

# Electricity Shortage in Gaza: Who Turned Out the Lights?

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**The Gaza Strip presently experiences 8-12 hours of scheduled power outages per day, which disrupt the normal functioning of humanitarian infrastructure, including health and education institutions and water and sewage systems, as well as the agricultural sector. The power outages also take a toll in human lives of people killed or injured by using generators, which are brought into Gaza through the tunnels, are of poor quality, and are not always used according to safety instructions. How was this shortage created and what can be done to resolve it?**



## **THE GAZA STRIP'S ELECTRICITY SYSTEM**

The Gaza Strip presently needs a total electricity supply of approximately 244 megawatts (MW). One hundred twenty megawatts are transferred through 10 high-voltage lines from Israel, 17 MW are carried from Egypt to the Rafah area and the rest of the needed electricity, 107 MW, is intended to be supplied by the Gaza Power Plant.

### **OVER THE YEARS, TURNING OUT GAZA'S LIGHTS**

#### **ISRAEL'S INVOLVEMENT**

The Gaza Power Plant, which began operating in 2002, was designed to generate a maximum capacity of 140 MW in order to meet demand for electricity at peak hours, as well as future needs based on the anticipated development of the Strip. However, in reality, the plant generated only 90 MW as of 2006, because of limitations on the load capacity of the relay network distributing the electricity. In June 2006, as part of a widespread military operation following the capture of Israeli soldier Gilad Shalit by armed militants who had infiltrated Israel from Gaza, the Israeli Air Force bombarded the power plant and destroyed its six transformers. The damage was repaired only partially and gradually, until, in December 2007, the plant reached

a generation capacity of 80 MW, which could have reduced the electricity shortage to 9%. However, the power plant's generation capacity is further limited because its functioning depends on the purchase of industrial diesel from Israel, which since 2007 has restricted the quantity of fuel it allows to be transferred to the Gaza Strip. That amount has stabilized since the end of the Israeli offensive in Gaza in 2009 at about 2.2 million liters per week - a quantity that constitutes only 63% of the amount required for the plant's present maximum generation capacity. Because of the diesel restriction, the rate of electricity generation at the power plant stabilized at a level of 65 MW in 2009, creating a permanent deficit that year of 42 MW, a 17% shortfall from demand. Actually, the deficit is much greater because of the poor condition of the grid, which translates into electricity being lost as it travels through power lines. Israel's almost complete ban on the transfer of building materials, which has been in effect for nearly three years, prevents the effective rehabilitation and maintenance of the system. Because of the restrictions on fuel supply, the power plant has not been able to store diesel reserves for emergencies when fuel cannot be transferred and in order to deal with the chronic electricity shortage. The Gaza Electricity Distribution Company (GEDCo) has to initiate regular and rotating power outages throughout Gaza, distributing the burden of the power outages over the various geographical areas of the Strip<sup>1</sup>.

## **INVOLVEMENT OF THE EUROPEAN UNION**

The industrial diesel required to operate the Gaza Power Plant was purchased directly by the EU and individual member states from the Israeli company, Dor Alon, from the summer of 2006 until the end of 2009. The funds used to pay for the fuel accounted for one quarter of the annual budget that the EU allocated for financing to the Palestinian Authority through the PEGASE funding mechanism. Beginning in November 2009 the EU discontinued its direct financing of the industrial diesel that is purchased in Israel and is transferred to the Gaza Strip, as part of its cutbacks on payments to the PA in the framework of the PEGASE mechanism, which declined from €219 million to €158 million between 2009 and 2010<sup>2</sup>. Some European countries have taken it upon themselves to continue providing support to purchase industrial diesel from the

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<sup>1</sup> For further information on Israel's damage to Gaza's electric infrastructure, see Gisha's report, Red Lines Crossed: Destruction of Gaza's Infrastructure, August 2009.

<sup>2</sup> European Union, PEGASE Direct Financial Support of Recurrent Costs of the Palestinian Authority Budget, April 7, 2010.

Dor Alon company for the Gaza Power Plant, and have so far allocated €20 million for that purpose in 2010. At various points since October 2007, the EU has asked to be permitted to purchase quantities higher than 2.2 million liters per week, but Israel has refused to approve the transfer.

## **INVOLVEMENT OF THE PALESTINIAN AUTHORITY**

Since November 2009, the PA Fuel Authority has assumed responsibility for payment to Dor Alon for the purchase of industrial diesel. This means that today the PA has in fact gone back to being responsible for funding the operation of the Gaza Power Plant, in addition to funding the electricity sold to Gaza by Israel and Egypt. According to the agreement between the PA and the Gaza Power Plant, the PA must fund the purchase of industrial diesel for the plant and pay \$2.5 million per month for its operating expenses.

In order to buy the amount of industrial diesel that Israel allows into the Gaza Strip every week at current prices, a budget of NIS 49 million per month is needed<sup>3</sup>. However, the PA in the first four months of 2010 paid gradually diminishing sums, from NIS 41 million in January to NIS 30 million in April<sup>4</sup>. As a result, since the beginning of 2010, a gradually diminishing quantity of industrial diesel has been transferred to the Gaza Strip: from 7.5 million liters in January to 5.4 million in March and 5.6 in April<sup>5</sup>. In comparison, an average of almost 9 million liters were transferred to the Gaza Strip each month during 2009, and 14 million liters per month are needed to operate the plant at its present, maximum capacity.

The PA says the reasons for the gradual decline in the amount it allocates for the purchase of industrial diesel are its inability to meet all of its financial undertakings and its desire for the residents of the Gaza Strip to participate in covering their electric bills, according to their ability<sup>6</sup>.

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<sup>3</sup> The figures were provided by Mohammed Abu Baker, the head of the sales department of the Palestinian Fuel Authority in an interview with Iman Jabbour of Gisha on May 2, 2010.

<sup>4</sup> The figures were provided by Abd al-Karim Abdeen, Deputy Director General of the Palestinian Energy Authority in Ramallah and a member of the executive board of GEDCo, in an interview with Labibah Harash of Gisha on March 11, 2010, and by Mohammed Abu Baker, the head of the sales department of the Palestinian Fuel Authority to Iman Jabbour of Gisha on May 2, 2010.

<sup>5</sup> The figures were provided to Gisha by the Palestinian Committee for the Coordination of the Entry of Goods during 2010.

<sup>6</sup> Relayed by Ghassan al-Khatib, Director of the Palestinian Government Media Center, in a meeting with Iman Jabbour on April 12, 2010.

## COLLECTION PROBLEMS

Of the total amounts transferred by the PA to Dor Alon for the purchase of industrial diesel, only a few million shekels per month come from payments collected from consumers of electricity supply in the Gaza Strip. GEDCo is supposed to collect monthly bills in the amount of NIS 50-60 million, but in reality it manages to collect only NIS 15-18 million per month. Most of the amount collected is transferred to the power plant for its expenses, and the remainder goes for salaries and maintenance, so that GEDCo manages to allocate only a few million from the total monthly revenues for the purchase of industrial diesel.

From June 2007 to March 2010, the cumulative debts of residents of the Gaza Strip for electricity supply reached NIS 2.3 billion<sup>7</sup>. Collection rates dropped sharply in 2000, with the drastic cut in the number of Palestinian laborers allowed to enter Israel from the Gaza Strip and the deterioration of the economic situation: in the years 1998-2000 the average for monthly collection was 83% of the total sum of outstanding electricity bills, but since 2000 the collection rate dropped to 39%. The consumers who pay for electricity include mainly NGOs, international organizations and the factories and businesses that are still open despite the closure<sup>8</sup>.

According to the PA, money can be collected in Gaza from the 77,000 Palestinian Authority employees, the 30,000 employees of the Gaza government and other people who work in the private sector and the tunnels, as well as from government institutions in Gaza. To facilitate collection, the PA decided to fund 10,000 electricity meters for use in Gaza, which would force consumers to pay in advance for supply of electricity. The PA wants to carry out a reform in the Gaza Strip similar to the one it introduced in the West Bank, where collection rates have risen in the last two years, mainly as a result of streamlining collection from the population that has the ability to pay. The PA claims that none of the government institutions in Gaza, or the municipalities, pay for their electricity consumption<sup>9</sup>.

According to a Hamas representative in the Energy Authority in Gaza, the government in Gaza is interested in improving collection, and it plans to allocate police forces that

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<sup>7</sup> The figures were provided by Abd al-Karim Abdeen, Deputy Director General of the Palestinian Energy Authority in Ramallah and a member of the executive board of GEDCo, in an interview with Labibah Harash of Gisha on March 11, 2010.

<sup>8</sup> GEDCo, A report about the electricity situation in Gaza Strip, January 25, 2010.

<sup>9</sup> Relayed by Ghassan al-Khatib, Director of the Palestinian Government Media Center, in a meeting with Iman Jabbour on April 12, 2010.

can accompany GEDCo employees and enforce bill collection. GEDCo, for its part, hired 250 employees to collect on outstanding electricity bills. So far, the company has refrained from relying on the enforcement power of the Hamas government, even when its employees were assaulted by consumers angry at having their power disconnected.

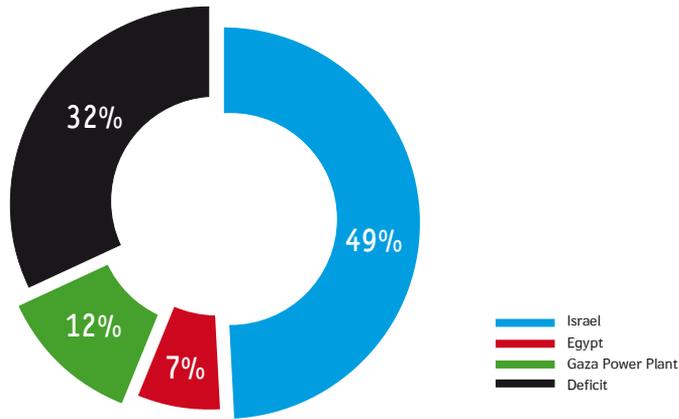
## **THE PRESENT ELECTRICITY CRISIS IN GAZA AND ITS IMPLICATIONS**

Because of the insufficient amounts of industrial diesel it receives, during the first quarter of 2010, the Gaza Power Plant has operated only a single turbine most of the time, which has the capacity to generate 30 MW of electricity - less than half the amount the plant generated a year earlier when it operated two turbines. This has raised the electricity deficit in Gaza to 30%, and the length of initiated power outages to eight hours per day<sup>10</sup>. Most of the electricity shortage is concentrated in the area of Gaza city and its environs, where about half of the residents of the Gaza Strip live and where most hospitals and other vital infrastructure facilities are located. Because of the industrial diesel shortage, the power plant had to shut down electricity production completely for a few days in April 2010, raising the electricity deficit in the Gaza Strip to 43% and increasing the length and frequency of the power outages. The situation is expected to worsen in the summer; at high temperatures the turbines generate less electricity because of the need to operate their cooling systems, and the total electricity demand in the Gaza Strip rises.

**The electricity deficit in Gaza has risen to 30%, and the length of initiated power outages to eight hours per day.**

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<sup>10</sup> GEDCo, A report about the electricity situation in Gaza Strip, January 25, 2010; the generation of the power plant from January 1, 2010 to April 26, 2010.



**Graph: Electricity Consumption in the Gaza Strip and its Proportionate Sources**

The depletion of the electricity supply has a severe impact on all residents of Gaza, including those who pay their electric bills regularly<sup>11</sup>. Because of the frequent power outages, since the beginning of 2010, on average, 30% of the residents of the Gaza Strip are without electricity at any given moment. For lack of an alternative, GEDCo initiates power outages by disconnecting power lines that serve hospitals, water wells, wastewater treatment facilities, schools, pharmacies and clinics, as well as homes; the disconnection of the lines, therefore, has serious implications both for households and for vital public infrastructure. The alternative some of the residents of Gaza have found - the use of generators - is also dangerous. In the first quarter of 2010, 17 people were killed, including six children, as the result of unsafe use of generators transported through the tunnels<sup>12</sup>.

<sup>11</sup> For details of the impact of the electricity shortage, see OCHA, Gaza's Electricity Crisis: The Impact of Electricity Cuts on the Humanitarian Situation, May 2010, at [www.ochaopt.org](http://www.ochaopt.org). See also OCHA, The Humanitarian Monitor, March 2010, pp. 11-12, available at [www.ochaopt.org](http://www.ochaopt.org).

<sup>12</sup> OCHA, Gaza's Electricity Crisis: The Impact of Electricity Cuts on the Humanitarian Situation, *ibid*; Oxfam, Oxfam raises awareness about the dangers of portable generators in Gaza, 23 April 2010, available at [www.oxfam.org.uk](http://www.oxfam.org.uk)

## CONCLUSIONS AND RECOMMENDATIONS

### THE NEED FOR COORDINATION

GEDCo is jointly owned by the Gaza Strip municipalities (50%) and the Palestinian Energy Authority (50%), and has an experienced, professional staff that is responsible for the functioning of the electricity system in Gaza. The managing board of GEDCo is comprised of officials representing both the Gaza municipalities and the PA. Today, most of the members of the managing board (five out of eight members) are representatives of the Hamas government in Gaza, after a gradual process in which the heads of the Gaza municipalities and local representatives of the Energy Authority were appointed by the Hamas government. The chairman of the managing board, the governor of the northern district of the Gaza Strip, serves as the board's representative of the Energy Authority in the PA.

The electricity system of the Gaza Strip cannot be operated without the cooperation of PA representatives and of relevant actors on the ground in Gaza. GEDCo depends on the PA and its representative, the chairman of the governing board, for the purchase of industrial diesel for the power plant and for the monthly payments the PA transfers to the power plant. On the other hand, any initiative by the PA to collect payment from consumers for electricity necessitates cooperation with relevant actors on the ground in Gaza.

### RECOMMENDATIONS

**Gisha** asserts that as the occupying power in the Gaza Strip<sup>13</sup>, it is incumbent upon **Israel** to provide for the regular supply of electricity to residents there. Even inasmuch as agreements were signed with the PA regarding that duty, Israel maintains a residual responsibility. In addition, due to its ongoing control of the border crossings and the dependence created by four decades of direct Israeli control of the Gaza Strip, Israel has special obligations to facilitate the normal functioning of the electricity system in the Gaza Strip, which has not been sufficiently developed since 1967.

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<sup>13</sup> For an extensive discussion of the status of the Gaza Strip as occupied territory, see Gisha, *Disengaged Occupiers: The Legal Status of Gaza*, January, 2007.

Israel is violating that obligation via the restrictions it imposes on the transfer of industrial diesel and materials necessary to maintain electricity supply and electrical infrastructure. The restrictions on the transfer of industrial diesel to the Gaza Strip have prevented the power plant from storing fuel reserves during times when outside donors were prepared to fund higher quantities than the quota set by Israel, which could have served the residents of Gaza during times of shortage.

Therefore, Gisha calls on Israel to do the following:

- In coordination with the relevant parties, to secure sources of funding for the quantity of industrial diesel needed for the normal operation of the electricity system in the Gaza Strip and to allow the free passage of industrial diesel according to the needs of the population and the capacity of electrical infrastructure in the Gaza Strip, and not according to arbitrary quotas.
- To allow the free passage of raw materials, spare parts and building materials for the ongoing maintenance, reconstruction and expansion of the infrastructure in Gaza, to adequately meet the needs of the population.
- To allow the entry of experts and advisers into Gaza and the exit of infrastructure professionals from the Gaza Strip for study and training opportunities outside that would improve the knowledge and skill of the people responsible for critical infrastructure in Gaza and increase their ability to serve the needs of the Strip.
- To end the closure of the Gaza Strip, which has plunged many of the residents of the Strip into poverty, preventing them from being able to pay for the electricity they consume.

**Gisha** notes that the **Palestinian Authority**, which continues to exert a certain amount of control over the residents of the Gaza Strip, has taken responsibility for all of the residents of the occupied Palestinian territory and also receives funding from the international community to help it fulfill that role. Therefore, the PA continues to bear responsibility for the rights of the residents of the Gaza Strip, including protecting the right to life, health, education, adequate living conditions and clean water; rights whose safeguarding in today's reality in the Gaza Strip requires functioning electric infrastructure. Therefore, Gisha:

- Notes the duty of the PA to coordinate with all relevant parties, including Hamas institutions and GEDCo, to facilitate normal electricity supply, while making the rights of the residents of Gaza its top priority.
- Reminds that the decrease in percentage of bills collection stems from the deterioration in the economic situation in Gaza and restrictions on freedom of movement beginning in 2000. This fact should be taken into account when considering how to stabilize access to electricity services in Gaza.

**Gisha** notes that as the ruling power in the Gaza Strip, **Hamas** is obligated to protect the rights of the Gaza residents in the areas under its control. Therefore, the Hamas government is responsible for the rights of the residents of the Gaza Strip, including protecting the right to life, health, education, adequate living conditions and clean water; rights whose safeguarding in today's reality in the Gaza Strip requires functioning electric infrastructure. Therefore, Gisha:

- Notes the obligation of the Hamas government to coordinate with all relevant parties, including PA institutions and GEDCo, to facilitate regular electricity supply, while making the rights of the residents of Gaza its top priority.
- Reminds that the decrease in percentage of bills collection stems from the deterioration in the economic situation in Gaza and restrictions on freedom of movement beginning in 2000. This fact should be taken into account when considering how to stabilize access to electricity services in Gaza.

**Gisha** notes that for three and half years the **EU** took upon itself to fund the supply of industrial diesel for Gaza's power plant and by doing so "fulfilled" the duties of Israel and the PA towards the civilian population of the Gaza Strip. Even though the EU was not obligated to do so, its undertaking created a dependence on EU funding, and therefore, in the case of a change of circumstances, the EU should continue to coordinate with all relevant parties to help fulfill the electricity supply needs of the civilian population of Gaza.



The Gaza Strip experiences 8-12 hours of scheduled power outages per day, which disrupt the normal functioning of humanitarian infrastructure, including health and education institutions and water and sewage systems. The power outages also take a toll in human lives of people killed or injured by using generators that are not always used according to safety instructions. This paper describes how the electricity shortage was created and offers recommendations for what can be done to resolve it.

**Gisha – Legal Center for Freedom of Movement is an Israeli human rights organization, founded in 2005, whose goal is to protect the freedom of movement of Palestinian residents of the West Bank and the Gaza Strip. Gisha, whose name means both "access" and "approach," uses legal assistance and public advocacy to protect that right, which is guaranteed by international and Israeli law. Because freedom of movement is a precondition for exercising other basic rights, Gisha's work has a multiplier effect in helping residents of the occupied territory realize their rights to education, livelihood, medical care and family unity.**

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