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GAZA'S ELECTRICITY CRISIS: THE IMPACT OF ELECTRICITY CUTS ON THE HUMANITARIAN SITUATION

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Introduction

Since January 2010, there has been a serious deterioration in the supply of electricity in the Gaza Strip. The immediate reason is that Gaza's sole power plant, the Gaza Power Plant (GPP), is able to produce only half the electricity that it did prior to January 2010, due to a lack of funds needed to purchase the industrial fuel required to operate the plant.

As a result, almost all of the 1.4 million Palestinians residing in the Gaza Strip, with the exception of those who live in the Rafah area¹, must cope with scheduled electricity cuts of 8-12 hours daily, compared to 6-8 hours prior to January 2010.

These power cuts exacerbate the already difficult living conditions in Gaza and disrupt almost all aspects of daily life, including household chores, health services, education and water and sanitation services.

A Chronic Shortfall

The shortage of electricity in the Gaza Strip dates back to June 2006, when the Israeli Air Force destroyed all six transformers at the GPP during an air strike. Five months later, the power plant resumed production, but at a significantly reduced level; 65 MW, at peak production, compared to 140 MW prior to the bombardment². Israel's imposition of a blockade on the Gaza Strip in June 2007, following the Hamas take-over, further tightened existing restrictions on imports; access to spare parts, equipment and consumables required for the power plant's operation and the electricity network were restricted, as was the amount of industrial fuel allowed entry to the Gaza Strip. As a result, there has been a chronic shortfall in the GPP's level of electricity production³. Since January 2010, the daily electricity deficit has increased further, following the expiration of the European Commission's direct subsidy to the fuel purchase for the GPP⁴. Since this time, the power plant has twice had to shut down completely, due to lack of fuel. The plant now operates using one turbine, producing only 30 MW of electricity, compared to its average production of 60-65 MW in 2009 and 120-140 MW at full capacity

Impact on the Humanitarian Situation

People killed and injured due to reliance on mobile back-up generators

To mitigate the daily hardship of living for prolonged hours without electricity, especially during evening blackouts, those who can afford to do so buy mobile back-up generators. These generators, which are imported largely through the tunnels under Gaza's border with Egypt, can be unsafe, especially when used incorrectly. Accidents have happened as a result of poor usage, carbon monoxide poisoning, and fires and explosions occurring when people attempt to fuel the generators by candle-light during a blackout. In the first quarter of 2010, 17 people were killed and 36 injured in accidents related to back-up mobile generators⁷. Among the casualties were three children killed from carbon monoxide poisoning⁸ and three other children killed when a fire broke out while pouring fuel into a generator⁹.

CHRONOLOGY OF THE ELECTRICITY CRISIS IN THE GAZA STRIP

2002 – The Gaza Power Plant (GPP), a private company, becomes operational as Gaza's sole power producer.
2004 – The GPP reaches its maximum production capacity of 140 MW, filling the production gap remaining after electricity purchased from Israel and Egypt are received (120 MW and 17 MW respectively).
28 June 2006 – The Israeli Air Force bombs the GPP destroying all six transformers at the plant; production is halted.
June 2006 – The European Commission (EC) begins subsidizing fuel for the GPP.
November 2006 – Seven transformers with lower capacity are installed and partial production resumes, reaching 65 MW at peak production. (A year later, the plant's production capacity had reached 80 MW).
June 2007 – Israel imposes a blockade on the Gaza Strip, which severely restricts the import of necessary electrical equipment, spare parts, consumables and essential electrical inputs.
19 September 2007 – The Israeli Cabinet declares the Gaza Strip a 'hostile territory' and imposes further restrictions, including a restriction on all types of fuel allowed into the Gaza Strip⁵.
28 October 2007 – Israel begins implementing the September 2007 Cabinet decision regarding fuel restrictions.
30 January 2008 – The Israeli Supreme Court rejects a petition by human rights groups challenging the government's decision to reduce the electricity and fuel supply to the Gaza Strip⁶.
November 2009 – The contract between the EC and the Palestinian Authority (PA) which provides for the EC's direct subsidy to the fuel purchase for the Gaza Power Plant, expires.
January 2010 to present – Shortage of fuel for the GPP leads to further power cuts.
April 2010 – The PA establishes a mechanism to generate funds from the private sector, international organizations, PA ministries and others that can be used to pay for consumed fuel. Israel approves entry of PA-purchased electricity meters and paper, to measure household electricity consumption and issue bills.

Hospitals and clinics

As a result of the electricity cuts, hospitals and clinics rely extensively on the use of back-up generators, which are not designed to function for prolonged periods and are often damaged as a result. Additionally, replacement parts needed to repair them are frequently unavailable. Due to the unpredictability in the power supply, hospitals have had to delay some elective surgeries in order to reduce the risk to patients. Given the limited reliability of generators, hospitals also use Uninterruptible Power Supply (UPS) devices to minimize the damage of power cuts and fluctuations in power to sensitive medical equipment. The effectiveness of the UPS use has been undermined due to the Israeli authorities' restrictions on the import of the batteries needed to operate them¹⁰. Electricity cuts also affect refrigeration in clinics, causing risks to the quality of vaccines.

Water and sanitation

The proper operation of Gaza City's sewage treatment plant requires 14 days of uninterrupted power supply for the full duration of the treatment cycle. Daily power cuts disrupt sewage treatment and hinder the completion of the treatment cycle, with the result that partially treated and untreated sewage is discharged into the environment; Gaza's water authorities release 60-80 million liters a day of raw and partially treated sewage into the Mediterranean Sea, in order to avoid sewage flooding residential areas. Electricity is also needed for pumping water for domestic use and irrigation. Because the pumps cannot be operated continuously, water supply for domestic use is insufficient, raising hygiene and health concerns. In order to pump water to households, the water wells must receive electricity in synchronization with electricity supply to the same households. Almost all the households receive water for only 5-7 hours a day.



The power cuts negatively affect the educational environment, both at school and at home. Studying in darkened classrooms affects students' ability to concentrate as does the sound, smoke and smell from generators, in schools and homes that have them. Food for school canteens cannot be stored adequately as refrigeration cannot be maintained, while water shortages, due to disruptions to the water pumps, result in dirty latrines and a lack of water for hand washing. In addition, the frequent electricity cuts damage electronic equipment used in schools. At schools without generators, students lose practical classes in science and technology, since computer labs are not functioning. Power cuts also affect educational aids used for remedial classes, reducing the efficiency of remedial education, and in training sessions for teachers.

Agriculture

The lack of refrigeration causes significant damage to crops, in addition to an increase in the cost of production. The interruption in the irrigation of crops delays flowers and fruit from ripening, resulting in a decreased ratio of yield compared to input. Similarly, fodder production is interrupted, and the yield of egg production and output of dairy farms reduced, as adequate lighting cannot be provided for laying hens and power cuts interrupt the functioning of milk machines. Power cuts are also a major threat to aquaculture farms, since the pumps needed to filter or oxygenate the water are affected.

Endnotes

¹The Rafah area has scheduled cuts of 6-8 hours a day.

²The plant was able to resume production after the installation of seven new transformers, but these operated at a reduced capacity than the previous six.

³120 MW of electricity is purchased from Israel and 17 MW from Egypt.

⁴In consultation with the Palestinian Authority (PA), the European Commission's commitment to financially support the PA's purchase of fuel supply to the GPP expired in November 2009. Since then, the PA has actively pursued reform efforts to increase revenue collection to fund fuel for the plant's operation.

⁵The Cabinet also called for a five percent reduction on three of the 10 lines supplying electricity from Israel to Gaza. Electricity supply was only decreased on one line, from January - March 2008. Since March 2008, no electricity reductions have been reported.

⁶In its decision, the Court stated that it was convinced that the quota set by the Israeli government, 2.2 liters of industrial fuel a week, was sufficient to meet the essential humanitarian needs in the Gaza Strip.

⁷Source: Director of Emergency Services at Al-Shifa hospital in Gaza.

⁸The incident took place in January 2010.

⁹The incident took place in February 2010.

¹⁰According to the Palestinian Ministry of Health, a number of UPS devices used for dialysis, MRI and CT units are lacking and other UPS devices have been out of order for more than a year, because of dead batteries or lack of spare parts needed to make them functional.

¹¹The last available data from GEDCo for 2009.