



Relieving Gaza's Electricity Burden After the War

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EXECUTIVE SUMMARY: The Gaza Strip's heavy dependence on electricity and diesel supplied by Israel has turned from an Israeli strategic advantage into an economic and humanitarian burden for Israel. The reconstruction of postwar Gaza must include more independent energy generation capabilities in the form of solar PV expansion and the development of the Gaza Marine gas field. It must also include more grid connections to other electricity suppliers besides Israel, primarily Egypt. Otherwise, Israel will remain responsible for meeting the needs of millions of Gaza's residents in the coming decades, regardless of who controls the Gaza Strip.

Since Hamas rose to power in Gaza in 2007, its complete dependence on Israeli electricity and diesel supply was considered a strategic advantage in the eyes of Israeli policymakers. Before the outbreak of the current war, [half of Gaza's electricity was supplied by Israel through 10 power lines](#). This supply continued despite the Palestinian Authority's refusal to pay for it, thus creating a [2 billion NIS debt](#) in the budget of the Israel Electric Corporation (IEC). The other half was produced domestically in Gaza - partly by the Strip's single power plant, which ran on diesel fuel supplied by Israel, and partly by thousands of small-scale diesel generators in public buildings and private homes. In other words, almost all Gaza's energy needs were provided by Israel through unpaid debts.

In theory, the resulting economic burden on Israeli companies and taxpayers was compensated by the perceived strategic advantages of having leverage over Hamas through complete control over its energy sources. Israeli decision makers assumed that the threat of cutting off electricity and diesel supply to the Strip

would deter Hamas from acting against Israel and would provide tactical advantages during periodic rounds of violence. [This prevailing assumption was quickly discredited during the first month of the war](#), when Israel reversed its initial decision to cut off all energy supply to Gaza and the IDF began sending fuel trucks back into the Strip.

Israel soon discovered that its ability to use electricity and fuel supply as a weapon of war is severely limited for two main reasons. The first is that the residents of Gaza, including Hamas, are accustomed to living without electricity from the main grid and have already developed alternative autonomous solutions. In the past decade, [over 9,000 off-grid solar PV installations have been installed on Gaza's residential and commercial rooftops](#) that together can provide between 25%-40% of Gaza's electricity during the day. Hospitals, schools, government buildings and logistical warehouses all complement solar power with private generators that provide electricity the rest of the time. Hamas itself connected its tunnels to underground generators for lighting and ventilation and stockpiled over 1m liters of diesel fuel to operate them for many months in preparation for the war. As such, Hamas was not directly affected by Israel's electricity cut.

The second reason for Israel's policy reversal was that the energy cut-off also blocked the ability to produce potable water in Gaza, leading to a humanitarian crisis. [Groundwater in Gaza is mostly contaminated](#) and not fit for human consumption. This is mostly the result of local over-production and unregulated well drilling, which allowed sewage and seawater to enter the underground aquifers. As such, Gaza's water must go through special treatment facilities to become drinkable. Alternatively, water can be produced from a large water desalination plant in Deir al-Balah. In both cases, the facilities cannot operate without a direct connection to a functioning power grid or a constant supply of diesel by trucks reaching their private generators. The facility in Deir al-Balah alone must consume over 3,200 liters of diesel every hour to operate at full capacity. As a result, Israel rushed to supply its own drinking water, but the amount was insufficient. The lack of functioning water and sewage treatment facilities led to a serious water shortage and an outbreak of diseases in the Gaza Strip, [including polio](#).

The ensuing crisis resulted in unprecedented international pressure that forced Israel to return the supply of diesel fuel to the Gaza Strip. Starting in mid-November 2023, Israel trucked almost 60,000 liters of diesel into Gaza every day at its own expense. This was despite concerns that Hamas was likely to steal some of the diesel and replenish supply to its underground generators. Moreover, just the [threats tweeted by the Minister of Energy](#) at the time, MK Israel Katz, to cut

off the residents of Gaza from electricity and water were later used by the International Court of Justice as evidence that Israel is allegedly carrying out illegal collective punishment in Gaza. [The Court's interim ruling in January 2024](#) required Israel to ensure that the supply of fuel and water will continue to enter the Strip, even if it makes the IDF's operations more difficult.

Faced with the problem of resupplying energy to the Strip without its falling into the hands of Hamas, Israel began reconnecting facilities in Gaza directly to the Israeli electricity grid. For example, at the beginning of July 2024, [Israel connected its grid to the water desalination facility in Deir al-Balah](#), garnering harsh criticism from members of Israel's ruling coalition. The logic behind the decision was to alleviate Gaza's water crisis without needing to constantly transport diesel to the facility's generators using trucks that could be hijacked by Hamas. However, it marked a worrying trend of restoring Gaza's complete dependence on direct Israeli electricity supply for years to come.

An important lesson from the war, therefore, is that the post-war reconstruction of Gaza should include a more self-sufficient energy sector in the Gaza Strip. Without it, Israel will not be able to escape the responsibility of indefinitely providing the basic needs of Gaza's two million residents. For this purpose, Israel must promote the establishment of more autonomous energy infrastructure in Gaza. While the projects would be financed, established and maintained by international parties, Israel should maintain control over the approval and planning process to make sure they aren't used once again as cover for the construction of underground military facilities.

In the first stage, Israel should promote the rapid adoption of rooftop solar PV panels in Gaza to generate electricity independently of the failing grid. These panels would replace and double those that were destroyed during the war. Gaza already had impressive solar capabilities before October 2023, but the installations were often built without any safety measures or regulation to improve efficiency. These installations can be supplemented by batteries and additional energy storage solutions that would promise grid stability and additional hours of electricity in the evening. Israeli companies can even take part in at least some of these projects or use Israeli products as a condition in the tender for foreign financing to make it more palatable for the current Israeli government.

In the second stage, Israel should push to connect Gaza's electricity grid to neighboring countries so it can gradually disconnect from it completely. At the top of the list is Egypt, which is already connected to Gaza by four power lines. Jordan and Saudi Arabia can be added later. The inclusion of Gaza in the "Great Sea Interconnector" project, which is designed to [connect Israel's electricity grid with](#)

[that of Cyprus via a subsea power line](#), may make this ambitious project more attractive for European entities to finance. Over the next few years, the Palestinian Authority in the West Bank should also be able to serve as an electricity supplier to Gaza following the planned construction of several gas-powered power plants in Area A. By connecting the electricity grid of Gaza with that of the West Bank, the Palestinian Authority will have to take on the difficult task of collecting payments from Gaza's residents on its own, rather than go through Israel.

In the third stage, Gaza should turn to the sea to meet its energy needs as part of the "Gas 4 Gaza" project. This will first include development of the "Gaza Marine" gas field off the coast of Gaza. The field contains about 30BCM of natural gas and can theoretically supply all the electricity needs of the Strip for at least 10 years. [The current Israeli government already approved the development of Gaza's gas field in June 2023](#), with the intention that an Egyptian energy company would develop it and purchase some of the gas for its own needs. Secondly, the move requires the construction of a new power plant in the Gaza Strip that can be powered by natural gas. This plant was already on the final stages of approval by Israel before the war erupted, and was planned to be built over the next few years. The station will also be able to connect to Egypt with its gas pipelines, eventually purchasing Egyptian gas once the Gaza Marine reserves dwindle.

Independent electricity generation in Gaza can also help alleviate Israel's responsibility to provide potable water to Palestinian residents in both Gaza and the West Bank. Domestic water needs can be supplied in full following the construction of two additional desalination facilities on Gaza's shoreline. These facilities could then be connected to the West Bank, providing water for Palestinians in both areas without the need for Israel to maintain the infrastructure or chase unpaid bills from the Palestinian Authority.

There are other solutions to promote energy independence in Gaza, some even more ambitious than those mentioned above. These include establishing an artificial island off the coast of Gaza to receive imported diesel fuel and other products by sea. This would allow Israel to monitor goods and resources entering Gaza before they reach the mainland. Such projects obviously depend on three main factors: (1) the identity of the government in the Gaza Strip in the coming years, (2) the identity of the donors who are willing to finance these projects, and (3) Israel's willingness to be involved in their approval and establishment.

Whether Israel wants it or not, the Gaza Strip will eventually be reconstructed, and energy and water infrastructure will be the first to be rehabilitated. Israel can choose to ignore this reality, but in doing so, it will open Gaza's energy sector to other forces that will determine what the Strip will look like in the future and to

what extent will Israel remain responsible for the needs of millions of Gaza's residents. Israel would do well to be the side that initiates long-term plans to reshape Gaza's infrastructure in a manner that benefits both Gazans and Israelis for decades to come.

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