

Israel Electric Corporation Ltd.

Design, Development and Technology Division

Environmental Impact Survey Department



Environmental Impact Survey

National Outline Plan # 13 / 1 / A / 10

Orot Rabin Power Plant site

Construction of two combined cycle units

Introduction

The Government of Israel decided, at meeting no. 3859 dated 03.06.2018, regarding the reform of the electricity sector and structural change in the Israel Electric Corporation and the amendment of the government decision to establish two combined cycle units working on natural gas at Orot Rabin site, with a total installed capacity of 1200 megawatts (an upward deviation of 5% will not be considered as a deviation from this capacity). The first combined cycle unit will begin to operate until June 2022 and will allow the cessation of the operation of units 1 - 4 at Orot Rabin site. The second combined cycle unit will begin only after the sale of Alon Tavor site and the publication of a competitive process for the sale of Ramat Hovav site. Both combined cycle units will be at least of H technology type, depending on the products available on the market (see Appendix 2).

At government meeting No. 4080 dated 29.07.2018, regarding the cessation of the operation of electricity generation units 1 - 4 at Orot Rabin power station, it was decided, among other things, that the ongoing operation of electricity generating of units 1 – 4 shall cease no later than June 1, 2022 , Provided that a number of conditions are fulfilled, inter alia, commencing the operation of the first combined cycle unit with a capacity of 600 megawatts, which will be established no later than June 1, 2022, subject to the content of Government Decision No. 3859.

In addition, the Minister of Energy was required to examine, in accordance with his authority according to the law, the required extent and preservation manner of the operation capability of electricity generation units 1 - 4, including alternative solutions, taking into account the needs of the Israeli market during emergencies and the cost of the solution (see Appendix 3).

The National Council for Planning and Building decided, at its meeting No. 621 dated 04.09.2018, after the government's decisions on the reform in the electricity sector and the legislation on this matter were presented, to promote a plan that would allow the addition of combined cycle generation units at Orot Rabin site, in order to allow the cessation of units 1 - 4.

The National Council gave instructions for the preparation of a plan that will be accompanied by an environmental impact report and an application for an emission permit, in a joint proceeding under section 23 D of the Clean Air Law. In addition, the Council approved the guidelines for conducting an environmental impact report with several amendments (see Appendix 1, as part of the guidelines for the preparation of the survey).

This report is submitted in accordance with the instructions of the National Council for Planning and Construction and in accordance with the guidelines for the preparation of the environmental impact survey.

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Abstract

1. Description of the existing situation

Usage of the ground

A review of the land in the vicinity of the site (see section 1.1.1) shows that:

The residential areas, according to their distance from the site boundary, are:

- Heftziba neighborhood, approximately 600 m to the southeast
- Caesarea (recreational buildings) approximately 700 m to the north (also used for residential purposes)
- Sadot Yam, approximately 1500 meters north of the site
- Caesarea approximately 1500 to the northeast
- Givat Olga approximately 2100 m to the south
- Or Akiva approximately 3200 m to the northeast
- Pardes Hanna about 4600 m to the east
- Gan Shmuel about 4900 m to the southeast

The closest public buildings to the site are:

- A school at Heftziba neighborhood, located 850 meters southeast of the site
- Hillel Yaffe Hospital, located 1300 meters south of the site

In Caesarea, Sedot Yam and Givat Olga, and in the areas adjacent to the beach, there are sports and recreation facilities. The closest resort buildings to the power station are located 700 meters north of the site. A sports facility and shooting ranges are located 350 m northeast of the site and sports facilities near Caesarea are located 400 m northeast of the site.

Adding a combined cycle generation unit within the existing site does not change the nature of the area and the existing land usage.

Purpose of the land

A survey of land usage in the vicinity of the site (see Chapter 1.1.3) shows that:

Residence

The area to the south and southeast of the site and Nahal Hadera is designated as a residential area, according to the Hadera / 2020 plan, about 600 meters away.

The area to the northeast of the site, in the south of Caesarea, is designated for residential purposes, according to Plan HK / BM / 247, about 1300 meters away.

Public Buildings

The area for public buildings is intended to be 500 m southeast of the site, according to the approved Hadera / 2020 plan (Heftziba).

Another area for public buildings is intended to be southeast of the site, in a distance of 1300 meters, according to the Hadera / 2020 plan (Hillel Yaffe hospital).

Vacation area / Tourism and Recreation / Sports

To the north and adjacent to the site there is an area intended to be a tourism and recreation area according to the approved plan C / 1125. The area North-West to the site is intended to be a sports area according to the approved plan C / 976.

An area designated for hotels and sports will be located about 800 meters northeast of the site according to the approved plan C / 1019. South of the site, at a distance of about 1700 m from the border of the site, in the western part of Givat Olga near the beach, there is an area intended to be a tourism and recreation area according to the Hadera / 764 approved plan.

The survey includes several plans that are in the process of preparation:

- Outline Plan for the Caesarea Area - 303-0368142
- Heftziba site – 302-0162784
- The River Neighborhood (Haparparim) - 302-0436634
- The sea quarter - Hadera - 302-0340539

It should be noted that the overall outline plan for the Caesarea area - 303-0368142, designated a nature reserve area to the north and adjacent to the area of Orot Rabin power station, and a tourist area is intended to be about 520 meters from its boundary. These land usages constitute a change to the land designation, according to plan C / 1125, which designate a tourism and recreation area to the north and adjacent to the site of the Power Station.

Noise nuisances

The Orot Rabin power station site is located on the Mediterranean coast, in the area north of Hadera River, south of Caesarea and the Sedot Yam, west of Highway 4 and near the Caesarea interchange.

Orot Rabin Power Plant includes 6 coal-fired units:

- Generation units 1-4 with a production capacity of 350MW each
- Generation units 5-6 with a production capacity of 575MW each. Units 5 and 6 are equipped with SCR and FGD systems.

The noise measurements were conducted at environmental points and at the boundary of Orot Rabin power plant site.

For these tests, monitoring points were placed at two points at the boundary of the site and noise tests were conducted at the environmental points in Caesarea, in the recreation area north of the site, in Hefziba and in Givat Olga, according to land usage and purposes.

The results of the measurements show that the noise levels at the environmental points, according to the land usage, meet the noise requirements according to the types of buildings.

In terms of land designation, approved plans:

- From the south, at the expansion of Givat Olga, there is a deviation of 6dB from the requirements of the regulations. The sources of noise that cause the deviation are mainly the production units 1-4.

- From the east, expansion of Heftziba, the noise levels meet the environmental requirements for low buildings (up to 2 stories) and do not meet the regulatory requirements for higher buildings (deviation of 3dB from the requirements). The sources of noise that are causing the deviation are mainly the production units at Orot Rabin site. It should be noted that in Heftziba neighborhood the dominant noise source is Highway # 2. During the day and night, no noise can be detected from the generation units at Orot Rabin site. At these points (N1 & N2), noise from the site can be diagnosed only on Yom Kippur.

- From the north, in an area designated for recreation adjacent to the site boundary, there is a deviation of 11dB from the requirements of the regulations for tall buildings, and a deviation of 4dB for low buildings (up to 2 floors). The sources of noise that cause the deviation are mainly the production units 5-6.

It should be noted that in the current situation there are no deviations from the noise regulations. The deviations listed above relate to land designations when realized.

In terms of land designation, plans in preparation:

To the north, in the area designated for recreation, there is a deviation of 4dB from the requirements of the regulations. The sources of noise that cause the deviation are mainly the production units 5-6. It is important to note that at points 5 and 6 A, due to the wind and sea-proximity, according to the tests conducted on 05-06/09/2007 and 17/09/2018, noise from Orot Rabin can be detected only late at night, after 3:00 am.

Infrastructure

The existing generation units 1-4 at Orot Rabin site are connected to the transmission system using two 161 KV switchgears.

Units 1 & 2 are connected to switchgear 1 and to the jet gas turbine. The home transformer of power station A and the house transformer of power station B are fed from this switchgear. In addition, this switchgear is connected to the switchgear that supplies power to the desalination plant.

Units 3 & 4 are connected to switchgear 2. The home transformer of power station A and the house transformer of power station B are fed from this switchgear.

Each of the above switchgears is connected to the transmission system using two 161 KV circuits, a total of 4 circuits coming out from Orot Rabin site and connected to the 161 KV switchgear of Caesarea switching station. Figure 1.6.4 shows the diagram of the existing situation.

The transmission system in the area is planned to transfer the entire power produced in units 1-4 to Caesarea substation. When units 1-4 enter into preservation mode, each of the units 1-4 is planned to be operated on and off, with the outlet of the energy from these units through the existing switchgears. Each of the planned combined cycle units will be connected to an existing 161 KV switchgear using an underground line.

Seismology

The Seismology Division of the Geophysical Institute of Israel conducted a series of measurements and calculations for seismic risk assessment at Orot Rabin power plant site.

On 7-11/11/2010 and 07/02/2011 background noise was measured at 51 points in the area of the existing generation units, the fuel site area and the coal reservoir area. In the period between 07/02/2011 and 12/05/2011, the 2 seismic stations recorded 4 earthquakes of magnitude from 2.2 to 6.1 at a distance of 15 - 770 km and a very strong earthquake that occurred in Japan on 11/03/2011 at a distance of 9,200 km. Its magnitude was 9.0. This section presents a series of calculations carried out by the seismology department of the Geophysical Institute of Israel.

Ground pollution

The construction of Orot Rabin power plant began in 1973 and the first production unit came into operation in 1981. The site is anchored in the National Master Plan # 10 for power stations and the national electricity grid (the first part) - the Sharon site for all its changes and was established by virtue of this plan.

The two combined cycle units are planned to be built in the eastern part of the coal ash storage area, and the cooling towers are planned in parallel to the northern boundary of the site.

This area includes:

- Storage area of coal ash with floating bottom
- Dry waste separation area

In addition, the area includes:

- FGD facility including chimney, gypsum silos and lime in a structure, FGD waste treatment facility
- Ammonia production facility from Urea
- Cabins
- Workshops that include mechanical maintenance and machining

A sanitary sewage installation is located on the northwestern side of the surveyed area. All the chemicals in the sewage treatment facility are placed in cubes within reservoirs.

No additional actions have been carried out in the past. It is not known what additional actions were taken in the area and may cause soil and groundwater pollution. It is not known of any occurrence of hazardous substances that occurred on the ground.

The PRMS is planned to be established near the southwestern boundary of the surveyed area (marked with a red circle). This area includes cabins, workshops, electrical maintenance and service installations - the workshops include a dye-works, an abrasive cleaning area, and a locksmith's workshop. In the past, the workshop area served as an oil collection storage, including an oil collection tank. The warehouse floor was made of asphalt or epoxy coated concrete.

In the same area there was once a sanitary sewage pit that is not currently in use. The pit was excavated and removed from the area. Old dining room was located in the area. No additional actions have been carried out in the past. It is not known of any occurrence of hazardous substances in the area.

In addition, the area includes:

- A salt-free water installation that includes switchgear for ion exchanger system used by units 1-4.
- Water Tank
- Sea water entry channels for units 1-4.
- Sodium hypochlorite container of 36 cubic meters.
- Diesel for a fire pump including a daily fuel tank located in a standard sealed container.

2. Examination of alternatives

Presentation of technological alternatives

In government Decision No. 3859 dated June 3, 2018, regarding the reform in the electricity sector and structural change in the Israel Electric Corporation and in the amendment of the Government Decision, it is states, inter alia, in Section 6 - Strengthening the Financial Strength of the Israel Electric Corporation, sub paragraph 5 (c).

"The subsidiary company mentioned in section 12 will establish two combined cycle units operated by natural gas at Orot Rabin site with a total installed capacity of about 1200 megawatts (a deviation of 5% will not be considered as a deviation from this capacity). The two combined cycle units will be with H technology at least, depending on the products available in the market". The above-mentioned government decision specifies the power of the two combined cycle units planned at Orot Rabin site - 1,200 megawatts and at least H-type technology.

The comparison shows that H technology is preferred both in power and efficiency and in addition, it can reach a capacity of 1200 MW only with H technology. This means that these data support the choice of using H technology units.

Location alternatives for combined cycle units and PRMS

Alternatives for the combined cycle positioning:

Several locations were tested on the site:

1. On the area of units 1-4: that is, the cessation of units 1-4 and their scrapping in order to make room for the establishment of two combined cycle units. Since units 1-4 are planned for preservation from 2022 to 2030, this option is not feasible because it does not support the timetable for the operation of the first combined cycle unit, i.e. in 2022.
2. In the area of the coal reservoir: that is, reduce the area of the coal reservoir located in the eastern part of the site. According to the State's policy and the management of the Israel Electric Corporation, the coal reservoir will be maintained in its original size as a backup for coal-fired units, and therefore this option is not feasible and has been disqualified.

3. In the area of fuel tanks: that is, reduce the area of the fuel site, located in the east of the site. According to the State's policy and the management of IEC, the fuel storage reservoir will remain in its original size as a backup for liquid fuel units and as a reserve for the energy sector in the country. Therefore, this option is not applicable and has been disqualified.

All of the above indicates that the all area at the site is full with production facilities, auxiliary systems and various infrastructures. Therefore, the options for placing 2 new combined cycle units within the site are limited.

The appropriate area, in which 2 new combined cycle units can be constructed without affecting the functioning of the existing units, is north of units 5 and 6, in the northwestern part of the site. It should be noted that for the purpose of constructing two combined cycle units, the coal ash storage will be shifted to the coal site area.

Alternatives to the gas reception system, including the PRMS station

For the location of the PRMS facility, five alternatives were examined (Fig. 2.1.1) and three connection options to the national natural gas pipeline. Here are the 5 location alternatives for the PRMS:

Alternative 1 - Off-site, near its south-western corner, west of the gas pipeline valves.

Alternative 2 - In the area of the site, next to its southwestern corner, where there are workshops' sheds.

Alternative 3 - In the area of the site, west of units 3 and 4, on the ash sinking pool area of units 3-4.

Alternative 4 - in the area of the site, near its northwestern corner.

Alternative 5 - Off-site, near its northwest corner.

Alternatives 1 and 5 were disqualified from a financial point of view, since they are located outside the boundaries of Orot Rabin site. Alternative No. 3 was disqualified since units 3 and 4 are designated as units for preservation, meaning that it will be necessary to continue using the ash sinking pool. Therefore, alternatives 2 and 4 remain.

For the alternatives of the location (alternatives 2 and 4) we examined three alternatives for the feeding of natural gas:

1. Connection through a short branch from an existing 12" pipeline, which passes south of the site. The branching is based on the National Master Plan 37 / D / 2 (approved).
2. Using a new 30" pipeline from the northern sea line.
3. Using a new 30" pipeline from the southern sea line.

Note: The construction of a new 30" pipeline (northern or southern) will require an appropriate route, including the approval of a new national outline plan (# 37).

The PRMS connection to the short branch from the national transmission system gave a clear preference to alternative 2 - the construction of the PRMS near the southwestern corner of the site (connecting via an existing 12" pipeline), according to Approved National Outline Plan 37 / D / 2).

Alternatives for the cooling system of the units

Three alternatives were examined for seawater inlet (entry) and 5 alternatives for seawater outlet (exit). In addition, a cooling towers alternative was also examined. The alternatives were examined according to the following criteria:

- Process feasibility
- Engineering feasibility / planning and construction
- Property feasibility
- Statutory / environmental feasibility
- Required shutdowns
- Infrastructure relocation
- Schedule for construction
- Techno - economic estimate

The findings of the above examination point to the following alternatives:

- Seawater inlet (suction) by piping (pressing) from the pacification pool and and the construction of a new limited pump house
- Seawater outlet through a "straight" pipeline to the depth of the sea (pressing)
- Cooling tower alternative

When examining the alternatives of entry and exit of seawater versus the cooling towers alternative, when examining the estimates of investments (including maintenance and operation costs throughout the life of the project), it appears that the cost:

- Inlet piping by pressing and outlet by pressing alternative - approximately NIS 761 million
- Cooling tower alternative - approximately NIS 575 million

In other words, there is a difference of approximately NIS 141 million between the two alternatives. Therefore, the recommended alternative is cooling towers.

3. Description of the proposed plan

At Orot Rabin site there are 6 coal-fired units (units 1-6). According to government decisions (see Appendix 2 and 3) the ongoing operation of units 1-4 is expected to be discontinued no later than June 1, 2022.

From this date, units 1-4 will be in a state of preservation, i.e. once every six months, one unit of the four will be operated for one week for the purpose of operational ability control. This is so that in an emergency, the ability to operate the four units 1-4 in coal will be maintained.

As a substitute for the coal units 1-4 (1440MW), two new combined cycle generating units will be installed in a single-axis configuration, with a capacity of 630 - 730MW.

At Orot Rabin site, the construction of two combined cycle units are planned with single-axis configuration with a capacity of 630 - 730 MW, at the northern part of the site, east of the FGD facility. Initially, one combined cycle unit will be established (Unit 70).

The single-axis combined cycle unit will include the following main facilities:

- Gas turbine
- Steam turbine
- A steam boiler (which generates steam), adjacent to the gas turbine, including a chimney at a height of 80 m.

The coal ash storage will be moved for the purpose of constructing the planned units. The proposed new sites for the storage of coal ash are located on the coal site:

- in the north-west part
- in the southwestern part

The energy outlet from the planned units will be by connecting the existing 161 KV lines of units 1-4 (A), via the lines that go to the Caesarea switching station. Next to each combined cycle unit, a field of 161 KV will be established and the connection between the local field of the combined cycle and the existing 161 KV switchgear will be carried out by cables in an underground channel.

In the southwestern corner of Orot Rabin site, a PRMS gas receiving facility will be built and next to it will be an electric valve station of the IEC. From the valve station, a natural gas pipeline will be built to feed the planned units.

Receiving natural gas to the site

A 30" marine natural gas pipeline passes west of Israel's coast, in the Mediterranean Sea. From this pipe a 12" pipe splits towards the shore and connects to the sea valve station, to the south and near the southern boundary of the site (on the northern bank of Nahal Hadera). The pipeline continues inland and supplies natural gas to Hadera Paper factory.

Orot Rabin site will be connected by a 12" diameter T-shaped pipe to a 12" pipe that comes from the sea through the existing valve station. The planned gas pipeline will pass under the desalination plant and will connect to the PRMS facility (which will be built by the Gas Lines Company) in the area of Orot Rabin in the southwestern part of the site, instead of a workshop that will be dismantled (Fig. 3.2.11).

The PRMS will be connected to the valve station and from it, three pipes (branches) will come out, with each branch equipped with a double regulating valve system.

- two outputs of 10" each (for planned units 70 and 80 in a flow of about 115,000 Nm³/ h)
- a third 6" output that will supply natural gas to the auxiliary boiler (1675 Nm³ / h)

All three pipes (two of 10" and one of 6") will be equipped with valve stations and then disconnectors and ventilations until they reach the gas supply container of the main equipment supplier (for pipes of 10") and to the supplier of the auxiliary boiler (for pipe of 6").

In the PRMS area, a 4" vent will be installed to be used for first startup operation and malfunctions. The vent will be used to release gas from the main line. Such a discharge is very rare, and happens only as mentioned in case of pipe failure.

In the future it is planned to build another 24" line from the sea, which will be split from a future sea line. This line will supply natural gas to future units for the generation of electricity at the site, should such units be constructed, or for units 5 and 6 if they are to be converted to natural gas.

Cooling water pumping system

In this cooling method, the sea water (cold) will be pumped from the input channels of units 5-6 using an 18 " diameter line to the seawater pool located at the bottom of the cooling tower. From the cooling tower the seawater will be pumped into the condenser of the combined cycle unit. In the condenser, the cold water will absorb the heat (as a result of the steam condensation coming from the steam turbine) and return to the cooling tower, to the upper part and then will go down.

The rising air, that go through the tower in forced flow by fans, continue to the top of the tower, and cool the water. The encounter between the air in the ambient temperature and the hot water, which returns from the condenser, causes the water to evaporate and to a small amount to drift out of the tower as drops together with the air and wind.

The water that has cooled due to the heat transfer process via evaporation, drains into the cold-water pool at the bottom of the tower and is then pumped back into the condensers. The cold and hot water cycle in the cooling tower is in closed circuit.

In order for the concentration of the salts not to exceed the permitted limit, the cooling tower will be designed for very low concentration cycles (1.5) and thus it will be possible to drain the water (blow down) to the channels of the existing units (5-6) at the site.

Supplement water (Make up) will be supplied from the existing units (5-6) to compensate for the loss of evaporated water, the water that has been swept away with air and wind.

The chemicals used in the towers are a concentrated anti-sclant that is suitable for application with seawater and is approved to be wasted into the sea, and a biodegradable concentrated bio-lime approved to liquefy back to seawater.

Connecting the units to liquid fuel

The quantity required for diesel fuel reserve (100 hours of operation per unit) is 18,000 cubic meters. Therefore, the following alternative was decided: the conversion of a container of 30,000 cubic meters and a container of 10,000 cubic meters for diesel fuel (containers No. 11 and 19).

The decision is to convert container No. 11 to diesel fuel now, and in the future to convert container No. 19. First, the connection of the diesel feed to the containers will be coordinated directly from Oil Infrastructure Company via a 10 " diameter pipe. In addition, it will be possible to fill the containers with road tankers. At this stage, the fuel pipeline will be arranged for container No. 11 and in the future (when tank no. 11 will be repaired in about 10 years), container No. 19 will be converted to diesel fuel. This will give full coverage to the possibility of a malfunction in the gas system when container 11 will be in renovation.

Setting up the new generation units

First, one combined cycle unit will be established (Unit 70), in accordance with Government Decision No. 3859 dated 03.06.2018 regarding the reform of the electricity sector and structural change in the Israel Electric Corporation and the amendment of the government decision. In this meeting it was decided, among other things, that the establishment of the second combined cycle unit will commence only after the sale of Alon Tavor site and the publication of a competitive process for the sale of Ramat Hovav site.

The establishment of the second combined cycle will commence only after the sale of Alon Tavor site and publication of a competitive process for the sale of Ramat Hovav site (in accordance with Government Decision No. 3859 dated June 3, 2018).

Project tracks - main systems:

- Steam boiler - HRSG
- Gas turbine, steam turbine and generator
- Main cooling water system
- Electrical and control systems

Each of the project tracks is divided, in general, to the establishment of foundations, assembly and testing. Operation of the gas turbine is planned for March 2022 and commercial operation is planned for October 2022.

4. Assessment of expected environmental impacts

Effect on land purpose and usage

A review of land use and its purposes was presented in section 1 of the abstract.

The following is a description of references to environmental issues that were mentioned and examined, which have a potential impact on land usage and purposes in the region:

Risk survey

After examining the risks in Section 4.2 below, according to the methods detailed therein and the separation distances policy of the Ministry of the Environment, there is no risk to the immediate and distant environment. Events of hazardous substances outside the area of the plan are not expected to affect the area of the plan. In terms of the natural gas risk survey, it looks that the separation zone around the PRMS facility and the gas station, is located within the power station, and is an industrial zone. In the separation zone there are no land usage with population concentrations that constitute a public receptor (according to the definition of a guiding document for separation distances policy). There are no permanent population or public concentrations in the area of separation distances around the PRMS facility and around the natural gas system in the power station.

As far as the domino effect, it appears that:

Sealed fuel container: There will be no domino scenario in the sealed fuel container and the surrounding area.

Natural gas: There will be no domino scenario.

LPG / Hydrogen: A scenario may exist which will cause damage to the facilities of the planned unit (combined cycle). However, the combined cycle does not contain hazardous substances and, therefore, there is no visibility for the domino effect.

Air quality

In order to construct the project, earthworks are carried out, mainly in the initial stages of the construction of the project.

In order to prevent dust during the earthworks, a road tanker will be operated in the construction area. The tanker, with a volume of about 6 cubic meters, will wet the area and will perform 6 - 7 rotations a day around the construction site. In addition to the existing measures to reduce the effects of the coal reservoir, thermal cameras will be installed to identify inner burnings in the coal piles.

Noise prevention

In order to ensure that Orot Rabin site meets the environmental requirements, in all sensitive issues, according to the use and purpose of the land, it is required to:

1. Perform acoustic treatments in existing units to ensure that the noise level within the building does not exceed 38 dBA at all the environmental points north of the site, and 39 dBA at the environmental points at Heftziba and Givat Olga neighborhoods.

When the combined cycle units will start working, units 1 - 4 are planned to enter into a preservation plan, so the need for acoustic treatments in units 1-4 should be considered later. The acoustic treatments for noise reduction in units 5-6 should, in the first stage, focus on reducing the noise of the initial air fans and in the pressing fans. If units 5-6 are to be working on gas, and there will be no need for an initial air fan, it is reasonable to assume that the required reduction will be less.

For noise reduction of 13 dBA (the land designation, according to approved plans is for vacation / recreation) intensive acoustic treatments are required for all major noise sources and some of the secondary noise sources.

2. Ensure compliance with the noise requirements of the new units (as defined in the technical specifications): 40 dBA outside the building at vacation / recreation environmental points, and 35 dBA outside the building at environmental points in Heftziba and Givat Olga.

IEC has entered into an agreement with an international consulting firm for the purpose of examining the issue, both for the existing units and for the planned units. The examination will include recommendations regarding the means of reducing the noise levels from the existing units (units 5 and 6), accompanying the establishment of the new units, with an audit of the implementation of the recommendations and measurement of noise after construction.

This is so that at the end of the process, when operating all the units at Orot Rabin site (existing units and planned units), the noise levels will not exceed the maximum noise level permitted by the regulations.

Effects on marine and coastal space

The alternative chosen for the cooling system of the units is the alternative with cooling towers. In this alternative, the supplement water shall be taken from the main water lines of units 5 and 6 and the discharge water shall be directed to the output channels of units 5 and 6, regardless of the operation of units 5 and 6. In this cooling process the temperature of the seawater coming out of the cooling towers (which are removed from the bottom of the pool) will be similar to the sea temperature.

The seawater coming out from the cooling towers are mixed in the outlet channels and therefore will probably reduce the cooling water temperature in the output channels of units 5 and 6.

The findings (2010) of the environmental monitoring around the concentrated water of the desalination facility indicate that the increased salinity has no effect on living animals in the substrate and that the main effect in the area of cooling water outlet on living animals is that of other factors (such as strong water currents) rather than increased salinity.

The salinity around the outlet of the desalination plant can reach 42 psu or more, salinity significantly higher than the salinity of the cooling water from the combined cycle units.

