

Gaza Marine:

Natural Gas Extraction in Tumultuous Times?

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Acknowledgements

This report, and the larger project of which it is a part, benefited greatly from the insight and assistance of a large number of people.

For generosity with their time and insights we are grateful to: Yossi Abu, CEO Delek Drilling; Eng. Fuad Amleh, Chief Executive Officer, Palestine Electricity Transmission, Ltd.; Constantine Blyuz, Deputy Director for Economic & Strategic Issues, Israeli Ministry of National Infrastructures, Energy and Water Resources; Yael Cohen Paran, CEO, Israel Energy Forum; Ariel Ezrahi, Infrastructure (Energy) Adviser, Office of the Quartet Representative, Mr. Tony Blair; Michalis Firillas, Deputy Head of Mission, Consul, Embassy of the Republic of Cyprus in Israel; Nurit Gal, Director, Regulation and Electricity Division, Public Utilities Authority of Israel; Dr. Gabi Golan, Deputy Government Secretary, Office of the Prime Minister of the State of Israel; Mr. Hani Jhosheh, the Jerusalem District Electricity Company; Prof. Eugene Kandel, Head of the National Economic Council, Office of the Prime Minister of the State of Israel; Enas Abu Laban, Adviser, Office of the Quarter Representative, Mr. Tony Blair; Ambassador Michael Lotem, Special Envoy for Energy Affairs, Ministry of Foreign Affairs of the State of Israel; Dr. Durgham Maraee, Chief Investment Officer, Palestine Investment Fund; Member of Knesset Erel Margalit; Noam Segal, Head of Policy, Israel Energy Forum; Prof. Brenda Shaffer, University of Haifa and Georgetown University; Member of Knesset Stav Shaffir, Prof. Eytan Sheshinski, Hebrew University, Chair, Sheshinski Committee; Dana Tabachnik, Director of Economy & Environment Department, Adam Teva Vadin (Israel Union for Environmental Defense); Gideon Tadmor, CEO Avner Oil and Chairman, Delek Drilling; Shaul Tzemach, former Director General of the Israeli Ministry of National Infrastructures, Energy and Water Resources,

Chair, Tzemach Committee; and Harry-Zachary Tzimitras, Director, PRIO Cyprus Centre.

We are also very grateful to Ariel Ezrahi, for his comments on earlier drafts of this paper, to Ibraheem Egbaria, Ilan Suliman and Firash Qawasmi, who helped facilitate our visit to the (East) Jerusalem District Electricity Company and to Ohad Reifen who helped facilitate interviews in Israel.

We would also like to thank our Brookings colleagues: Martin Indyk and Ted Piccone for supporting our work through the Foreign Policy Program's Director's Strategic Initiative Fund; Charles Ebinger, for his sage feedback on drafts and, along with Tamara Wittes, for guiding us and providing wonderful places within Brookings in which to work; Kemal Kirisci and Dan Arbell for their assistance, collaboration and multiple discussions throughout the duration of this project; to Khaled Elgindy for help in arranging meetings in the West Bank and for his comments on earlier drafts of this paper; and to Rangano Makamure for continued support with finances.

Jennifer Potvin, Colleen Lowry, Lauren Mellinger and Heather Greenley provided valuable and greatly appreciated support in arranging the research in Israel and the West Bank and in keeping us on track.

Finally, we are again grateful to Heather Greenley and Lauren Mellinger for their excellent research assistance and valuable substantive contributions to the written products; they deserve much credit for the better parts of these papers.

Despite the generosity and contribution of all these people, any errors remain solely our own.

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INTRODUCTION AND BACKGROUND

In late September 2000, the very week in which the Second Intifada began, Palestinian leader Yasir Arafat visited the Gaza Strip to celebrate a natural gas discovery. Arafat proclaimed the Gaza Marine field, located about 22 miles off the coast, to be “a gift from God” to the Palestinian people for generations to come, that would “provide a solid foundation for our economy, for establishing an independent state with holy Jerusalem as its capital.”¹

In retrospect, it is easy to conclude that Arafat was overly optimistic about the discovery. But Gaza Marine’s development does offer the potential for dramatic improvement in the Palestinian energy market and the Palestinian economy as well as providing underappreciated benefits for the Israeli market. The technical and security-related challenges in developing Gaza Marine are considerable but solvable. Other advancements to the Palestinian energy market are also achievable—such as further independence of the electric power network—and offer avenues for addressing a woefully underdeveloped Palestinian energy system. Israel, for its part, has little to lose and much to gain from such development.² Yet, overcoming the obstacles requires strong leadership. Palestinian leadership is necessary, of course, but most of the cards in this

case are in Israeli hands, and Israeli leadership on energy cooperation has been insufficient to date.

The development of Gaza Marine primarily stands or falls with Palestinian-Israeli cooperation, the same cooperation that collapsed in 2000 and is now again at a low point, following the failure of peace talks between the parties in the spring of 2014. The situation has deteriorated further following the confrontation between Israel and Hamas in the summer of 2014. Without a political settlement in sight, more, not less, political will is necessary if the worst outcomes of the ongoing conflict are to be avoided and if daily lives for both sides are to be improved.

Over the last two decades, significant natural gas resources were discovered in the Eastern Mediterranean. The U.S. Geological Survey currently estimates that as much as 122 trillion cubic feet (tcf) of technically recoverable natural gas may be present in the Levant Basin, an area comprising the Exclusive Economic Waters of Cyprus, Lebanon, Israel, the Palestinian Territories and Egypt.³ Since exploration began, offshore natural gas resources have galvanized publics and governments across the region, despite longstanding political obstacles. To date, both Cyprus and Israel have proven

¹ “Arafat says natural gas field great hope for Palestinian economy,” *Associated Press*, September 27, 2000, www.thedossier.info/articles/ap_arafat-says-natural-gas-field-great-hope-for-palestinian-economy.pdf.

² Indeed, Israeli officials, including several we interviewed, spoke favorably of the possibility of developing Gaza Marine and lessening the dependence of the Gaza Strip on the Israeli electrical grid. E.g. interview with Dr. Gabi Golan, Deputy Cabinet Secretary and Advisor to the Prime Minister of the State of Israel for National Infrastructure, Jerusalem, June 16, 2014.

³ U.S. Geological Survey, “Natural Gas Potential Assessed in Eastern Mediterranean,” April 8, 2010, www.usgs.gov/newsroom/article.asp?ID=2435#.VBkrPxYyX3U.

reserves of natural gas, with Israeli gas sufficient to supply domestic demand for decades while also allowing for exports. The Tamar field (10 tcf), located offshore Haifa, began production in March 2013,⁴ while the operators of the larger Leviathan field (22 tcf) continue to search for investors and buyers for the natural gas. Despite a slow start, the operators are optimistic that natural gas will be extracted within the next few years. However, other reports are increasingly pessimistic that the Leviathan field is going to be developed, especially following the ruling of the Antitrust Authority that the developers form a cartel that effectively controls the Israeli gas market.⁵

Gaza Marine was one of the first discoveries in the basin. It is estimated to hold 1 tcf of natural gas. Despite these other successes Gaza Marine remains untapped despite its location in significantly shallower waters and considerably closer to shore than either Tamar or Leviathan.⁶ Technically, Gaza Marine is a comparatively simple field to exploit. Its operator, BG Group (formerly British Gas), the PA, the United States, and the Office of the Quartet Representative have all attempted to promote its development. From its discovery until 2007, BG was involved in a series of negotiations with the Israeli government for the sale of natural gas from the field. However, by 2007, after failing to reach an agreement, BG Group withdrew from the negotiations.⁷ In 2008, the BG Group closed its office in Israel, though, according to the company yearbook, it continues to hold its 90% share in Gaza Marine,⁸ though this share may decline in

the future. Accordingly, BG has maintained relations with both the Israeli government and the PA.

The Quartet Representative worked to resume efforts in 2011⁹ and the issue was taken up by the United States in the latest round of peace negotiations between the Israelis and the Palestinians. Nevertheless, a series of events including the collapse of the talks in April 2014, the announcement of a Palestinian unity government between Fatah and Hamas, the subsequent decision of the Israeli government to cut off ties to the Palestinian Authority (PA), and the latest round of fighting between Israel and Hamas have once again put development plans on hold. At present, the prospects for the development of an independent Palestinian energy system are low.

The political and security challenges for the development of Gaza Marine are indeed daunting. Since Hamas's takeover of Gaza in 2007, the Gaza Strip has been governed separately from the West Bank, under the PA of Mahmoud Abbas. Israel has placed severe limitations on trade and movement in and out of Gaza, and has attempted to prevent arms and funding from reaching Hamas. This reality severely hinders the development of infrastructure, including electricity grids, roads, and water supply.

Moreover, since 2007, Israel and Hamas have engaged in no fewer than three major rounds of hostilities, resulting in particular in dramatic loss of lives and repeated damage to the Gaza Strip's

⁴ Itai Trilnick, "Natural Gas to Begin Flowing from Tamar Field, Off Israel's Mediterranean Coast," *Haaretz*, March 28, 2013, <http://www.haaretz.com/business/natural-gas-to-begin-flowing-from-tamar-field-off-israel-s-mediterranean-coast.premium-1.512334>.

⁵ We discuss these other finds, and especially those in Israeli waters, in an accompanying report. See Natan Sachs and Tim Boersma, *The Energy Island: Israel Deals with its Natural Gas Discoveries*, (Washington, DC: Foreign Policy at Brookings, February 2015), Vol. 35.

⁶ Gaza Marine lies at a depth of 603 meters (2,000 ft.), compared to Tamar and Leviathan at some 1700m (5,600 ft) and 1500m (4,900 ft.) respectively. See Simon Henderson, "Natural Gas in the Palestinian Authority: The Potential of the Gaza Marine Offshore Field," *The German Marshall Fund of the United States*, (March 2014), <http://www.washingtoninstitute.org/policy-analysis/view/natural-gas-in-the-palestinian-authority-the-potential-of-the-gaza-marine-o>; Yoram Gabison, "Raising Gas Royalties: A Sea of Demagoguery," *Haaretz*, October 21, 2010, <http://www.haaretz.com/print-edition/business/raising-gas-royalties-a-sea-of-demagoguery-1.320355>.

⁷ BG Group, "Where We Work: Areas of Palestinian Authority," <http://www.bg-group.com/databook/2014/26/where-we-work/areas-of-pa/>.

⁸ Ibid.

⁹ PM Netanyahu and Quartet Rep Blair announce economic steps to assist Palestinian Authority," Israel Ministry of Foreign Affairs, February 4, 2011, http://www.mfa.gov.il/mfa/pressroom/2011/pages/pm_netanyahu_quartet_rep_blair_economic_steps_pa_4-feb-2011.aspx.

infrastructure. Estimates in the National Early Recovery and Reconstruction Plan for Gaza suggest that more than USD 850 million is required for reconstruction of damage done to the energy, water, sanitation, and agriculture facilities in the Gaza Strip.¹⁰ Given these events, it is not surprising that developers, funders, and insurers are wary of energy development in the midst of an intermittent war zone, although the industry is accustomed to working in wide variety of difficult environments.

In light of violence in the summer of 2014 there has been little interest in Palestinian–Israeli cooperation in developing Gaza Marine. However, such cooperation is precisely what is needed. Though a healthy dose of political realism is required if there is any prospect of effecting the dramatic dividends that could accrue to the Palestinian and Israeli economies. Obviously, stability usually precedes exploitation of natural resources,¹¹ but the economic

and social benefits of the proven reserves provide a strong incentive for cooperation, even short of a full-fledged peace agreement between the parties.¹²

This paper begins with a discussion of the offshore natural gas discoveries. It then provides an overview of the promise that Gaza Marine may offer to both Palestinian and Israeli interests.¹³ Next, the paper provides a history of past negotiations and policy debates among the shareholders of the gas field, relevant stakeholders in both the PA and Israel, and policy makers from the United States, who have helped place this issue on agenda during the peace process, including during the most recent peace negotiations. The paper then discusses the potential benefits for both the Palestinians and Israelis were Gaza Marine to come into production, and the obstacles that remain.

¹⁰ For a more detailed overview, we refer to State of Palestine, “The National Recovery and Reconstruction Plan for Gaza,” October 2014, <http://www.mfa.gov.eg/gazaconference/documents/finalGaza%20ERP%20report%20ENG30092014.pdf>

¹¹ We refer, for instance, to Professor Brenda Shaffer, “Can New Energy Supplies Bring Peace,” *The German Marshall Fund of the United States*, (March 2014), http://www.gmfus.org/wp-content/blogs.dir/1/files_mf/1394551538Shaffer_NewEnergySupplies_Mar14.pdf.

¹² Economic cooperation between the sides continued, to a degree, even during the 2014 conflict. In the ensuing months, despite political tensions, some degree of economic cooperation has continued, as is evidenced by Israeli measures to ease the economic blockade of the Gaza Strip.

¹³ See also Simon Henderson, “Natural Gas in the Palestinian Authority: The Potential of the Gaza Marine Offshore Field.”

THE GAS FINDS IN CONTEXT—ENERGY IN THE PALESTINIAN TERRITORIES

The Palestinian energy system faces two severe structural problems: First, it is largely dependent on Israel for both power generation—and therefore for planning and pricing—and for movement of people and goods into and between Palestinian-governed areas—and therefore for infrastructure development.¹⁴ Second, Palestinian suppliers, like many in the region, complain of severe underpayment, erroneous billing and even theft of electricity, resulting in a chronic debt by the Palestinian electrical companies to the Israeli Electrical Corporation (IEC), their main supplier.¹⁵ As in most countries in the Middle East, there is a Palestinian inability to tackle the financial problems plaguing the energy system. But the PA faces unique problems stemming from its lack of full sovereignty and control over its energy system, preventing full independent planning and development of Palestinian infrastructure.

For electricity, Palestinians in both the West Bank and the Gaza Strip depend almost entirely on Israeli supply, partly for lack of domestic development and partly due to the jurisdictional limitations on Palestinian development. Under the Oslo Accords

between Israel and the Palestine Liberation Organization (signed in 1993 and followed by the Paris Protocol of 1994 and the Oslo II Accord of 1995), the PA has full control of civilian aspects of life in the main cities of the West Bank and Gaza Strip and in adjoining areas (Areas A and B respectively). However, with Israel retaining full control over the larger Area C, which envelops Areas A and B, much of the infrastructure needed for domestic production depends on Israeli cooperation.

As energy consumption in the territories continues to grow with the increase in population, stable access to energy has become increasingly important. Currently on the West Bank an estimated 860 megawatts (MW) of electricity is consumed per annum, an amount which is expected to rise to 1310 MW by 2020.¹⁶ In the Gaza Strip the situation is even direr: Per annum 210 MW of electricity is consumed, whereas the current demand is closer to 410 MW. This demand is expected to double to 855 MW in 2020.¹⁷ Currently, there is no electricity generation capacity in the West Bank. However, electricity supply to the West Bank is reasonably stable, with power imported through low and

¹⁴ Pursuant to the Oslo II agreement, the Palestinian Authority administers civilian affairs in Areas A and B of the West Bank, but these areas are non-contiguous and therefore passage is needed through Area C, which comprises over 60% of the West Bank, and is administered fully by Israel. See “Israeli-Palestinian Interim Agreement on the West Bank and the Gaza Strip,” Washington, D.C., September 28, 1995, http://www.knesset.gov.il/process/docs/heskemb_eng.htm.

¹⁵ The refugee camps comprise a special case in this regard. Many in the camps refuse to pay for electricity on principle, claiming that payment for services should follow repatriation and a return to the pre-1948 towns and villages of their families. Interview with Hani Jhosheh, the Jerusalem District Electricity Company, Jerusalem, June 24, 2014.

¹⁶ Office of the Quartet Representative Tony Blair, “Initiative for the Palestinian Economy – Summary Overview,” March 2014, p. 36, http://blair.3cdn.net/a0302ab9e588825b29_1bm6yhjay.pdf.

¹⁷ Office of the Quartet Representative Tony Blair, “Initiative for the Palestinian Economy – Energy,” March 2014, p. 2, http://blair.3cdn.net/547ed9bb88685c3e51_klm6bq8i4.pdf.

medium voltage lines, mostly from Israel and partly from Jordan.

Recently, the PA has identified two sites in the West Bank for new combined cycle gas turbine (CCGT) electricity generation capacity that would alleviate dependency on Israel. The current plans envisage a 400 MW power plant near the northern West Bank city of Jenin, at an estimated cost of about \$500 million, and a further plant in Hebron in the southern West Bank.¹⁸ In January 2014 the Palestine Power Generation Company (PPGC), the planned constructor of the Jenin plant, became the first party to sign a supply contract with the operators of the Leviathan gas field offshore Israel. Under the terms of the contract, PPGC agreed to purchase 4.75 billion cubic meters (bcm), or roughly 167 billion cubic feet (bcf), of natural gas for 20 years at an estimated cost of US\$ 1.2 billion, once production begins in the field. The contract also assumes that PPGC has commenced operations.¹⁹ At present, the plant in Hebron does not have a supply contract and both projects require permits from both the PA and the Israeli government, a process that could be significantly streamlined. In addition, an agreement must be reached with the IEC on selling excess generation capacity to the Israelis, to maximize efficiency and to preserve grid stability, or, conversely, costly infrastructure could be built to sell excess capacity to Jordan.²⁰

Prior to the conflict in the summer of 2014, the Gaza Strip had only one gas fired power plant in operation (since 2002) with a capacity of 140 MW though at the time it was running at about

50% of its capacity. Since the conflict, its operation has been intermittent. Even if the plant could run at full capacity, as noted, this is still well below demand in Gaza. In recent years, the plant has been operating with a capacity of 60 MW by using imported diesel fuel.²¹ Natural gas cannot be supplied to the Gaza Strip owing to the current lack of infrastructure, which adds significantly to the costs of electricity and contributes to air pollution in the crowded Strip (since diesel fuel is more expensive and polluting). Energy supply in Gaza is thus heavily reliant on imports of electricity, from Israel and Egypt, which supply 120 MW and 28 MW per annum, respectively. Yet even at this rate, the imported electricity satisfies less than half of total demand.²²

Unlike the West Bank, the Gaza Strip lacks a stable electricity supply; consequently, consumers often have to endure daily power outages of 12 hours or more.²³ Power generation in the Gaza Strip suffered another setback during the 2014 conflict when an Israeli airstrike hit the power plant, further compounding the crippling power shortages. It is estimated that it will take at least one year to fully repair the plant, underscoring the vulnerability of infrastructure in this area to civil conflict.²⁴ Currently the plant is operating as a result of temporary fixes.

The shortage of electricity in Gaza affects numerous aspects of life, including its limited water supply. Beyond basic household consumption and medical usage, large amounts of energy are needed for sewage treatment and sanitation. Increasing

¹⁸ Ibid, p. 12.

¹⁹ Eran Azran, "Palestinians become first customer of Israel's Leviathan gas field," *Haaretz*, January 6, 2014, www.haaretz.com/business/1.567216.

²⁰ Office of the Quartet Representative Tony Blair, "Initiative for the Palestinian Economy – Summary Overview," p. 40.

²¹ Since the fall of the Morsi government in Egypt in July 2013, Qatar has been the main supplier of much of the imported diesel fuel. See Simon Henderson, "Natural Gas in the Palestinian Authority: The Potential of the Gaza Marine Offshore Field," *The German Marshall Fund of the United States*, March 2014, <http://www.washingtoninstitute.org/uploads/Documents/opeds/Henderson20140301-GermanMarshallFund.pdf>.

²² "Water and Energy Crisis in Gaza: Seeking a multi-stakeholder partnership for solutions," UNICEF, May 16, 2014, http://www.unicef.org/oPt/Outcome_document_on_Water_and_Energy_in_Gaza_-_16_May_2014.pdf.

²³ Ibid; Interview with Hani Jhosheh, the Jerusalem District Electricity Company, Jerusalem, June 24, 2014.

²⁴ Harriet Sherwood, "Gaza's only power plant destroyed in Israel's most intense air strike yet," *The Guardian*, July 29, 2014, www.theguardian.com/world/2014/jul/29/gaza-power-plant-destroyed-israeli-airstrike-100-palestinians-dead.

the supply of electricity is needed to safeguard water supplies as well. Currently, in the West Bank and in Gaza, combined water needs are estimated at roughly 400 million cubic meters (mcm), of which only 75 percent can be sourced without imports. Domestic supplies in Gaza are sourced mainly from unsustainable extraction from the existing aquifer while in the West Bank water comes from shared aquifers with Israel.²⁵ While the PA retains full control over civilian matters within Areas A and B, extraction of water from the joint Israeli-Palestinian aquifer requires cooperation between the parties in the Joint Water Committee, established in the Oslo II Accords, again limiting Palestinian discretion on domestic infrastructure. Due to both economic and rapid population growth water needs are expected to increase to 660 mcm in the Palestinian Territories combined, of which only an estimated 210 mcm can be supplied without additional investments.²⁶

Rooftops filled with water tanks in Ramallah, for example, give some indication of the reliability of the existing water supply, *quod non*. The lack of water security in turn has severe impacts on agricultural activities in the West Bank.²⁷ In Gaza, the existing aquifer is depleting, and its unsustainable usage has repercussions for water quality. According to the Office of the Quartet Representative (OQR), next to improving wastewater management and better recycling of water, there are limited options in the Gaza Strip to increase water supply, thus the OQR recommends both small- and large-scale desalination projects to fill the gap. While the technology is increasingly available and in fact several Israeli companies are world-class in terms of water desalination, producing freshwater requires substantial amounts of electricity, again highlighting the need for the parties to cooperate to extract natural gas offshore Gaza in order to secure access to electricity, and freshwater.

²⁵ For more on water sharing, and opportunities for resolution of water issues, see David B. Brooks and Julie Trottier, *An Agreement to Share Water Between Israelis and Palestinians: The FoEME Proposal*, EcoPeace/Friends of the Earth Middle East (March 2010), http://foeme.org/uploads/13411307571~%5E%5E~Water_Agreement_FINAL.pdf.

²⁶ Office of the Quartet Representative Tony Blair, "Initiative for the Palestinian Economy – Summary Overview," p. 54.

²⁷ For more analysis on this intertwinement of resource issues, see Philip Andrews-Speed, et al., *Want, Waste or War? The Global Resource Nexus and the Struggle for Land, Energy, Food, Water and Minerals* (Routledge, 2014).

PRIOR NEGOTIATIONS TO EXPLOIT GAZA MARINE

Since its discovery, the development of Gaza Marine has been controversial, with various options considered. In 1999, Israeli Prime Minister Ehud Barak did not challenge the PA's claim to the field, and the PA awarded a 25-year exploration license to the BG Group. In 2000, the Israeli Yam Thetis consortium petitioned Israel's High Court of Justice, requesting that BG be prohibited from drilling offshore Gaza. According to court documents, Yam Thetis claimed that the PA lacked the requisite jurisdiction to award BG drilling rights, as the PA was not the government of a sovereign state, and thus lacked rights over an exclusive economic zone.²⁸ Again in 2001, Houston-based Noble Energy and the Israeli-owned Delek Group, both partners in the Yam Thetis consortium, took BG to court to challenge the license. However, the court did not issue a verdict, as the government of Israel considered the license area "no-man's water" pending a final peace agreement, meaning that the court allowed Barak's decision to stand and the PA to award drilling rights.²⁹ The official Israel position, in other words, is that the gas is Palestinian, and open to licensing by the PA.

BG and the Israeli government engaged in a series of negotiations for the sale of part of the

natural gas—licensed by the PA—to Israel, the talks fell apart with the start of the Second Intifada. In 2004, BG announced its intention to pursue negotiations with Egypt to find alternative buyers for natural gas from Gaza Marine. BG looked to Egypt as an alternative buyer, unsurprising, given that it already operated one LNG terminal offshore Egypt. However, upon learning of BG's intentions, then-British Prime Minister Tony Blair reportedly intervened, and the following year, BG resumed negotiations with Israel.³⁰ At the time, one of the scenarios explored involved the construction of a pipeline from Gaza Marine that would land in the southern Israeli coastal city of Ashkelon, located a few kilometers north of the Gaza Strip. The deal never materialized, however, possibly owing to price disagreements. Behind the scenes talks between the parties continued, although Israel was concerned that funds might reach Hamas. After coming to power at the height of the Second Intifada, Prime Minister Ariel Sharon was especially alarmed by this possibility, though negotiations continued and, for a while, appeared promising. In late spring 2007, under Prime Minister Ehud Olmert, the parties came close to a deal³¹ under which Israel and BG, agreed to transport gas from Gaza Marine via an undersea pipeline to

²⁸ "Arafat says natural gas field great hope for Palestinian economy," *Associated Press*, September 27, 2000, www.thedossier.info/articles/ap_arafat-says-natural-gas-field-great-hope-for-palestinian-economy.pdf.

²⁹ Simon Henderson, "Natural Gas in the Palestinian Authority: The Potential of the Gaza Marine Offshore Field."

³⁰ Steve Hawkes and Sonia Verma, "BG Group at centre of \$4bn deal to supply Gaza gas to Israel," *The Times*, May 23, 2007 <http://www.thetimes.co.uk/tto/business/industries/naturalresources/article2180799.ece>.

³¹ Though security concerns regarding the potential for the transfer of funds to Hamas would continue to be discussed, in 2007, the cabinet did in fact vote, 21 to 3, to abrogate a clause that precluded the Israeli government from purchasing gas from the PA, thus paving the way for the parties to conclude the pending deal. Lior Baron, "Cabinet Oks Purchase of Palestinian Natural Gas," *Globes*, April 29, 2007, <http://www.globes.co.il/en/article-1000205985>.

Ashkelon.³² Shortly thereafter, in June, Hamas took control of the Gaza Strip in a violent coup, stoking fears in Israel—and perhaps in the PA—that revenues from Gaza Marine would flow to Hamas instead of to the PA.³³

In July 2007, Yam Thetis once again petitioned the Israeli High Court of Justice, this time seeking to bar the government from concluding the agreement with BG without a tender, on the grounds that this represented unfair competition. The Court ruled in favor of Yam Thetis's petition, and once again, talks between the Israeli government and BG came to a halt.³⁴ By December 2007, frustrated with the lack of progress in the negotiations with Israel and the violent upheaval in the Gaza Strip, BG withdrew from negotiations with the Israeli government, and the following year, closed its office in Israel.³⁵

In 2012, after both the Tamar field and the Leviathan field were discovered offshore Haifa and Israel's need for importing natural gas greatly diminished, BG reportedly was willing to sell its claim to Gaza Marine.³⁶ In 2013 however, the Israeli government supported development of Gaza Marine, as part of a \$4 billion plan proposed by U.S. Secretary of State John Kerry to revive the Palestinian economy. The administration believed that the project would help reduce Palestinian dependency on foreign aid, contribute to Israeli energy security, and help revive a moribund peace process.³⁷ Thus, the development of Gaza Marine was discussed actively while the peace negotiations in 2013-2014 were ongoing, but no agreement was reached before the talks collapsed in April 2014.

³² "Israel Could Buy Palestinian Gas," *BBC News*, May 23, 1997, <http://news.bbc.co.uk/2/hi/business/6682509.stm>.

³³ For instance, at the time then Deputy Prime Minister (and current Israeli Defense Minister) Moshe "Bogie" Yaalon was quoted saying: "Proceeds of a Palestinian gas sale to Israel would likely not trickle down to help an impoverished Palestinian public. . . Rather, based on Israel's past experience, the proceeds will likely serve to fund further terror attacks against Israel. Moshe Yaalon, "Does the Prospective Purchase of British Gas from Gaza Threaten Israel's National Security?" *Jerusalem Center for Public Affairs*, 7, no. 17 (October 19, 2007), <http://jcpa.org/article/does-the-prospective-purchase-of-british-gas-from-gaza-threaten-israel%E2%80%99s-national-security/>.

³⁴ Samantha Shalowitz, "Gaza's Offshore Gas Field Development Blocked by Israel," *Foundation for Middle East Peace*, July 2012, www.fmep.org/analysis/analysis/gazas-offshore-gas-field-development-blocked-by-israel.

³⁵ Lior Baron, "British Gas Explains Exit from Israel," *Globes*, January 17, 2008, <http://www.globes.co.il/en/article-1000299196>; BG Group, "Where We Work: Areas of Palestinian Authority," <http://www.bg-group.com/databook/2014/26/where-we-work/areas-of-pa/>.

³⁶ Eduard Gismatullin, "BG Said to Sell Gas Field After Israel Blocks Project," *Bloomberg News*, March 9, 2012, www.bloomberg.com/news/2012-03-09/bg-said-to-sell-gas-field-off-gaza-after-israel-blocks-project.html.

³⁷ John Reed and Guy Chazan, "Gaza Strip Gas Project Poised for Approval," *Financial Times*, October 9, 2013, <http://www.ft.com/intl/cms/s/0/13474ef2-3027-11e3-80a4-00144feab7de.html>; Michael R. Gordon and Jodi Rudoren, "Trying to Revive Mideast Talks, Kerry Pushes Investment Plan for Gaza," *The New York Times*, May 26, 2013.

BENEFITS AND CHALLENGES IN ADVANCING COOPERATION

For the Palestinians, the benefits of energy cooperation could be transformative. The exploitation of Gaza Marine alone would produce revenues of between \$2.5-7 billion,³⁸ a domestic fuel source for electricity generation, sufficient power for water desalination in the Gaza Strip as well as accelerate the development of agriculture, a staple of the local economy. Finally, the additional revenue and structural change in energy supply could alleviate or eliminate the chronic debt to the IEC and the threat of supply disruptions. Yet each of these opportunities comes with its own set of challenges.

With estimates of \$2.5 billion in total revenue for the PA, the costs of developing the requisite infrastructure to produce the gas appear worthwhile, economically. It is worth keeping in mind that those revenues heavily depend on the prices charged for natural gas. This in turn depends on a number of factors, including regional gas prices, and the willingness of the authorities to do without energy subsidies, a political instrument used widely in the region. Bringing Gaza Marine into production potentially could save the PA nearly \$560 million and allow for new investment in the energy sector.³⁹

Perhaps the greatest benefit of developing production from the Gaza Strip would be to provide the

PA greater security of supply. As noted, there has not been any oil or gas development in the Gaza Strip or the West Bank leaving large unmet energy demand in both areas. Energy shortages naturally affect the whole economy, hindering economic progress while imposing severe constraints on the daily lives of Palestinians. Furthermore, with new fuel sources, the Gaza Power Plant could be reconverted from diesel fuel to natural gas, increasing efficiency and reducing emissions. While the PPGC works on a new power plant in Jenin (and later Hebron),⁴⁰ bringing a new source of energy to the Palestinian Territories will allow for new infrastructure investments, again depending on Israeli cooperation.

The production of natural gas from Gaza Marine could also alleviate the critical shortage of fresh water in the Palestinian Territories, as discussed above. Infrastructure in both the Gaza Strip and the West Bank is woefully underdeveloped and, in the case of Gaza, has been repeatedly damaged by conflict. One consequence of this has been a surplus of wastewater due to the limited capacity of the treatment plants, and subsequently wastewater that contaminates both the Palestinian coast and the nearby Israeli one.⁴¹ The solution seems clear: Israel has already made headway in large scale desalination that has solved the country's longstanding

³⁸ Simon Henderson, "Natural Gas in the Palestinian Authority: The Potential of the Gaza Marine Offshore Field."

³⁹ "Palestine Investment Fund," Annual Report 2012, http://www.pif.ps/resources/file/annual_report/EnglishAnnualReport.pdf.

⁴⁰ Ibid.

⁴¹ Avi Bar Eli, "Israel's bridge to the Arab world: Palestinian natural gas?" *Haaretz*, November 21, 2014, <http://www.haaretz.com/business/.premium-1.627655>.

water shortage; therefore, applying similar technology in the Gaza Strip could do the same for the local population.

Water treatment plants and desalination plants are extremely energy intensive. The desalination plant in nearby Ashkelon, for example, utilizes a private power plant fueled with natural gas with a capacity of 80 MW, allowing the desalination plant to process nearly 120 billion liters of water.⁴² With sufficient and stable electricity, the PA could solve an acute shortage in the Gaza Strip while significantly increasing the quality of life for Palestinians, improving the conditions for agricultural activity, and bolstering the Palestinian economy as a whole.

Assuming a new source of revenue from hydrocarbon sales, the PA could also reduce or eliminate its significant debt from electricity usage. Part of this debt is directly owed to the IEC and part of it indirectly, through the Jerusalem District Electrical Company (JDECO).⁴³ This debt is due to a combination of electricity theft and severe underpayment (as well as outright refusal to pay for electricity).⁴⁴ Revenue collection is also hindered by the payment scheme: the JDECO, for example, is billed as a consumer of the IEC, rather than as a public supplier, affecting the timeframe of payments and the kinds of tariffs imposed.⁴⁵ As part of the Israeli system, consumers pay indirectly for Israeli systemic needs (such as promotion of green energy) rather than Palestinian ones, which are not part of the stated mission of the Israeli system and are therefore neglected. Palestinian customers are thus overcharged in their view. Strategic planning of supply or of pricing is naturally also difficult without a PA-wide system.

Promoting the independence of the Palestinian electrical system, the development of new infrastructure,⁴⁶ as well as production from Gaza Marine could help alleviate these debts and contribute to the construction of the Jenin and Hebron power plants in the West Bank. Abundance of supply could allow for national planning (that, if properly designed, might also help tackle underpayment) and in turn would foster the development of new infrastructure and new local industries. In the long term, it is quite practical to imagine Palestinians producing enough electricity to cover their own consumption (though logistically it may be “swapped” with Israeli electricity in different locations for efficiency), utilizing their own natural gas or its equivalent.

For Israel, development of an independent Palestinian energy capacity, including in particular, the development of the Gaza Marine field, could bring several important benefits. The financial and political stability of the PA are greatly in Israel’s interests. Even among Israeli officials who are mistrustful of the PA in Ramallah, a financial or political collapse of the PA is a grim prospect. Buttressing the Palestinian’s ability to develop their economy and living standards, would benefit Israel; in fact, for those Israelis opposed to a two-state solution, the well-being of the Palestinian population should be of greater interest, since they envision continued cohabitation within a single overarching political umbrella (whether bi-national or under Israeli control in some continuation of the status quo). Thus, even in times of tensions between the parties, Israel has worked behind the scenes diplomatically to assist the PA (in Ramallah) in securing aid.

⁴² See Israeli Ministry of Finance, “Ashkelon Desalination Facility,” <http://ppp.mof.gov.il/Mof/PPP/MofPPPTopNav/MofPPPProjects/PPPProjectsList/hatpala/HatpalaAshkelon/> (in Hebrew).

⁴³ Israeli law has been applied by Israel to East Jerusalem and the Jerusalem District Electrical Company (which is Palestinian-owned and operated) thus operates as an Israeli registered entity. It serves, in part, as a financial conduit for PA-registered sister companies in the West Bank.

⁴⁴ Interview with Hani Jhosheh, the Jerusalem District Electricity Company, Jerusalem, June 24, 2014.

⁴⁵ Ibid.

⁴⁶ In the spring of 2014 the OQR estimated that maintenance measures combined with adding additional turbines could increase the capacity of the Gaza power plant to 240 MW. Office of the Quartet Representative Tony Blair, “Initiative for the Palestinian Economy,” March 2014, p. 39, http://blair.3cdn.net/a0302ab9e588825b29_1bm6yhjay.pdf; Interview with Ariel M. Ezrahi, Infrastructure (Energy) Adviser, Office of the Quartet Representative Tony Blair, Tel Aviv, June 15, 2014.

Production from Gaza Marine would not significantly alter the supply of gas to Israel. There is more than enough gas to supply the state for domestic use for decades in the Leviathan and Tamar fields (assuming the former is developed in due time). However, development of Gaza Marine could help ease the diplomatic uneasiness of Israel's neighbors—including Jordan and Egypt—in dealing with Israel. With a Palestinian precedent, the public sensitivity to dealing with Israel could be reduced.⁴⁷

Gaza Marine, however, holds a significant advantage of not only being in fairly shallow waters but also being very close to Ashkelon, where infrastructure is readily available, offering a low-cost alternative source of gas for Israel's developing natural gas network. Currently, Israel's gas network suffers from a pressure imbalance, with an especially weak point at Mishor Rotem in the southern part of the network near the descent toward the Dead Sea, after which gas pressure rises again. Additional supply in the southern part of the network could thus save Israel considerable investment in infrastructure needed to divert gas southward and balance the network.⁴⁸

Moreover, the Israeli gas market suffers from an additional challenge: the concentration of supply in the hands of the Noble-Delek partnership, whose licenses to operate both Tamar and Leviathan constitute a clear monopoly in the market (anti-trust regulators have now declared the monopoly, and remedies are under debate, as we discuss in an accompanying report).⁴⁹ The risk, for Israel, is of monopolistic pricing and market power abuse, a concern that led some to support price controls—the Israeli government has since rejected this option—and regulation, which also carry economic

costs. As the Israeli government debates remedies to the monopolistic environment, it should encourage adding natural gas from an alternative supplier to the mix, Gaza Marine. Though modest in volume, this additional supplier would allow for some competition while reducing the risk of monopolistic pricing or other forms of market abuse.

Finally, production from Gaza Marine could also help accelerate the repayment of debts by the PA to the IEC. The IEC could produce electricity with the natural gas coming from Gaza Marine and send it to Gaza and the West Bank. Revenues could then be used to pay the outstanding debt. In the long term, the PA would produce its own electricity, although this option now appears distant.

Alongside the benefits of enhanced cooperation, a number of challenges, real and perceived, remain. First, the security concern with developing Gaza Marine is less significant than might be assumed. While the field is offshore Gaza, and the area is prone to conflict, earlier proposals negotiated between BG, the Israeli government, and the PA included underwater facilities with a direct pipeline to Ashkelon, where Israel already receives some of its gas. The waters off the Gaza shore are heavily guarded by the Israeli navy and Israeli officials are not overly concerned by the direct security aspects of the system.⁵⁰ Moreover, a militant attack on the newly built infrastructure to extract Palestinian natural gas would likely erode Palestinian support for the militants, and thus work out in favor of Israeli and PA interests.

A major concern from the Israeli perspective, however, is the possibility that some of the revenues following natural gas production may benefit Hamas. As discussed above, this concern hindered

⁴⁷ See, for example, Avi Bar Eli, "Israel's bridge to the Arab world: Palestinian natural gas?"

⁴⁸ Interview with Constantine Blyuz, Deputy Director for Economic & Strategic Issues at the Israeli Ministry of National Infrastructure, Energy and Water, Jerusalem, June 23, 2014.

⁴⁹ See Sachs and Boersma, *The Energy Island: Israel Deals with its Natural Gas Discoveries*.

⁵⁰ Interview with Dr. Gabi Golan, Deputy Cabinet Secretary and Advisor to the Prime Minister of the State of Israel for National Infrastructure, Jerusalem, June 16, 2014.

progress in the past. The main guarantee against such funding being transferred to Hamas would be an agreement between the PA in Ramallah and BG, using Israel—and the link in Ashkelon—as a conduit. The PA would then benefit from either electricity or revenue provided by the Israelis in exchange for the gas supplied by BG. In the context of a unity government between Fatah and Hamas—should it be revived—there remains a concern that the Israeli government will view any agreement with the PA as potentially benefitting Hamas and will act to prevent gas development. Verifiable assurances to the contrary by the PA, and perhaps a third party, would likely be necessary to assuage Israeli concerns. On the other hand, it is hard to imagine implementation of an Israeli-PA agreement without Hamas acquiescence, so long as it rules the Gaza Strip. Fatah-Hamas cooperation in this context may, in fact, be helpful for development.

Furthermore, there is a seemingly mundane obstacle: negotiations over pricing and securing a buyer for the gas. BG has viewed the IEC as the main potential buyer, probably in order to accommodate sensitivities in Israel, and also because financing operations in a Gaza Strip that is governed by Hamas is extremely unlikely (designated as a terrorist organization in the United States, for example, Hamas could not participate directly in financing and would have to relinquish control to a third party, such as an outside donor, something it is loath to do). While pricing is certainly important from the IEC's perspective—its mandate is strictly to provide the Israeli consumer with reliable and affordable electricity—the larger strategic and political considerations suggest that government and international intervention may be warranted to guarantee a price that would justify the development nonetheless.

CONCLUSION

The timing may seem ill-suited for promoting Palestinian-Israeli energy cooperation. Peace talks between the parties collapsed in April 2014 and hostilities caused both the tragic loss of life and extensive damage in the Gaza Strip the following summer. Yet, it is precisely at this moment that cooperation on civilian matters—particularly in those matters that have proven to be technically and economically solvable but politically stalled—is most needed. Israeli-Palestinian cooperation on energy is essential for the welfare of millions of Palestinians. Similarly, Israel has a vested interest in Palestinian development and, consequently, in Palestinian capacity for energy security and coherent planning of the Palestinian energy market, both of which require Palestinian access to stable and affordable electricity and water supply.

Developing Gaza Marine, in particular, offers a transformative opportunity in this regard. An abundant and secure supply of relatively clean energy would allow the PA to improve the economy and well-being of the inhabitants of the Gaza Strip dramatically while improving the outlook for millions more in the West Bank. Allowing for desalination of seawater could further transform a dire situation in the Gaza Strip, where water usage is unsustainable at the current pace and practice.

Other important measures could contribute greatly to the Palestinian energy market and to its ability to

repay its debts to the Israeli Electrical Corporation. In particular, allowing for a more unified and centralized Palestinian energy system, with a payment structure independent of the Israeli market, could allow for coherent planning and for more effective measures to combat underpayment for electricity consumption.

The obstacles for development of Gaza Marine appear daunting; the area is an intermittent war-zone and the Hamas government in the Gaza Strip in recent years has been shunned not only by Israel, but by much of the international community as well. The unity agreement announced by Hamas and Abbas's Fatah in April 2014 has since collapsed, but Israel-Ramallah cooperation still holds the keys to improving lives in Gaza.

The reality is that there are practical solutions for these issues. The direct sale of gas by BG (or another operator of Gaza Marine in case BG would sell the rights to develop the field at some point), through Israeli infrastructure just north of the Gaza Strip, licensed by the internationally recognized PA in Ramallah, offers a viable route to bring the gas field into production. Security concerns would be alleviated by the underwater piping to safer facilities in Israel. The technicalities, in other words, are solvable, and the economics make sense. All that is lacking now is sufficient political leadership.

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