stage, "Sightbit" is unable to continue providing the service and therefore the company is currently in the process of initiating a new engagement to continue examining the matter and implementing an accelerated pilot project, building on the conclusions of the previous pilot project, to update the system and integrate it into ongoing operations.

This project continues in memory of the late Adam Bismut, may his memory be for a blessing, founder of "Sightbit", who fell in battle in the Gaza Strip during the "Iron Swords" War.

Assessment of Faunal Composition on the Company's Marine Infrastructure with an Emphasis on Invasive Species

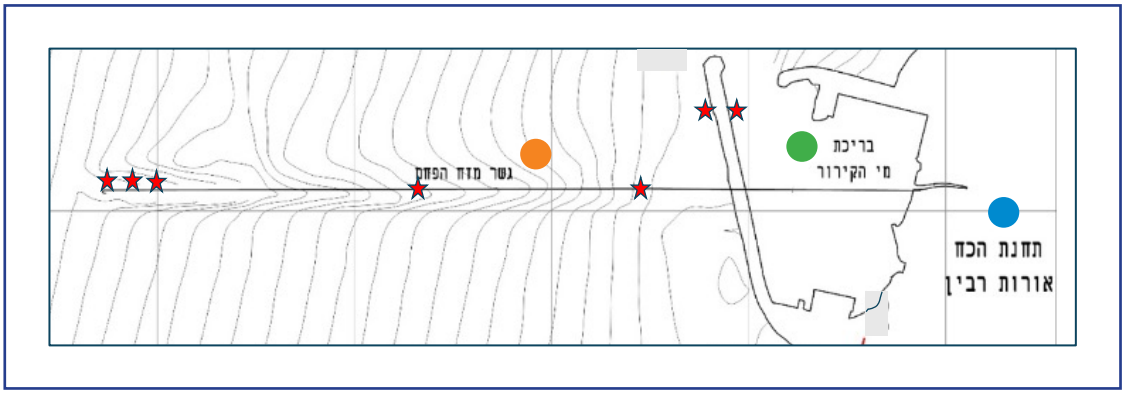
Human activity intensifies drivers of biodiversity degradation, including invasive and opportunistic species that harm ecosystems and may disrupt or alter habitats, in certain cases, irreversibly. Recent studies demonstrate that invasive species play a critical role in species' extinction, with global invasive species damage and management costs estimated at trillions of dollars annually. Moreover, global cost-benefit analyses indicate the immense ecological advantage of adequately funding early prevention efforts, which reduce later severe environmental harm, management costs, and restoration expenses. Often, once an invasive species has established and spread, the resulting damage cannot be "repaired" or removed, despite extensive efforts. Therefore, the most effective treatment against the establishment and spread of invasive species is monitoring, control, and, when possible, eradication.

In an effort to improve and strengthen its response to the phenomenon of the establishment of invasive species within its marine infrastructure, the company is preparing to conduct a survey to qualitatively and quantitatively assess the faunal composition on its marine infrastructure (breakwaters of the settling basins and the coal conveyers). The goal is to expand the knowledge base and develop an operational protocol for reducing the damage of invasive species. Additionally, the assessment of the current situation will serve as the foundation for creating baseline data relating to the fauna and flora on the Israel Electric Corporation's marine infrastructure, as a foundation for managing marine biodiversity in areas under the company's responsibility.

The Israel Electric Corporation has engaged with academic institutions to conduct surveys on the marine infrastructure to characterize the fish and invertebrate populations, as well as environmental DNA (eDNA) surveys to characterize the faunal composition on the marine infrastructure, with an emphasis on distinguishing between native, migratory, and invasive species. The purpose of the surveys will be to characterize and establish a baseline and develop a protocol for preventing the establishment and managing invasive species on the marine infrastructure.

The project is planned to take place at the two coastal coal-fired power plants (with a coal pier): Orot Rabin in Hadera and Rutenberg in Ashkelon. The surveys will be conducted along the coal pier extending up to 2 km westward from the power plant, reaching a maximum depth at the end of the pier of 28 meters. The coal pier is divided into the pier bridge, which spans 1,700 meters in length and 20 meters in width, serving as the base for the coal conveyor, and the unloading pier, located at the western end of the pier, which is 300 meters long and 40 meters wide, on which the cranes that unload the coal operate. The area beneath the unloading pier is more complex, with several dense pilings, attracting and sheltering a wide range of organisms. Additionally, at the Orot Rabin power plant, old iron debris (from the 1980s) lies on the seabed beneath the unloading pier, creating an especially rich and diverse habitat. Surveys will also be conducted on the breakwaters, both on the western seaward side and the eastern side facing the settling basin. These surveys will be conducted at various depths along the pier columns and on the seabed (see Figure 6).

Figure 6 | Survey Location Diagram



- Orot Rabin Power Plant
- Cooling Water Settling Basin
- Coal Pier Bridge

The marine infrastructure surveys will include:

- Visual surveys to identify fish and invertebrates. The survey will primarily be conducted through image analysis and on-site identification, however, if necessary to identify individuals to the lowest taxonomic level, samples will be taken to the Steinhardt Museum of Natural History for further identification by specialized experts in the relevant groups.
- Identification of invertebrates using molecular markers.
- Metabarcoding analysis of core samples from the live substrate on the pilings to detect cryptic invertebrate species.
- Characterization of biodiversity in the water column and sediment near the infrastructure using environmental DNA (eDNA) and metabarcoding.

The survey findings will establish baseline data for characterizing the fauna in the infrastructure. Based on these findings, conclusions will be drawn for managing existing invasive species, creating monitoring programs, and developing protocols to prevent the establishment and spread of invasive species from the Israel Electric Corporation's marine infrastructure.

