



NAVAL POSTGRADUATE SCHOOL

MONTEREY, CALIFORNIA

THESIS

**THE IMPACT OF NATURAL GAS ON ISRAEL'S
ENERGY SECURITY STRATEGY**

by

Bethany J. Indahl

September 2021

Thesis Advisor:
Second Reader:

Emily L. Meierding
Robert E. Looney

Approved for public release. Distribution is unlimited.

THIS PAGE INTENTIONALLY LEFT BLANK

REPORT DOCUMENTATION PAGE			<i>Form Approved OMB No. 0704-0188</i>	
Public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instruction, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302, and to the Office of Management and Budget, Paperwork Reduction Project (0704-0188) Washington, DC 20503.				
1. AGENCY USE ONLY (Leave blank)	2. REPORT DATE September 2021	3. REPORT TYPE AND DATES COVERED Master's thesis		
4. TITLE AND SUBTITLE THE IMPACT OF NATURAL GAS ON ISRAEL'S ENERGY SECURITY STRATEGY			5. FUNDING NUMBERS	
6. AUTHOR(S) Bethany J. Indahl				
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) Naval Postgraduate School Monterey, CA 93943-5000			8. PERFORMING ORGANIZATION REPORT NUMBER	
9. SPONSORING / MONITORING AGENCY NAME(S) AND ADDRESS(ES) N/A			10. SPONSORING / MONITORING AGENCY REPORT NUMBER	
11. SUPPLEMENTARY NOTES The views expressed in this thesis are those of the author and do not reflect the official policy or position of the Department of Defense or the U.S. Government.				
12a. DISTRIBUTION / AVAILABILITY STATEMENT Approved for public release. Distribution is unlimited.			12b. DISTRIBUTION CODE A	
13. ABSTRACT (maximum 200 words) This thesis examines trends in Israel's energy security policies in response to its discovery of large offshore natural gas resources in 2009–2010. It evaluates Israel's use of energy diplomacy, selection of energy suppliers, and prioritization of energy infrastructure projects, and the potential impacts of greater energy abundance on these strategies. By comparing Israel's energy policies before and after 2013, the thesis finds that energy abundance led Israel to employ a more protectionist approach to its energy sourcing decisions and participation in the global energy market. Israel has used its natural gas resources as a mechanism to increase its self-reliance, reduce its imports, and twilight its legacy oil transit and refinery industry. Energy abundance also led Israel to pursue a more collaborative approach to its energy foreign relations, negotiations, and conflicts. Prior to 2013, Israel employed a more combative and integrationist approach, forcefully asserting its energy requirements and leveraging its oil industry to negotiate with great powers and fuel suppliers and promote its access to the global energy system. Since 2013, energy abundance has given Israel greater confidence in its status as a regional energy power and more incentive to work cooperatively with other aspiring regional energy suppliers such as Egypt and Cyprus as the most effective way to build a local gas market and promote the export of its offshore natural gas.				
14. SUBJECT TERMS Israel, energy, natural gas			15. NUMBER OF PAGES 131	
			16. PRICE CODE	
17. SECURITY CLASSIFICATION OF REPORT Unclassified	18. SECURITY CLASSIFICATION OF THIS PAGE Unclassified	19. SECURITY CLASSIFICATION OF ABSTRACT Unclassified	20. LIMITATION OF ABSTRACT UU	

THIS PAGE INTENTIONALLY LEFT BLANK

Approved for public release. Distribution is unlimited.

**THE IMPACT OF NATURAL GAS ON ISRAEL'S ENERGY SECURITY
STRATEGY**

Bethany J. Indahl
Lieutenant Commander, United States Navy
BA, Whitworth University, 2009

Submitted in partial fulfillment of the
requirements for the degree of

**MASTER OF ARTS IN SECURITY STUDIES
(MIDDLE EAST, SOUTH ASIA, SUB-SAHARAN AFRICA)**

from the

**NAVAL POSTGRADUATE SCHOOL
September 2021**

Approved by: Emily L. Meierding
Advisor

Robert E. Looney
Second Reader

Afshon P. Ostovar
Associate Chair for Research
Department of National Security Affairs

THIS PAGE INTENTIONALLY LEFT BLANK

ABSTRACT

This thesis examines trends in Israel's energy security policies in response to its discovery of large offshore natural gas resources in 2009–2010. It evaluates Israel's use of energy diplomacy, selection of energy suppliers, and prioritization of energy infrastructure projects, and the potential impacts of greater energy abundance on these strategies. By comparing Israel's energy policies before and after 2013, the thesis finds that energy abundance led Israel to employ a more protectionist approach to its energy sourcing decisions and participation in the global energy market. Israel has used its natural gas resources as a mechanism to increase its self-reliance, reduce its imports, and twilight its legacy oil transit and refinery industry. Energy abundance also led Israel to pursue a more collaborative approach to its energy foreign relations, negotiations, and conflicts. Prior to 2013, Israel employed a more combative and integrationist approach, forcefully asserting its energy requirements and leveraging its oil industry to negotiate with great powers and fuel suppliers and promote its access to the global energy system. Since 2013, energy abundance has given Israel greater confidence in its status as a regional energy power and more incentive to work cooperatively with other aspiring regional energy suppliers such as Egypt and Cyprus as the most effective way to build a local gas market and promote the export of its offshore natural gas.

THIS PAGE INTENTIONALLY LEFT BLANK

TABLE OF CONTENTS

I.	ISRAEL'S ENERGY SECURITY POLICIES	1
A.	MAJOR RESEARCH QUESTION.....	1
B.	SIGNIFICANCE OF THE RESEARCH QUESTION.....	2
C.	LITERATURE REVIEW	4
1.	Energy Dependence and Foreign Policy	4
2.	Energy Independence and Foreign Policy	12
D.	POTENTIAL EXPLANATIONS AND HYPOTHESES	17
E.	RESEARCH DESIGN	18
F.	THESIS OVERVIEW	20
II.	ISRAEL'S HISTORIC ENERGY SECURITY STRATEGY	21
A.	ENERGY DEVELOPMENT: 1910–1948.....	21
B.	AFTER INDEPENDENCE: 1949 - 1966.....	26
C.	PEAK ENERGY SECURITY: 1967–1978.....	33
D.	COLLAPSE AND RECOVERY: 1979–1991.....	37
E.	ENERGY PARTNERSHIPS: 1991–2012.....	40
III.	ISRAEL'S DOMESTIC NATURAL GAS DISCOVERIES.....	47
A.	ENERGY CHALLENGES AND ECONOMIC GROWTH	47
B.	FROM ENERGY SCARCITY TO ENERGY ABUNDANCE.....	47
C.	DOMESTIC RESPONSES	50
1.	Changing The Energy Mix.....	50
2.	Energy Policy Reforms	51
3.	Securing Gas Fields	55
D.	INTERNATIONAL RESPONSES	57
1.	Maritime Boundary Agreements	57
2.	Regional Energy Trade.....	62
IV.	ISRAEL'S ENERGY SECURITY POLICY RESPONSE.....	69
A.	RESEARCH FINDINGS.....	69
B.	RESEARCH ANALYSIS	72
1.	1948-2012: Combative-Integration.....	72
2.	Approach To The Global Energy Market	73
3.	Approach To Energy Foreign Relations	76
4.	2013-Today: Protectionist-Collaboration	78
C.	IMPLICATIONS	79
D.	TOPICS FOR FURTHER RESEARCH	82

LIST OF REFERENCES	85
INITIAL DISTRIBUTION LIST	109

LIST OF FIGURES

Figure 1.	Transnational Oil Pipeline Infrastructure, November 19, 1952.....	23
Figure 2.	Map of Energy Infrastructure in Israel.....	32
Figure 3.	Major Caspian Oil and Natural Gas Infrastructure	42
Figure 4.	2006 Russia-Turkey-Israel Pipeline Proposal.....	45
Figure 5.	Map of Israeli Oil and Natural Gas Fields	48
Figure 6.	2010 Cyprus-Israel Maritime Boundary	58
Figure 7.	2020 Eastern Mediterranean Natural Gas Fields	59
Figure 8.	Disputed Israel-Lebanon Maritime Boundary	60
Figure 9.	Israel Ministry of Energy Gas Export Options	65
Figure 10.	EuroAsia Interconnector	67

THIS PAGE INTENTIONALLY LEFT BLANK

LIST OF TABLES

Table 1.	Israeli Natural Gas Reserves	49
Table 2.	Comparison of Israel's Energy Security Strategies	70

THIS PAGE INTENTIONALLY LEFT BLANK

LIST OF ACRONYMS AND ABBREVIATIONS

AIOC	Anglo-Iranian Oil Company
ARAMCO	Arabian American Oil Company
BBL	barrels
BCM	billion cubic meters
B/D	barrels per day
BG	British Gas
BP	British Petroleum
BTC	Baku-Tbilisi-Ceyhan
CPC	Caspian Pipeline Consortium
CRL	Consolidated Refineries Ltd
E&P	exploration and production
EAPC	Eilat-Ashkelon Pipeline Company
EEZ	economic exclusion zones
EGAS	Egyptian Natural Gas Holding Company
GDP	gross domestic product
ICF	Israeli Citizens' Fund
IDF	Israeli Defense Forces
IEA	International Energy Agency
IEC	Israel Electric Corporation
IDF	Israel Defense Forces
IPC	Iraq Petroleum Company
LNG	liquified natural gas
NIOC	National Iranian Oil Company
OPEC	Organization of Petroleum Exporting Companies
ORL	Oil Refineries Limited
PA	Palestinian Authority
SOCONY	Standard Oil of New York
SPR	strategic petroleum reserve
TCF	trillion cubic feet
TIPLINE	Trans-Israel Pipeline

THIS PAGE INTENTIONALLY LEFT BLANK

EXECUTIVE SUMMARY

As states conduct exploration for hydrocarbon resources, nationalist behavior over contested energy resources can destabilize regional security conditions and negatively impact foreign relations. Since Israel discovered large offshore natural gas fields in 2009 and 2010, politicians and scholars have debated the significance of the offshore energy resources in the Levant region in shaping national interests, political alliances, and regional stability. Although natural gas exploration and production activity in the Eastern Mediterranean led to confrontational behavior between Turkey and Cyprus since 2011, less academic attention has been given to considering the impact of natural gas discoveries on the potential for conflict or cooperation between countries in the Levant region, particularly Israel's approach to energy security and energy foreign policy.

Building on a body of energy security research discussing the role of energy resources in shaping state behavior and foreign relations, the purpose of this thesis is to address the question: how have Israel's energy security strategies changed since discovering offshore natural gas? As the United States has continued to work in close partnership with Israel in areas of mutual interest, policymakers, diplomats, and military professionals working with Israel and with other countries in the Eastern Mediterranean region can benefit from the findings, analysis, and implications discussed in this thesis.

The scope of the research has included Israel's energy situation leading up to the creation of the Jewish state, Israel's historic responses to its energy scarcity and supply disruptions from 1948–2012, and Israel's domestic and international policy responses to energy abundance from 2013–2021. The thesis compared Israel's approach to energy security before and after 2013 to test two sets of hypotheses. The first set of hypotheses considered whether Israel's approach to the global energy market had become more protectionist or more integrationist. The second set of hypotheses considered whether Israel's approach to foreign energy relations has become more combative or collaborative.

The data sources used to conduct research include books, journal articles, energy and trade datasets and trend charts, government reports, and reports from domestic and

international energy organizations. Research on Israel's primary energy security strategies was compiled, organized, and analyzed to determine whether and how Israel's energy security strategies changed in response to greater energy abundance. The thesis found that since 2013, Israel has adopted a more protectionist approach to the global energy market and a more collaborative approach to its energy foreign relations.

From 1948–2012, Israel used a more combative approach to its energy foreign relations in response to its limited domestic oil production and unreliable foreign energy supply. As the Arab-Israeli conflict and anti-Zionist hostility prevented Israel from establishing energy ties with regional Arab oil producers, the Israeli government forcefully advocated with great powers to meet its energy demands. Israel also used an integrationist approach to promote its access to global sources of oil. Lacking experience with the global oil market, Israel prioritized its oil storage, transport, and refinery operations to attract and maintain ties with major oil suppliers. Israel also relied heavily on energy diplomacy and supported overseas pipeline projects to establish strategic energy partnerships.

Since 2013, Israel has shifted its energy security strategy to be more protectionist and collaborative, increasing its energy autonomy while also acting more cooperatively with neighboring states to promote the development of a regional gas market. Israel has placed greater value on protectionist isolationism, reducing its imports while also emphasizing the state's new status as a regional energy power. Greater energy abundance has allowed Israel to behave more collaboratively to achieve its natural gas ambitions while decreasing its reliance on its oil and coal suppliers. Despite volatile relations with Lebanon, Egypt, Jordan and the Palestinian territories, the Israeli political establishment together with Israel's private commercial interests have used its offshore natural gas resources to further regional energy collaboration.

There are four primary implications for this research to Israel's economy, security, regional stability, and the study of energy security. First, because Israel's protectionist approach has delayed a government windfall and led to higher natural gas prices for Israel's economy, Israel may adjust its sourcing decisions in the future to balance its economic interests. Second, Israel's tolerance level to respond to energy security threats against its domestic energy resources depends on the state's ability to find sufficient substitutes

following a loss of supply. Third, although Israel's collaborative behavior is most likely a response to energy abundance, its energy relations continue to be shaped by its internal politics and the politics of its regional energy partners. Lastly, although it is difficult to draw direct lines of causation between energy and foreign policy, the research findings suggest that energy abundance may encourage states to act less unilaterally interventionist and more congenially in foreign policy decisions.

Further research could build upon the findings of this thesis by exploring the potential emerging role of renewables and electricity in Israel's energy foreign policy relations with Egypt, Jordan, Lebanon, and the PA. It would be interesting to study Israel's energy security strategy after the completion of the EuroAsia Interconnector to see if there are changes to Israel's electricity policies toward its neighbors. Further research could also identify changes in Israel's energy vulnerabilities related to renewables and electricity.

THIS PAGE INTENTIONALLY LEFT BLANK

ACKNOWLEDGMENTS

Many thanks to my thesis advisors for their encouragement and support. Thanks to my parents and spouse for their faith in my abilities and endless supply of optimism. Also thank you to my classmates, professors, and Zoom developers who made my 2020–2021 graduate educational experience possible! Finally, a special thank you to new Monterey friends for making our time there unforgettable.

THIS PAGE INTENTIONALLY LEFT BLANK

I. ISRAEL'S ENERGY SECURITY POLICIES

A. MAJOR RESEARCH QUESTION

Since its founding in 1948, the state of Israel has suffered from energy scarcity and dependence on foreign oil. Former Israeli Prime Minister Golda Meir reportedly joked at a state dinner in 1973, that Moses “took us forty years through the desert in order to bring us to the one spot in the Middle East that has no oil.”¹ Israel’s domestic energy production prospects improved substantially in 2009 and 2010 when two offshore natural gas discoveries at the Leviathan and Tamar fields enabled Israel to transition from imported oil and coal-based electricity generation to domestically produced natural gas. By increasing the use of natural gas as the primary fuel source of the state’s electricity generation, Israel significantly decreased its reliance on imports.² Between 2003 and 2015, Israel reduced its net energy imports from over 96% of total energy use to 65%.³ Additionally, surplus domestic energy production enabled Israel to become a net exporter of natural gas beginning in 2017.⁴ Because Israel has historically been politically and economically isolated from oil-producing Arab neighbors, energy security has been a key factor in Israel’s domestic and foreign policy decision-making.⁵ However, its new energy abundance has the potential to impact the political, economic, and social dynamics of its approach. **This thesis will therefore address the following question: how have Israel’s energy security policies changed since its discovery of offshore natural gas?**

¹ “Mrs. Meir Says Moses Made Israel Oil-Poor,” *The New York Times*, June 11, 1973, sec. Archives, <https://www.nytimes.com/1973/06/11/archives/mrs-meir-says-moses-made-israel-oilpoor.html>.

² Michael Ratner and Jim Zanotti, “Antitrust Case Complicates Israel’s Energy Future,” IF10140 (Congressional Research Service, February 27, 2015), <https://congressional.proquest.com/congressional/docview/t21.d22.crs-2015-rsi-0146?accountid=12702>.

³ “Israel Net Energy Imports,” World Integrated Trade Solution, accessed August 12, 2021, <https://wits.worldbank.org/CountryProfile/en/Country/ISR/StartYear/1995/EndYear/2018/Indicator/EG-IMP-CONS-ZS>.

⁴ “Israel Commercial Guide - Energy,” International Trade Administration, September 13, 2020, <http://www.trade.gov/knowledge-product/israel-energy>.

⁵ Clifford Krauss, “Israel’s Energy Dilemma: More Natural Gas Than It Can Use or Export,” *The New York Times*, July 5, 2019, sec. Business, <https://www.nytimes.com/2019/07/05/business/energy-environment/israel-natural-gas-offshore.html>.

B. SIGNIFICANCE OF THE RESEARCH QUESTION

There is an on-going debate among academics, regional experts, politicians, and the media, regarding the impact of Eastern Mediterranean natural gas discoveries in shaping state behavior. While some regional politicians and media sources have lauded the significance of natural gas in coalescing new regional alliances, other academics and experts remain skeptical of the power of energy dynamics to influence state decision-making ahead of entrenched geopolitical interests. Multiple states, in addition to Israel, stand to benefit economically from natural gas discoveries, as energy producer, transit, and/or consumer states. Egypt's Zohr field discovered in 2015 and the Aphrodite (2011) and Calypso (2018) fields near Cyprus have provided potentially valuable opportunities for Eastern Mediterranean states to profit from natural gas exports to Europe, the greater Middle East, or Asia, due to the size of the reserves.⁶ While some regional commentators have been cautiously optimistic regarding the potential for recent natural gas discoveries to boost regional cooperation, others see energy resources as a threat to regional stability, as an unnecessary complication likely to exacerbate geopolitical tensions.⁷ Most industry experts conclude that prospects for Israel, Egypt, and other Eastern Mediterranean states to enjoy the benefits of domestically produced natural gas resources lie in their ability to navigate complex geopolitical and economic realities facing the region.

If natural gas resources are politicized, they have the potential to aggravate existing conflicts motivated by ideological, nationalist, or territorial disagreements, characteristic of the Middle East.⁸ Hostilities related to the Palestinian-Israeli conflict, anti-Zionist sentiments, and Islamic militancy are persistent threats to Israel's ability to integrate economically with hostile neighbors. Energy pipelines have provided a valuable target for

⁶ Nikos Tsafos, "What Does Calypso Mean for Cyprus and Eastern Mediterranean Gas?," Center for Strategic & International Studies, February 9, 2018, <https://www.csis.org/analysis/what-does-calypso-mean-cyprus-and-eastern-mediterranean-gas>.

⁷ Henri J Barkey and Ellen Laipson, "The Prospects for Conflict or Cooperation," The Cairo Review of Global Affairs, August 19, 2020, <https://www.thecaireview.com/essays/the-prospects-for-conflict-or-cooperation/>.

⁸ Gareth Jonas, "Conflict in the Eastern Mediterranean Is About Much More than Natural Gas" (Center for the National Interest, October 28, 2020), <https://nationalinterest.org/blog/buzz/conflict-eastern-mediterranean-about-much-more-natural-gas-171535>.

militants to disrupt energy supplies between Egypt, Israel and Jordan, as some local Egyptians view energy ties with Israel as theft of local resources, and/or a betrayal to the Palestinian cause.⁹ As Israel's energy deals have largely been made between governing elites, natural gas ties with Israel provoked Jordanian public protest and an attempt by the Jordanian parliament to block the purchase of Israeli natural gas.¹⁰ Most notably, the discovery of hydrocarbon resources in the Eastern Mediterranean has exacerbated disputes between some states with competing sovereignty claims, as seen by Turkey's use of naval escorts to protect its maritime boundary claims against rivals Greece and Cyprus, escalating tensions and the risk of confrontation.¹¹

This research is conducted in order to develop a better understanding how Israeli energy security dynamics could impact regional security concerns and threats to U.S. and allied interests in the Eastern Mediterranean region.¹² Academic discussion has often considered the economic hazards associated with oil abundance, characterized as a 'resource curse'; however less academic study has been devoted to the impact of energy abundance on a state's energy policies.¹³ With increasing numbers of countries becoming oil or natural gas producers and exporters, it is important to understand how these developments will affect their broader energy policies. The Israel case can therefore provide insights about how other new energy producers or exporters are likely to behave as they increase their energy production. Although some research suggests that oil-rich states may be more predisposed to initiate interstate conflict, other research has also shown that energy resources do not have a straightforward effect on state decision-making. Energy

⁹ Al Jazeera, "Gas Pipeline in Egypt's Sinai Attacked, Israel Imports Unaffected," February 3, 2020, <https://www.aljazeera.com/economy/2020/2/3/gas-pipeline-in-egypts-sinai-attacked-israel-imports-unaffected>.

¹⁰ Marta Vidal, "Jordanians Voice Concerns over Imports of Israeli Gas," *Al Jazeera*, January 30, 2020, <https://www.aljazeera.com/economy/2020/1/30/jordanians-voice-concerns-over-imports-of-israeli-gas>.

¹¹ "Angst in the Aegean - A Row between Turkey and Greece over Gas Is Raising Tension in the Eastern Mediterranean," *The Economist*, August 22, 2020, <https://www.economist.com/international/2020/08/20/a-row-between-turkey-and-greece-over-gas-is-raising-tension-in-the-eastern-mediterranean>.

¹² Ileana Ros-Lehtinen, "United States-Israel Strategic Partnership Act," II H.R.938 § 201 (2014), <https://www.congress.gov/bill/113th-congress/house-bill/938>.

¹³ Michael L. Ross, "The Political Economy of the Resource Curse," *World Politics* 51, no. 2 (January 1999): 306, <http://www.jstor.org/stable/25054077>.

dynamics tend to interact with social, political, and economic factors in unique ways which ultimately shape a state's security and foreign relations priorities, which is why analysis on the impact of energy developments on Israel is both timely and relevant.¹⁴

C. LITERATURE REVIEW

Research on the relationship between energy resources and international relations can be divided up into two main categories. The first section of the literature review covers the mainstream academic discourse on how changing levels of dependence on energy imports affects a state's foreign policy and how increased energy production affect domestic politics. The second section focuses more narrowly on literature discussing how increased energy independence has affected the foreign policy of Israel, states in the Eastern Mediterranean, and major natural gas producers.

1. Energy Dependence and Foreign Policy

a. *Rising Energy Dependence Constrains Foreign Policy*

A predominant body of literature has argued that rising dependence on energy imports has a constraining effect on a state's foreign policy. Scholarship and political rhetoric on energy security since the 1970s has largely emphasized how energy vulnerabilities limit a state's ability to exercise autonomous foreign policy. Western fears of dependence on Middle East oil largely materialized following the oil embargos of 1956, 1967, and 1973, after which scholars and politicians began viewing oil as a tool of political coercion. The perils of oil dependence became actualized in October 1973 when most Arab country members of the Organization of Petroleum Exporting Companies (OPEC) announced the incremental reduction of oil production until Israeli forces withdrew from Arab territory contested during the 1973 Arab-Israeli war.¹⁵ The potential use of energy exports to pressure the foreign policy of energy importers has acted as a powerful driver for energy dependent states to pursue ways to shield themselves against energy coercion.

¹⁴ Jeff D. Colgan, "Oil, Domestic Politics, and International Conflict," *Energy Research & Social Science* 1 (March 1, 2014): 198–99, <https://doi.org/10.1016/j.erss.2014.03.005>.

¹⁵ Fuad Itayim, "Strengths and Weaknesses of the Oil Weapon," *The Adelphi Papers* 15, no. 115 (August 1975): 3, <https://doi.org/10.1080/05679327508448393>.

As energy security has become a matter of national security, a large body of related literature has analyzed the best mechanisms for energy dependent states to achieve energy security from unintentional or unplanned disruptions of energy imports, including those caused by terrorist attacks, market or supply instability, and political backlash, in order to protect state's domestic stability.¹⁶ Some of the most common internal policy approaches to reduce dependence on foreign sources of energy are to increase domestic production, reduce consumption, promote substitution, and support research and development.¹⁷ Clean energy initiatives and energy mix transition have become increasingly popular in the Middle East, as states have looked to promote renewable energy and diversify their energy mixes by meeting energy demands outside fossil fuels.¹⁸

Several case studies have focused on how resource-poor or energy-dependent countries such as Japan, the United States, and China have pursued energy security. After Japan experienced negative growth rates following the 1973 and 1979 oil crises, it adopted policies to improve energy efficiency and increased consumption of liquified natural gas (LNG) and nuclear energy in order to reduce its demand for oil.¹⁹ Japan's share of oil in its total energy consumption declined from 72% in 1979 to 40% in 2010.²⁰ In 1975, Congress banned the export of American crude in an attempt to reduce U.S. dependence on foreign oil, and lifted the ban in 2015, after the shale revolution led to a surge in American oil and gas production.²¹ China became a net importer of oil in 1993, and since the 2003 Iraq war has focused on using the military to protect sea lines of communication,

¹⁶ Daniel Yergin, "Ensuring Energy Security," *Foreign Affairs* 85, no. 2 (2006): 69, <https://doi.org/10.2307/20031912>.

¹⁷ John S. Duffield, *Fuels Paradise: Seeking Energy Security in Europe, Japan, and the United States* (Baltimore: Johns Hopkins University Press, 2015), 34, <http://ebookcentral.proquest.com/lib/ebook-nps/detail.action?docID=3318890>.

¹⁸ Reuters, "Saudi Arabia, U.S. to Cooperate on Security of Global Energy Supply: Saudi Press," October 28, 2019, <https://www.reuters.com/article/us-saudi-nigeria-usa-idUSKBN1X724T>.

¹⁹ Vlado Vivoda, "Japan's Energy Security Predicament Post-Fukushima," *Energy Policy* 46 (July 2012): 135, <https://doi.org/10.1016/j.enpol.2012.03.044>.

²⁰ Vivoda, 135.

²¹ "America Lifts Its Ban on Oil Exports," *The Economist*, December 18, 2015, <https://www.economist.com/finance-and-economics/2015/12/18/america-lifts-its-ban-on-oil-exports>.

deepening diplomatic and economic interdependence with oil-rich states, acquiring oil through equity investment, and storing oil at overseas bases.²²

The term “energy diplomacy” has traditionally referred to the way that a state ensures sufficient access to fossil fuels by engaging other states diplomatically. Energy diplomacy has also been used to describe the behavior of major oil and gas producers and consumers that manage energy policy discourse and direct initiatives on energy security and cooperation.²³ Despite the best efforts of national governments, the complexity of global, domestic, and local energy dynamics exerts significant challenges on a state to make sure that the behavior of commercial energy actors aligns with a state’s definition of the national interest.²⁴

In her work on oil coercion, Rosemary Kelanic explained the different ways that import dependent states use anticipatory strategies to protect themselves. Since the risks of oil coercion became apparent in World War I, states have varied in their responses to potential risks, using three main strategies: domestic self-sufficiency, indirect control, and direct control.²⁵ For example, to counter the risk of a U.S. naval blockade on China’s maritime oil transport in times of war, China has employed an indirect control approach, by developing overland pipeline infrastructure to ensure it is able to meet its fuel requirements. In contrast, Great Britain took a direct control approach when it colluded with France and Israel to seize the Suez Canal out of fear that Egypt would close the canal to British oil imports.²⁶ Kelanic argued that the more a state is susceptible to military

²² Michal Meidan, “The Implications of China’s Energy-Import Boom,” *Survival* 56, no. 3 (May 4, 2014): 180–89, <https://doi.org/10.1080/00396338.2014.920147>.

²³ Anna Herranz-Surrallés, “An Emerging EU Energy Diplomacy? Discursive Shifts, Enduring Practices,” *Journal of European Public Policy* 23, no. 9 (October 20, 2016): 1400, <https://doi.org/10.1080/13501763.2015.1083044>.

²⁴ Andreas Goldthau, Wade Hoxtell, and Jan Martin Witte, “Global Energy Governance: The Way Forward,” in *Global Energy Governance: The New Rules of the Game*, ed. Andreas Goldthau and Jan Martin Witte (Berlin: Global Public Policy Institute, 2010), 342.

²⁵ Rosemary A. Kelanic, “The Petroleum Paradox: Oil, Coercive Vulnerability, and Great Power Behavior,” *Security Studies* 25, no. 2 (April 2, 2016): 182, <https://doi.org/10.1080/09636412.2016.1171966>.

²⁶ Kelanic, 182.

disruption and the deeper a state's petroleum deficit, the more likely the state will adopt an extreme anticipatory strategy.²⁷

This perspective—that dependence on energy imports is dangerous to national security—is consistent with broader realist international relations theories. Structural realist Kenneth Waltz argued that economic interdependence increases the likelihood of interstate conflicts and is a weaker force in shaping international politics than power dynamics.²⁸ In contrast, liberal international relations theorists assert that international trade encourages peaceful interstate relations. Norman Angell argued in 1911 that war was no longer economically expedient for European states, as the international financial system made trade more profitable than war.²⁹ Similar arguments were later made by authors such as Richard Rosecrance, Bruce Russett, John Oneal, and Stephen Brooks.³⁰ Some scholars have applied these arguments to energy policy, asserting that countries will trade for oil, rather than fight for it.³¹

Scholarship related to geoeconomics has also evaluated the role of energy requirements and resources in national and international decision-making.³² While there is no standard geoeconomics argument for the role of increasing energy independence in shaping policy, based on assumptions of neomercantilism, Sanjaya Baru asserted that countries with assured access to natural resources such as food and energy have an

²⁷ Kelanic, 183.

²⁸ Kenneth N. Waltz, "Structural Realism after the Cold War," *International Security* 25, no. 1 (2000): 14, <http://www.jstor.org/stable/2626772>.

²⁹ Norman Angell, *The Great Illusion: A Study of the Relation of Military Power to National Advantage*, Third (England: G. P. Putnam's Sons, 1911), vii–ix.

³⁰ Richard Rosecrance, *Rise of the Trading State: Commerce and Conquest in the Modern World* (New York: Basic Books, 1986); Russett and Oneal, *Triangulating Peace*; Stephen G. Brooks, *Producing Security: Multinational Corporations, Globalization, and the Changing Calculus of Conflict* (Princeton, New Jersey: Princeton University Press, 2005).

³¹ Carl Kaysen, "Is War Obsolete?," *International Security* 14, no. 4 (1990): 42–64, <https://doi.org/10.2307/2538750>; Emily Meierding, *The Oil Wars Myth: Petroleum and the Causes of International Conflict* (Cornell University Press, 2020).

³² Ionnīs Vidakis, Georgios Baltos, and Janis Balodis, "Geopolitics of Energy versus Geoenergy of Politics," *Sociālo Zinātņu Vēstnesis*, May 14, 2018, 40, <https://doi.org/10.5281/zenodo.1246786>.

advantage over those countries which are dependent on vital imports.³³ Similarly, Robert Looney highlighted the economic power of oil producers is partly shaped by its “hydrocarbon reserves, accumulated wealth, and the ability to extend this power through market manipulation and/or financial means.”³⁴ Additionally, the amount of economic leverage a state gains from an energy partnership can depend on the level of demand and supply vulnerability, and the salience of energy to a state’s relationship with partners.³⁵

b. *Rising Energy Independence Empowers Foreign Policy*

While most research on import dependence has suggested that rising energy imports can inhibit a state’s foreign policy options, less literature has evaluated how an increase in energy independence shapes foreign policy. Recent discussion on the impact of an increase in energy abundance has largely centered on the United States, which became a net exporter of fossil fuels in September 2019.³⁶ Llewelyn Hughes argued that the U.S. reduction in oil import dependence likely had an “important but conditional effect on the collective preferences of policymakers.”³⁷ Hughes argued that increased oil independence could reduce U.S. commitment to defending the security and stability of the global energy trade and diminish the value of the U.S. interventionist strategy in the Middle East.³⁸ However, oil abundance is unlikely to impact the decision-making of those legislators who do not consider import dependence on the international oil market to be an issue of concern.³⁹

³³ Sanjaya Baru, “Geo-Economics and Strategy,” *Survival* 54, no. 3 (June 2012): 54, <https://doi.org/10.1080/00396338.2012.690978>.

³⁴ Robert E Looney, “The New Geoeconomics of Energy,” in *Advances in Geoeconomics*, ed. J. Mark Munoz, 1st ed. (Routledge, 2016), <https://doi.org/10.4324/9781315669021>.

³⁵ Ahmed Mahdi, “Geoeconomic Leverage of Natural Gas Resources in the Mediterranean: The Case of Israel,” *Contemporary Arab Affairs* 12, no. 4 (December 1, 2019): 151–52, <https://doi.org/10.1525/caa.2019.12.4.141>.

³⁶ U.S. Energy Information Administration, “Despite the U.S. Becoming a Net Petroleum Exporter, Most Regions Are Still Net Importers,” U.S. Energy Information Administration, February 6, 2020, <https://www.eia.gov/todayinenergy/detail.php?id=42735>.

³⁷ Llewelyn Hughes, “The Limits of Energy Independence: Assessing the Implications of Oil Abundance for U.S. Foreign Policy,” *Energy Research & Social Science* 3 (September 2014): 56, <https://doi.org/10.1016/j.erss.2014.07.001>.

³⁸ Hughes, 57.

³⁹ Hughes, 62.

c. *Impact of Oil and Gas Production on Domestic Politics*

More literature has considered how increasing oil and gas production impacts the domestic politics of producer states. A well-documented, albeit surprising economic phenomenon related to resource abundance is the so-called ‘resource curse.’ In 1993, Richard Auty coined the term resource curse as a way to describe the need for resource-rich countries to diversify their economies in order to avoid damaging boom-and-bust cycles.⁴⁰ In the 1950s, economic development scholars had a more positive view of the benefits of abundant natural resources.⁴¹ However, an empirical study by Sachs and Warner found that countries which export a higher level of natural resource as a proportion of their GDP also commonly have lower rates of economic growth.⁴²

Given the negative impact that abundant natural resources can have on the economies of developing countries, a wide range of political scientists and economists have studied why states have struggled to mitigate the pitfalls of the resource curse. Research has suggested that high resource rents tend to encourage the consolidation of a strong centralized state, as resource-abundant states are less likely to ensure government decisions align with the needs of the population.⁴³ Petroleum resources can be particularly damaging to states in which oil is used as a tool to concentrate power, as the weakening of political accountability of elites can lead to bad policy decisions.⁴⁴ For example, hydrocarbon

⁴⁰ Ellie Perkins, “Book Review: Sustaining Development in Mineral Economies: The Resource Curse Thesis, by Richard M. Auty. London and New York: Routledge, 1993,” *Critical Sociology* 21, no. 1 (April 1, 1995): 158–59, <https://doi.org/10.1177/089692059502100114>.

⁴¹ Michael L. Ross, “The Political Economy of the Resource Curse; Reviewed Works: The Paradox of Plenty: Oil Booms and Petro-States by Terry Lynn Karl; Natural Resource Abundance and Economic Growth by Jeffrey D. Sachs, Andrew M. Warner; Winners and Losers: How Sectors Shape the Developmental Prospects of States by D. Michael Shafer,” *World Politics* 51, no. 2 (1999): 301, <http://www.jstor.org/stable/25054077>.

⁴² Jeffrey D. Sachs and Andrew M. Warner, “Natural Resource Abundance and Economic Growth” (National Bureau of Economic Research, December 1, 1995), <https://doi.org/10.3386/w5398>.

⁴³ Richard M. Auty and Alan H. Gelb, “Political Economy of Resource-Abundant States,” in *Resource Abundance and Economic Development*, ed. Richard M. Auty (Oxford: Oxford University Press, 2001), 126, <http://ebookcentral.proquest.com/lib/ebook-nps/detail.action?docID=3052798>.

⁴⁴ Barma, Naazneen, “Petroleum, Governance, and Fragility: The Micro-Politics of Petroleum in Postconflict States,” in *Beyond the Resource Curse*, ed. Brenda Shaffer and Ziyadov, Taleh (Philadelphia: University of Pennsylvania Press, 2012), 332, <http://ebookcentral.proquest.com/lib/ebook-nps/detail.action?docID=3442009>.

resources have been blamed for enabling Middle Eastern states to overuse external rent as the predominant form of income, leading to more corrupt and economically unproductive domestic economies. Autocratic rulers have managed a system of rent distribution which has perpetuated socio-economic inequalities and encouraged patron-client relations.⁴⁵

Statistical measurements of the financial impact of energy exports on state wealth have primarily focused on the risks of Dutch disease. Coined in 1977 by the *Economist* magazine, the term Dutch disease was used to describe the economic hardship the Netherlands suffered following the discovery of significant natural gas revenues in the 1960s.⁴⁶ In the 1980s, scholars evaluated the way that oil revenues enabled oil producing Gulf countries such as Saudi Arabia to subsidize industrial development, with the potential of benefitting indigenous manufacturers, instead of stifling manufacturing output.⁴⁷ Recognizing the risks of Dutch disease, some net energy export states have invested in sovereign wealth funds to target government spending and avoid a drastic inflow of foreign currency from gas exports which raises domestic prices and can cripple other competitive exports.⁴⁸

Scholars who view petroleum as a curse have emphasized the way that over time, oil producing Gulf states became increasingly dependent on the export of a single commodity for state revenue. For example, OPEC member states forced to alter their crude oil production and pricing in accordance with OPEC requirements over time became heavily reliant on export revenues. In OPEC economies, hydrocarbon revenues contributed to 75% of total exports and 35% of GDP in 2008.⁴⁹ In contrast, other scholars have observed that

⁴⁵ Sameena Hameed, "Political Economy of Rentierism in the Middle East and Disruptions from the Digital Space," *Contemporary Review of the Middle East* 7, no. 1 (March 1, 2020): 55, <https://doi.org/10.1177/2347798919889782>.

⁴⁶ The Economist, "The Dutch Disease," November 26, 1977, The Economist Historical Archive, 1843–2015, <http://link.gale.com/apps/doc/GP4100110906/ECON?u=navalps&sid=zotero&xid=eb03910f>.

⁴⁷ Robert E. Looney, "Oil Revenues and Viable Development: Impact of the Dutch Disease on Saudi Arabian Diversification Efforts," *American-Arab Affairs*, no. 27 (Winter 1989): 29, <http://hdl.handle.net/10945/40491>.

⁴⁸ Glenn Yago, "We Need to Rethink the Citizen Wealth Fund," The Jerusalem Post, September 9, 2020, <https://www.jpost.com/opinion/we-need-to-rethink-the-citizen-wealth-fund-opinion-641694>.

⁴⁹ Jude Chukwudi Dike, "Measuring the Security of Energy Exports Demand in OPEC Economies," *Energy Policy* 60 (September 1, 2013): 594, <https://doi.org/10.1016/j.enpol.2013.05.086>.

oil wealth has acted as a blessing for countries like Norway. Although Norway was one of Europe's poorest nations prior to 1969, oil served to jumpstart its economy, driving the state to become one of the most productive in the world, as the Norwegian government invested its oil profits in a manner which promoted long term economic growth.⁵⁰ The case of Norway demonstrated that the resource curse and Dutch disease are not inevitable, as these economic problems are more likely the result of ineffective management of energy resources.⁵¹

Resource curse scholars have also established a link between oil wealth and domestic conflict. In 2008, Michael Ross found that internal rebellion was twice as likely to occur in developing countries which produce oil than in non-oil producing states.⁵² Ross argued that oil producing states are more conflict prone because when oil wealth devastates a country's domestic political and economic system, insurgents are able to fund rebellions and socio-economic inequalities aggravate ethnic grievances, fueling separatism.⁵³ More recent analysis by Ross has clarified that the measurement of oil export dependence as an indicator of a country's energy resources is likely biased toward poorer, more conflict-prone countries, because impoverished countries are less likely to consume the fuel that they produce, increasing the rate of energy exports.⁵⁴

d. Impact of Oil and Gas Production on Foreign Policy

Another body of scholarship has evaluated the relationship between oil wealth, internal rebellion, and international aggression. Jeff Colgan theorized that oil wealth combined with revolutionary politics leads to an increased state propensity to initiate

⁵⁰ Ali Elwerfelli and James Benhin, "Oil a Blessing or Curse: A Comparative Assessment of Nigeria, Norway and the United Arab Emirates," *Theoretical Economics Letters* 08, no. 05 (2018): 1146–47, <https://doi.org/10.4236/tel.2018.85076>.

⁵¹ Erling Røed Larsen, "Escaping the Resource Curse and the Dutch Disease?," *American Journal of Economics & Sociology* 65, no. 3 (July 2006): 610, <https://doi.org/10.1111/j.1536-7150.2006.00476.x>.

⁵² Michael L. Ross, "Blood Barrels; Why Oil Wealth Fuels Conflict," *Foreign Affairs* 87, no. 3 (June 2008): 2.

⁵³ Ross, "Blood Barrels; Why Oil Wealth Fuels Conflict."

⁵⁴ Michael L. Ross, "What Have We Learned about the Resource Curse?," *Annual Review of Political Science* 18, no. 1 (2015): 242, <https://doi.org/10.1146/annurev-polisci-052213-040359>.

international conflict. Jeff Colgan argued that oil wealth can encourage aggressive state foreign policy as oil income amplifies revolutionary politics, increasing a leader's incentive to initiate interstate violence.⁵⁵ Colgan argued that petro-aggression was an important mechanism in Saddam Hussein's initiation of conflict in the Iran-Iraq War and invasion of Kuwait, and Libya's conflicts with Chad, Egypt, Tanzania, Israel, and the United States, among other examples.⁵⁶

2. Energy Independence and Foreign Policy

a. *Bilateral Israeli Energy Partnerships*

Scholarship on the role that an increase in energy independence will have on Israeli foreign policy has been limited. Regional news and commentaries have primarily focused on Israel's endeavor to establish energy-related partnerships and agreements with Egypt, Jordan, Palestine, Lebanon, Turkey, United Arab Emirates, Greece, and Cyprus. Israeli government and media reporting have largely emphasized the bright future of Israeli natural gas exports in the region. However, regional scholars have argued that the viability of Israeli natural gas exports will largely depend on the unique perceptions of individual state governments, as states tend to prioritize security over energy cooperation, and political considerations over commercial interests.⁵⁷ Although domestic politics, in the form of political opposition and public protest, have periodically disrupted Israeli energy partnerships, Israeli energy companies have continued to establish viable commercial ties. Despite the Jordanian House of Representatives' rejection of a 15-year energy deal of

⁵⁵ Jeff D. Colgan, *Petro-Aggression: When Oil Causes War* (New York: Cambridge University Press, 2013), 59, <http://ebookcentral.proquest.com/lib/ebook-nps/detail.action?docID=1113099>.

⁵⁶ Colgan, 260.

⁵⁷ Tolga Demiryol, "Between Security and Prosperity: Turkey and the Prospect of Energy Cooperation in the Eastern Mediterranean," *Turkish Studies* 20, no. 3 (May 27, 2019): 442–64, <https://doi.org/10.1080/14683849.2018.1534204>; Gareth M. Winrow, "The Anatomy of a Possible Pipeline: The Case of Turkey and Leviathan and Gas Politics in the Eastern Mediterranean," *Journal of Balkan and Near Eastern Studies* 18, no. 5 (September 2, 2016): 431–47, <https://doi.org/10.1080/19448953.2016.1196012>; Gürel and Le Cornu, "Can Gas Catalyse Peace in the Eastern Mediterranean?"; Andreas Stergiou, "Turkey–Cyprus–Israel Relations and the Cyprus Conflict," *Journal of Balkan and Near Eastern Studies* 18, no. 4 (July 3, 2016): 375–92, <https://doi.org/10.1080/19448953.2016.1195994>.

Israeli natural gas, Jordan's constitutional court ruled that the 2016 contract could not be cancelled by Parliament.⁵⁸

Reporting has also shown the limits of energy cooperation as a potential mechanism for alleviating Israel's conflict with Lebanon. Israeli media emphasized that maritime boundary discussions of contested waters between Lebanon and Israel to facilitate offshore energy exploration are not expected to reduce interstate tensions.⁵⁹ Regional analysis of the motivation behind Israel's September 2020 normalization agreement with the United Arab Emirates (UAE) has predominantly emphasized UAE's interest in political balancing against the Iranian threat network and Persian Gulf states' fatigue with the Palestinian cause.⁶⁰ However, Israel's normalization agreement with the UAE has also included energy as a component of growing UAE-Israel ties. In October 2020, the energy ministers of the UAE and Israel issued a joint statement encouraging greater coordination in the energy sector, to include renewable energy, oil, natural gas, and water desalination.⁶¹ Scholarship on the potential for Israeli energy partnerships has been mixed, highlighting both the possibilities and barriers to bilateral cooperation.

b. Eastern Mediterranean Regional Energy Cooperation

Regional commentators, news agencies, government officials, and academic scholars have debated the potential for Israel's natural gas discoveries to encourage greater regional trade and multilateral cooperation for the entire Eastern Mediterranean region. Initial assessments of Israel's 2009–2011 natural gas discoveries tended to be more optimistic about the potential for Israel to work with Turkey as a regional energy hub to

⁵⁸ Tzvi Joffe, "Jordan's Constitutional Court Rules Gas Deal with Israel Can't Be Ended," *The Jerusalem Post*, May 13, 2020, sec. Middle East, <https://www.jpost.com/middle-east/jordans-constitutional-court-rules-gas-deal-with-israel-cant-be-ended-627828>.

⁵⁹ Allen Baker, "Israel-Lebanon Maritime Boundary Negotiations - Some Unique Aspects," Jerusalem Center for Public Affairs, October 2020, <https://jcpa.org/article/israel-lebanon-maritime-boundary-negotiations-to-begin/>.

⁶⁰ Mohammad Al-Kassim, "UAE-Israel Deal Changes the Players in the Middle East Energy Game," *The Jerusalem Post*, September 26, 2020, sec. Middle East, <https://www.jpost.com/metro/uae-israel-deal-changes-the-players-in-the-middle-east-energy-game-643625>.

⁶¹ "UAE, U.S. and Israel to Establish 'Energy Partnership,'" *The Arab Weekly*, February 10, 2020, <https://the arabweekly.com/uae-us-and-israel-establish-energy-partnership>.

export natural gas to Europe.⁶² Although Turkish-Israeli diplomatic relations had suffered after the 2008–2009 Gaza offensive and the 2010 *Mavi Marmara* incident, two months after Israeli Prime Minister Netanyahu apologized to Turkish Prime Minister Erdogan, Turkish President Abdullah Gül, declared in May 2013 that Turkey was ready to contribute to an energy project, and Turkish conglomerate Zorlu Group lobbied Israel to lay an undersea pipeline from Leviathan to Turkey’s southern coast.⁶³

Scholarship has since become more pessimistic regarding the potential for Israeli natural gas initiatives to act as a bridge for regional cooperation. Brenda Shaffer argued that the insufficient size of the natural gas reserves, deep-rooted political conflicts, and lack of precedent for energy trade provide insufficient motivation for peace deals for states already in conflict.⁶⁴ Proponents of the feasibility of greater Israeli integration and regional energy cooperation have lauded the potential benefits of the newly created East Mediterranean Gas Forum (EMGF).⁶⁵ Although Israeli officials have emphasized the potential for Israeli natural gas to foster regional partnerships, the decision to exclude Turkey from EMGF, has been seen as a sign that geopolitical concerns still dominate state decision-making.⁶⁶ Regional commentators have argued that Turkey’s decision to seek a maritime deal with Libya’s Government of National Accord to delineate maritime boundaries likely exacerbated the alignment of Egypt, Greece, and Cyprus against Turkish

⁶² Winrow, “The Anatomy of a Possible Pipeline”; Dan Arbell, “The U.S.-Turkey-Israel Triangle,” Analysis Paper (Center for Middle East Policy, October 2014), <https://www.brookings.edu/wp-content/uploads/2016/06/USTurkeyIsrael-TriangleFINAL.pdf>.

⁶³ Ariel Ben Solomon, “‘Turkey Closer to Energy Agreement with Israel,’” *The Jerusalem Post*, May 13, 2013, <https://www.jpost.com/international/report-turkey-close-to-agreement-on-gas-with-israel-312970>; Itai Trilnick and Avi Bar-Eli, “Turkish Company Lobbying Israel for Gas Exports to Turkey,” *Haaretz*, February 14, 2013, <https://www.haaretz.com/israel-news/business/.premium-turkish-company-lobbying-for-israeli-gas-1.5229773>; Ron Friedman, “Israel, Turkey to Normalize Ties, after PM Apologizes for Flotilla Deaths,” *The Times of Israel*, March 22, 2013, <http://www.timesofisrael.com/obama-applauds-call-between-israeli-turkish-prime-ministers/>.

⁶⁴ Brenda Shaffer, “Can New Energy Supplies Bring Peace?,” The German Marshall Fund of the United States, Eastern Mediterranean Energy Project Policy Brief, March 2014, 1–2.

⁶⁵ Lahav Harkov, “New Mediterranean Energy Forum Launched with Israel as Member. Forum Includes Egypt, Israel, Greece, Cyprus, Jordan, the PA and Italy,” *Jerusalem Post*, September 23, 2020, <http://libproxy.nps.edu/login?url=https://www.proquest.com/docview/2447270188?accountid=12702>.

⁶⁶ Sue Surkes, “Mistake to Leave Turkey out of New East Med Gas Club – International Expert,” accessed October 29, 2020, <https://www.timesofisrael.com/mistake-to-leave-turkey-out-of-new-east-med-gas-club-international-expert/>.

interests.⁶⁷ Hard-line pessimists have argued that because natural gas resources are so contentious, states should suspend hydrocarbon exploitation in the Eastern Mediterranean completely to eliminate the risk of an energy conflict.⁶⁸

Yet, the commercial prospects of Eastern Mediterranean natural gas have also caught the attention of foreign oil companies, anticipating increased energy cooperation across the region, due to the potential prospects of both regional and global natural gas exports. In 2017, the European Commission highlighted the Eastern Mediterranean as a potential source of gas supply for the European Union (EU).⁶⁹ Discussion regarding the construction of an ambitious Eastern Mediterranean pipeline largely focused on the European need to reduce dependency on Russian natural gas.⁷⁰ However, other regional energy experts have argued that an Eastern Mediterranean pipeline to Europe is unlikely to be built, because European demand for natural gas is expected to decline over the next few years in favor of renewable energy.⁷¹ Previous attempts at establishing a framework for Mediterranean economic cooperation have been limited, as talks to create a political-economic framework for European Union and Mediterranean countries in 1991 and 1995 failed.⁷² Europe has previously been uninterested in regional energy cooperation with Eastern Mediterranean states, and it was only under pressure from Greece, Cyprus, and Italy that the EU agreed to investigate the feasibility of a maritime gas pipeline.⁷³

⁶⁷ Ariel Cohen, "Turkey-Libya Maritime Deal Upsets Mediterranean Energy Plan," *Forbes*, January 8, 2020, <https://www.forbes.com/sites/arielcohen/2020/01/08/turkey-libya-maritime-deal-upsets-mediterranean-energy-plan/>.

⁶⁸ Paul Hokenos, "No Gas, No War Between Turkey, Greece, and Cyprus in the Mediterranean," accessed October 28, 2020, <https://foreignpolicy.com/2020/09/10/turkey-greece-cyprus-no-gas-no-war-in-the-mediterranean/>.

⁶⁹ Barkey and Laipson, "The Prospects for Conflict or Cooperation."

⁷⁰ Isabella Ruble, "European Union Energy Supply Security: The Benefits of Natural Gas Imports from the Eastern Mediterranean," *Energy Policy* 105 (June 1, 2017): 341–53, <https://doi.org/10.1016/j.enpol.2017.03.010>.

⁷¹ Surkes, "Mistake to Leave Turkey out of New East Med Gas Club – International Expert."

⁷² Oded Eran, "Natural Gas in the Eastern Mediterranean: Will Economic Wisdom Prevail?" (Institute for National Security Studies, 2019), <http://www.jstor.org/stable/resrep19418>.

⁷³ Eran, 2.

c. *Theoretical Insights from Major Energy Producers*

In the early 2000s, reducing U.S. dependence on Middle East oil became a central theme in the Bush administration's energy policy, due to concerns about the market power of Middle East oil exporters to control pricing, and macroeconomic disruptions which can arise from oil price instability.⁷⁴ Scholars also detailed the high financial cost of oil dependence, in terms of wealth transfer, dislocation losses, and the loss of GDP.⁷⁵ In 2006, President Bush announced the goal of achieving U.S. energy independence by replacing 75% of the oil imports from the Middle East by 2025.⁷⁶ Later scholarship in 2013, highlighted the negative impact of energy scarcity on international relations and global stability. John Greer argued that decline in global petroleum resources would inevitably result in economic contraction, social instability, technological regress, and major social ruptures.⁷⁷

Despite the large body of literature on the woes of energy scarcity, very little literature has conceptualized the impact of energy abundance on a state's domestic politics, economy, and foreign policy decisions. In this research, energy independence does not refer to energy isolation, as scholars have found energy isolation to be economically undesirable, and realistically impossible. For this thesis, Israel achieved greater energy independence when large offshore natural gas discoveries enabled the state to domestically produce more than its annual consumption requirements, allowing the state to become a net exporter of natural gas.⁷⁸ Theoretically, wealthy natural gas producers like the United States, Qatar, and Norway, which have gained economic strength through increased natural

⁷⁴ Michael A. Toman, "International Oil Security: Problems and Policies," *Brookings*, March 1, 2002, <https://www.brookings.edu/articles/international-oil-security-problems-and-policies/>.

⁷⁵ David L. Greene, "Measuring Energy Security: Can the United States Achieve Oil Independence?," *Energy Policy*, Energy Security - Concepts and Indicators with regular papers, 38, no. 4 (April 1, 2010): 1617, <https://doi.org/10.1016/j.enpol.2009.01.041>.

⁷⁶ Benjamin K. Sovacool, "Solving the Oil Independence Problem: Is It Possible?," *Energy Policy* 35, no. 11 (November 1, 2007): 5506, <https://doi.org/10.1016/j.enpol.2007.06.002>.

⁷⁷ John Michael Greer, *Not the Future We Ordered: Peak Oil, Psychology, and the Myth of Progress* (London: Taylor & Francis Group, 2013), 121, <http://ebookcentral.proquest.com/lib/ebook-nps/detail.action?docID=1120673>.

⁷⁸ Meghan O'Sullivan, *Windfall: How the New Energy Abundance Upends Global Politics and Strengthens America's Power* (New York: Simon & Schuster, 2017), 93.

gas revenue and global influence, have enjoyed greater autonomy in foreign policy decisions. However, no study has done a comprehensive review of how an increase in energy independence has shaped the energy security and foreign policy decisions of major oil and gas producers.

D. POTENTIAL EXPLANATIONS AND HYPOTHESES

The literature review considered the potential constraints that dependence on foreign energy imports can place on a state's foreign policy decision-making, as well as the ways states respond to potential energy vulnerabilities. The literature review also discussed the role of energy trade in increasing risks of interstate conflict or promoting greater cooperation and peaceful foreign relations. Mindful of these approaches, this thesis identifies two hypotheses about how increasing levels of energy independence affect a state's engagement in the international energy market and a state's relationship with other energy producing or energy consuming states.

The first hypothesis considers whether increased energy independence led Israel to adopt a more protectionist or integrationist response, pushing the state to remove itself or deepen its involvement in the global energy system. As previous authors have argued, when states are less dependent on energy imports, they have less need to establish or maintain connections with energy-producing states or to assert influence internationally to protect reliable access to energy resources. As a result, states which become more energy independent may prefer to reduce their participation or engagement in the global energy market. In contrast, energy abundance could have the opposite effect, encouraging states to seek greater interdependence with global energy partners. In the case of Israel, this "integrationist" response would predict that energy abundance would push Israel to increase its interdependence within the global energy system, as the state has less to fear from potential supply disruption from foreign suppliers.

The second hypothesis considers whether increased domestic energy production would encourage states to behave more combatively or collaboratively with other states, in terms of trade agreements and the management of energy resources in contested territory or competitive environments. As previous authors have suggested, as oil wealth can

facilitate a consolidation of power, energy abundance could encourage more aggressive behavior towards other states. The underlying logic for this response is that when energy-rich states are more secure, they can act more confrontational or assertive in the pursuit of their national interests. This hypothesis is also based on the observation that political elites may be emboldened from the economic benefits of energy abundance to act less amicably with other states. A more conflictual energy policy could also involve the securitization or politicization of energy resources, whereby elites use energy as a political weapon, or frame energy issues in terms of existential threats with strong security rhetoric. In contrast, an increase in energy independence—or a shift towards energy exporter status—could prompt states to become more collaborative as they have much to gain through international cooperation. The economic benefits of energy partnerships could also have positive political effects. In the case of Israel, this “collaborative” response predicts that energy abundance would inspire the state to demonstrate a greater commitment to joint energy production projects, promotion of increased inter-state energy-related ingenuity and communication, and more congenial behavior in addressing and resolving energy disputes.

E. RESEARCH DESIGN

This study first discusses how Israel’s energy situation developed leading up to the creation of the Jewish state. Next, it examines the evolution of Israel’s energy security policies, including its international energy partnerships, from the state’s war of independence in 1948 to today. Lastly, this study evaluates whether and how Israel’s energy strategy has changed since Israel’s natural gas discoveries. A fundamental hurdle in this study is how to delineate clear lines of impact between energy developments and policy decisions. Economic, cultural, and socio-political factors all have the capacity to influence state decision-making. For this research, the thesis’ primary task is to isolate the specific roles of energy resources.

To accomplish this, the thesis conducts a within-case comparison of Israel’s energy security strategy before and after the introduction of natural gas as a substantial component of Israel’s energy mix. It uses the year 2013 as its temporal breakpoint. Israel’s first natural gas discovery was in 1999. However, the state’s discovery and development of offshore

natural gas resources progressed gradually over several years, only revealing its significance January 2009, with the discovery of the Tamar gas field.⁷⁹ Even after this discovery, it took several more years for natural gas to become a major component of Israel's energy security mix. Between 2012 and 2013, Israel's natural gas consumption increased by 170%, replacing oil and coal consumption.⁸⁰

The study's independent variable is Israel's level of domestic energy production. The dependent variable is Israel's energy security policy. The term "energy security policy" refers to a state's engagement with international energy producers, consumers, and transit countries. It includes energy negotiations and agreements with other state actors and international energy companies. It also includes domestic politics and regulations related to international energy trade and investments.

The thesis uses its within case comparison to test two sets of hypotheses: that increasing energy abundance has encouraged Israel to adopt a more protectionist or integrationist response to the global energy system, and a more combative or cooperative relationship with other states. Its data sources include books, journal articles, news articles, energy and trade related datasets and trend charts, government reports, and the published reports of domestic and international energy organizations.

To test the first set of hypotheses, the research will look for evidence that Israel's relationship with the global energy system has become either more protectionist or more integrationist since discovering national gas resources. A protectionist response will be evaluated in terms of the state's orientation and preferred level of connection to the global energy system. Specific indicators include reduced engagement with major energy producing states, initiatives to decrease reliance on external sources of energy, state-led energy reforms and regulations intended to promote domestic energy production to maximize national profits and the economic welfare of Israel, a heightened security focus on the defense of domestic energy resources, and a preference for the domestic energy industry over energy imports. An integrationist response can be divided up in terms of a

⁷⁹ McCulley, "Tamar a Triumph for Both Noble and Israel."

⁸⁰ Ratner and Zanotti, "Antitrust Case Complicates Israel's Energy Future."

state's relationship to international energy companies, government initiatives to establish or preserve connections with major energy producing states, and the primary mechanisms for the government to secure reliable access to energy resources. Specific indicators include deepening energy interdependence with energy suppliers, promoting energy infrastructure projects to promote participation in the global energy system, and securing energy access by aligning its energy interests with the interests of major energy producers and great powers.

To test the second set of hypotheses, the research will characterize the combative or collaborative nature of Israel's energy security policies prior to 2012, and after 2013. A combative response will be evaluated in terms of the governmental approach to energy foreign relations, negotiations, and disputes. Specific combative indicators could include forceful political maneuvering or aggressive diplomacy to secure energy interests, seizure and exploitation of contested energy resources, or adversarial energy activities conducted at the expense of other states or regardless of the impact or reaction of other states. A cooperative response can be evaluated based on the nature of bilateral negotiations, the terms of import and export deals, and the criteria for selection of international energy partnerships. Specific indicators of a cooperative response include state-led initiatives to create a legal framework to facilitate fair and equitable energy negotiations, interest in mutually beneficial trade agreements, and encouraging multilateral ownership and development of state energy resources.

F. THESIS OVERVIEW

The rest of the thesis is divided into three chapters. Chapter Two examines Israel's energy development from 1910–1948 and Israel's energy security policies from 1948–2012. Chapter Three will discuss Israel's energy security policies since 2013. Chapter Four will evaluate the evidence, identify any shifts in Israel energy security strategy, and discuss implications to the research findings related to Israel's economy, security, regional stability, and the broader field of energy security studies. The thesis will conclude with suggestions for further research.

II. ISRAEL'S HISTORIC ENERGY SECURITY STRATEGY

A. ENERGY DEVELOPMENT: 1910–1948

Israel's early energy situation was established by the activities of the first Western energy companies who conducted exploration and production (E&P) activities in the region after a British oil company discovered oil in Persia in 1908. During the early 1900s, British, European, and American firms negotiated concessions with the Ottoman Empire for the exploration, production, and distribution of crude oil in the Middle East region. While British and European companies focused its E&P operations in Iraq and Persia, the American company Standard Oil of New York (SOCONY) initially focused its efforts on Palestine. SOCONY hoped to find commercial-level quantities of crude oil in Palestine, having already established a distribution network throughout the Ottoman Empire.⁸¹

Despite SOCONY's early endeavors in Palestine, war impeded its discovery of oil. Palestine, which at the time was ruled by the Ottomans, was initially believed to have considerable oil prospects due to reports of asphalts, bitumen, and oil seepages in the Dead Sea, northern Jordan Valley, and Yarmouk River regions.⁸² In 1910, a local mining company was awarded exploration licenses in the Dead Sea and Yamouk River region and drilled an unsuccessful well in present-day Syrian territory.⁸³ In 1913, SOCONY obtained exploration licenses in the Negev region, and prepared to drill its first oil well.⁸⁴ However, the outbreak of World War I prevent SOCONY drilling, as the company was forced to abandon its operations and Ottoman and British authorities seized control of the drilling equipment, pipes, and trucks SOCONY left behind.⁸⁵

⁸¹ Michael Quentin Morton, "The Land That Oil Forgot: Palestine, 1913–1948," *GEO ExPro* 17, no. 1 (May 5, 2020), <http://www.geoexpro.com/articles/2020/05/the-land-that-oil-forgot-palestine-1913-1948>.

⁸² Morton.

⁸³ "History of Oil & Gas Exploration in Israel - 1900 to 2004," Report for Zion Oil & Gas, Inc, U.S. Securities and Exchange Commission, accessed February 5, 2021, <https://www.sec.gov/Archives/edgar/data/1131312/000113131206000077/history.htm>.

⁸⁴ Security and Exchange Commission,

⁸⁵ Morton, "The Land That Oil Forgot."

Political instability after the fall of the Ottoman Empire and the establishment of the British Mandate for Palestine also delayed oil prospecting activities, as American-owned SOCONY had to reassert its claim to oil concessions in Palestine, as the British authorities allegedly impeded SOCONY's legitimate access.⁸⁶ Although SOCONY was allowed to complete its survey work in 1922, SOCONY ended its exploratory work in Palestine after surveys indicated the prospect for discovering oil in commercial quantities was slim.⁸⁷ SOCONY shifted its focus to Iraq in 1928, when American firms were invited to join the Iraq Petroleum Company (IPC), a consortium of companies developing Iraqi oil.⁸⁸ Although SOCONY continued to distribute fuel, SOCONY did not renew oil production efforts in Palestine. Ultimately, Western interest in capitalizing on the discovery of oil in Iraq ended the earliest E&P activities in Palestine.

In the 1930s, foreign oil companies began building oil infrastructure in Palestine to facilitate the transport of Iraqi and Saudi Arabian crude oil to the Mediterranean Sea for export.⁸⁹ In 1934, the IPC completed a pipeline from Kirkuk to Haifa, where the British had constructed a deep-sea harbor.⁹⁰ Additionally, the British-owned Anglo-Iranian Oil Company (AIOC) built an oil refinery complex in Haifa as a joint venture with Shell.⁹¹ The complex, called Consolidated Refineries Ltd (CRL) began operations in 1939.⁹² Haifa subsequently served as an important refueling location for British warships during World War

⁸⁶ William Stivers, "International Politics and Iraqi Oil, 1918–1928: A Study in Anglo-American Diplomacy," *The Business History Review* 55, no. 4 (1981): 518, <https://doi.org/10.2307/3114774>.

⁸⁷ Uri Bialer, "Fuel — Supply and Demand in Mandatory Palestine," in *Oil and the Arab-Israeli Conflict, 1948–63*, St Antony's Series (London: Palgrave Macmillan UK, 1999), 10, https://doi.org/10.1057/9780230377745_2.

⁸⁸ Morton, "The Land That Oil Forgot."

⁸⁹ Gawdat Bahgat, "Energy Partnership: Israel and the Persian Gulf," *Energy Policy* 33, no. 5 (March 1, 2005): 675, <https://doi.org/10.1016/j.enpol.2003.09.012>.

⁹⁰ *Commentary Magazine*, "Oil, Palestine, and the Powers: The Struggle for Strategic Resources in the Middle East," May 1, 1947, <https://www.commentarymagazine.com/articles/commentary-bk/oil-palestine-and-the-powers-the-struggle-for-strategic-resources-in-the-middle-east/>.

⁹¹ United Nations Conciliation Commission for Palestine, "The Haifa Refinery" (United Nations Conciliation Commission for Palestine, August 23, 1949), <https://www.un.org/unispal/document/auto-insert-210673/>.

⁹² *Jewish Telegraphic Agency* "\$20,000,000 Refinery Under Construction in Haifa," March 21, 1939, <https://www.jta.org/1939/03/21/archive/20000000-refinery-under-construction-in-haifa>.

II, leading Italian, German, and Vichy French aircraft to target the CRL from 1940–1942.⁹³ In 1944, the Arabian-American Oil Company (ARAMCO) considered building its Trans-Arabian Pipeline from Saudi Arabia to Haifa; however in the end ARAMCO bypassed British-controlled territory and built the pipeline to Sidon, Lebanon.⁹⁴ See map of the pipelines Kirkuk-Haifa (highlighted yellow), Kirkuk-Banias (highlighted green), and Dhahran-Sidon (highlighted blue) in Figure 1.

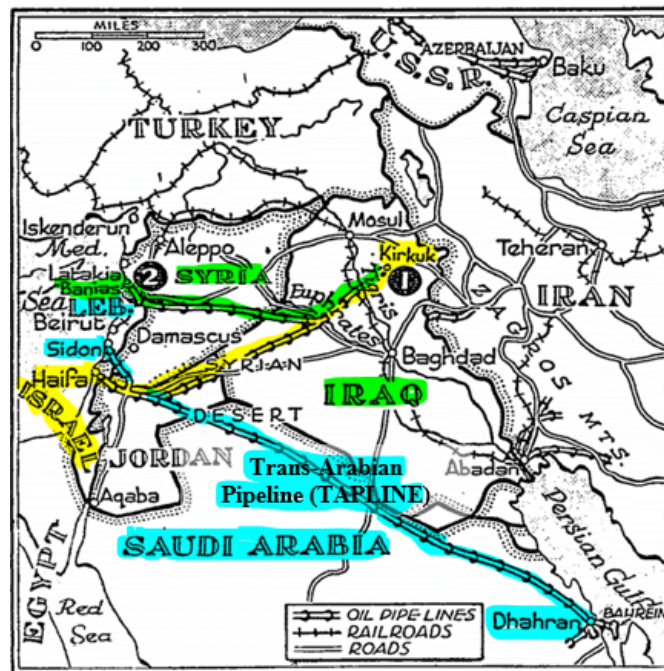


Figure 1. Transnational Oil Pipeline Infrastructure, November 19, 1952⁹⁵

Apart from the salaries of oil refinery workers in Haifa, the foreign-owned oil pipelines and refinery operations in Palestine were developed independently of the domestic economy and provided limited financial benefits to the local population. When foreign oil

⁹³ Nir Arieli, “‘Haifa Is Still Burning’: Italian, German and French Air Raids on Palestine during the Second World War,” *Middle Eastern Studies* 46, no. 3 (2010): 342, <https://www.jstor.org/stable/20720675>.

⁹⁴ Douglas Little, “Pipeline Politics: America, TAPLINE, and the Arabs,” *The Business History Review* 64, no. 2 (1990): 261, <https://doi.org/10.2307/3115583>.

⁹⁵ *The New York Times*, “Faisal Dedicates Big Iraqi Pipeline,” November 19, 1952, <http://timesmachine.nytimes.com/timesmachine/1952/11/19/93589716.html>.

companies negotiated the contracts for laying pipelines and constructing the refinery in the 1930s, the British government did not stipulate that a share of Iraqi crude oil be set aside to be refined for Palestinian consumers. The British also did not require the IPC and CRL to pay custom duties on Iraqi crude oil, CRL operations or construction expenses. As part owners of the IPC and CRL, the British government collected commercial dividends and taxation on commercial profits and did not impose local regulations, royalties, or taxation. Despite their geographic proximity to Iraq, local customers in Palestine consumed oil transported from the Gulf of Mexico, at higher prices. Additionally, the oil distribution companies Mantacheff/Esso, Shell, and Socony, which supplied consumers in Palestine, operated like a cartel with fixed market prices.⁹⁶

After World War II, foreign oil companies temporarily renewed well-drilling operations in Palestine. By September 1947, the IPC had acquired 29 prospecting licenses, through its subsidiary Petroleum Development (Palestine), and spudded Huleiqat 1, the first successful exploration well in Palestine.⁹⁷ Despite the discovery, the outbreak of Arab-Israeli hostilities in the late 1940s again led foreign companies to end E&P operations. Their efforts had already been threatened by instability, as Jewish militants began targeting oil infrastructure in their effort to oust British authorities from Palestine.⁹⁸ Following the United Nations vote to partition Palestine into Jewish and Arab states in November 1947, conflict between the region's Arab and Jewish populations negatively impacted oil operations. In December 1947, Zionist forces conducted a grenade attack against Arab day laborers outside the CRL, which incited intercommunal violence between refinery workers leading to 42 deaths and 49 injuries.⁹⁹ By February 1948, three months before the First Arab-Israeli War, the IPC had given up its Palestine E&P ambitions.¹⁰⁰

⁹⁶ Bialer, "Fuel — Supply and Demand in Mandatory Palestine," 12.

⁹⁷ Bialer, 10.

⁹⁸ Clifton Daniel, "Terrorists Blast Haifa Oil Pipeline," *New York Times*, March 15, 1947, <http://timesmachine.nytimes.com/timesmachine/1947/03/15/95522042.html>.

⁹⁹ "Haifa Oil Refinery Massacre," World History Project, accessed February 4, 2021, <https://worldhistoryproject.org/1947/12/30/haifa-oil-refinery-massacre>.

¹⁰⁰ H.J. Tschopp, "The Oilfind of Heletz, Israel," *Bulletin of the Swiss Association of Petroleum Geologists and Engineers* 22, no. 63 (February 29, 1956): 41, <https://doi.org/10.5169/SEALS-188030>.

As the Arab-Jewish conflict intensified, the Arab League declared that Arab countries should boycott trade with Jewish entities in Palestine. In response, Arab leaders prohibited their citizens and resident foreign companies from exporting products manufactured by Arabs to the Jewish population or allowing the transshipment of goods to Israeli territory through Arab territory.¹⁰¹ After Jewish forces captured Arab neighborhoods and took control of Haifa in April 1948, the Iraqi government halted the flow of oil to Haifa. It diverted its crude to a refinery at Tripoli, Lebanon until a spur line to Banias was completed in 1952 (see Figure 1).¹⁰² Egypt also prohibited the passage of oil tankers bound for Haifa through the Suez Canal. Although these decisions to disrupt oil flows to Israel resulted in financial losses for Iraq, Egypt, and Western states, Arab states were willing to accept them to impede Israel's economic and political integration in the region.

Western powers sought to persuade Iraq and Egypt to lift the de facto oil embargo on Israel. However, diplomacy ultimately failed to establish Israel-Iraq energy ties.¹⁰³ The Hashemite Kingdom of Iraq, which the British installed in 1932, was initially amenable to reopening the pipeline if Israel agreed to international management of Haifa.¹⁰⁴ However, the states remained at impasse, as Israel was unwilling to give up control of port facilities and energy infrastructure and Britain did not compel Iraq to restart oil flows to Haifa.¹⁰⁵ When France proposed the re-initiation of Iraq oil flows to satisfy European demand in November 1948, the Iraqi Foreign Minister was noncommittal, and in February 1949 the Iraqi Economics Minister made a public statement that oil exports to Haifa would not resume until the Palestine dispute was settled.¹⁰⁶

¹⁰¹ Nancy Turck, "The Arab Boycott of Israel," *Foreign Affairs* 55, no. 3 (1977): 474, <https://doi.org/10.2307/20039682>.

¹⁰² The New York Times, "Faisal Dedicates Big Iraqi Pipeline."

¹⁰³ Clive Jones and Tore T. Petersen, eds., "The Power of the Weak: Israel's Secret Oil Diplomacy: 1948–57," in *Israel's Clandestine Diplomacies* (Oxford: Oxford University Press, 2013), 69, <http://ebookcentral.proquest.com/lib/ebook-nps/detail.action?docID=4311903>.

¹⁰⁴ Irene Gendzier, *Dying to Forget: Oil, Power, Palestine, and the Foundations of U.S. Policy in the Middle East* (New York: Columbia University Press, 2015), 129, <http://ebookcentral.proquest.com/lib/ebook-nps/detail.action?docID=4012151>.

¹⁰⁵ Uri Bialer, "International Oil Diplomacy and War," in *Oil and the Arab-Israeli Conflict, 1948–63*, St Antony's Series (London: Palgrave Macmillan UK, 1999), 80, https://doi.org/10.1057/9780230377745_2.

¹⁰⁶ Bialer, 66.

The loss of Iraqi oil at the onset of the 1948 war compelled Israel to engage the global oil market to satisfy its fuel requirements. Israel purchased petroleum products from multiple non-Arab suppliers. These imports included fuel oil and kerosene from Romania, aviation fuel from France and Mexico, oil drums from Italy, and fuel oil from a Jewish company in Morocco.¹⁰⁷ Although the British Foreign Office authorized Western fuel distribution companies to provide Israel with an energy allowance to satisfy peacetime levels of consumption, the companies deducted independently acquired oil purchases to avoid giving the Jews an unfair advantage during the war.¹⁰⁸ Keen to sustain its wartime energy needs, Israel restarted the Haifa refinery, without British staff or Arab labor, after the British evacuated the CRL in June 1948.¹⁰⁹ To avoid jeopardizing relations with western companies, Israeli officials emphasized that Israeli-run refinery operations were temporary, and cooperated with foreign fuel distribution companies.

B. AFTER INDEPENDENCE: 1949 - 1966

Israel's military victory against the Arab states in 1949 hardened its political isolation with neighboring states, at a time when integration with the regional energy suppliers was essential for Israel's growth as a newly independent state. During the war, Israel had navigated the Arab embargo on oil shipments through strict regulation and storage of oil imports. However, after the war, faced with continuing energy shortages and limited financial capital to purchase oil resources, the state of Israel needed to employ effective strategies to meet the political complexities of the global energy market.

After the war of independence, Israel developed a multi-layer approach to its energy security, which involved fostering its relations with foreign oil companies, promoting its domestic E&P industry, and building energy infrastructure. Israel promoted Western energy interests in Israel and negotiated with foreign oil companies to secure its continued access to affordable fuel. Israel also passed laws and subsidized state-sponsored E&P initiatives to

¹⁰⁷ Uri Bialer, "The 1948 War," in *Oil and the Arab-Israeli Conflict, 1948–63*, St Antony's Series (London: Palgrave Macmillan UK, 1999), 46, https://doi.org/10.1057/9780230377745_4.

¹⁰⁸ Bialer, 46.

¹⁰⁹ Uri Bialer, "The 1948 War," in *Oil and the Arab-Israeli Conflict, 1948–63*, St Antony's Series (London: Palgrave Macmillan UK, 1999), 47–48, https://doi.org/10.1057/9780230377745_4.

generate domestically produced oil supplies. Finally, the Israeli government took an active role raising funds to pay for its domestic oil pipeline infrastructure, storage tanks, and refineries and strategic petroleum reserve (SPR). Israel's approach to energy security from 1949 – 1966 primarily involved making the most of its legacy relationships with fuel distribution companies and European powers, exploiting the oil discoveries previously discovered by the IPC subsidiary, and encouraging foreign commercial interest in Israel's petrochemical industry and pipeline infrastructure.

During the first few years of Israeli statehood, the government negotiated with Western powers to address its severe energy shortage and finance its energy bill. Although some of Israel's oil expenses were offset by an American grant-in-aid program, and the British government released £26.8 million in funds to the state of Israel between 1949 and 1950, the high cost of oil relative to Israel's income contributed to Israel's balance of payment deficit and a lack of sufficient foreign currency reserves.¹¹⁰ From 1951–1952, Shell and Esso supplied oil to Israel on a “cash for delivery basis”; however the British cut off its oil supplies due to the lack of payment and did not offer credit to cover Israel's energy expenses.¹¹¹ To address Israel's perilous energy situation and alleviate its financial problems, the Israeli government negotiated with the German government to apply its World War II war reparations to finance its fuel payments to British companies in sterling, purchase small oil tankers, and construct five power plants.¹¹² From 1952 – 1956, Germany paid £6.5 million per year for Israel's crude oil.¹¹³

Israeli officials cultivated relations with Western states and foreign oil companies to encourage foreign oil distribution activities within Israel. In response to the loss of Iraqi oil, Israel developed nuanced energy proposals to persuade the British government and Western

¹¹⁰ Uri Bialer, “The Establishment of the Delek Oil Company,” in *Oil and the Arab-Israeli Conflict, 1948–63*, ed. Uri Bialer, St Antony's Series (London: Palgrave Macmillan UK, 1999), 119, https://doi.org/10.1057/9780230377745_8.

¹¹¹ Bialer, 120.

¹¹² Kenneth M. Lewan, “How West Germany Helped to Build Israel,” *Journal of Palestine Studies* 4, no. 4 (1975): 42, <https://doi.org/10.2307/2535601>; Jones and Petersen, “The Power of the Weak: Israel's Secret Oil Diplomacy: 1948–57,” 72.

¹¹³ Bialer, “The Establishment of the Delek Oil Company,” 120.

oil companies to continue their oil refining and export operations in Israel. Recognizing the importance of the continuation of Haifa oil refinery operations for maintaining its connection to global fuel supplies, in January 1950, Israel presented a comprehensive plan to Britain for Iraqi oil to be transferred through the Kirkuk-Haifa pipeline, refined in Haifa, and shipped to foreign customers, without being consumed in Israel.¹¹⁴ In exchange for the agreement, Western oil companies would supply Israel with fuel sourced outside the Middle East.¹¹⁵ Although Iraq-Haifa oil flows were not renewed, from May to July 1950, Israel successfully negotiated for AIOC and Shell to continue operating the Haifa refinery for local consumption.¹¹⁶ Despite the complicated dynamics following the end of the British Mandate of Palestine, Israel's negotiations with Western oil companies ensured its continued access to oil supplies and alleviated pressure on Israel to independently secure crude oil imports.¹¹⁷

As Israeli officials prioritized continued Haifa refinery operations, the state also created a national oil company to improve the affordability and availability of domestic fuel distribution for local consumers. Israel did not aggressively seize Western oil assets to launch a national oil distribution company. Instead, the state negotiated the introduction of a majority Israeli-owned petroleum company, which would take on 35% of the distribution of oil products in Israel, only partially curtailing the market share of foreign oil companies.¹¹⁸ The Israel Fuel Company (Delek) was founded in 1951 as the first government-owned gas distributor. Delek was created using a combination of Israeli private capital, Israeli government capital, and foreign capital, with the expressed purpose of purchasing crude oil abroad to have it refined in Haifa for domestic use.¹¹⁹ The government was heavily invested in the success of Delek's energy negotiations, as Israeli ministers served on Delek's Executive

¹¹⁴ Uri Bialer, "Fuel Bridge across the Middle East-Israel, Iran, and the Eilat-Ashkelon Oil Pipeline," *Israel Studies* 12, no. 3 (October 2007): 31, <https://doi.org/10.2979/ISR.2007.12.3.29>.

¹¹⁵ Bialer, 31.

¹¹⁶ Jones and Petersen, "The Power of the Weak: Israel's Secret Oil Diplomacy: 1948-57," 70.

¹¹⁷ Jones and Petersen, 70.

¹¹⁸ Bialer, "The Establishment of the Delek Oil Company," 123.

¹¹⁹ United Petroleum Export Co Ltd, "About Delek Group," United Petroleum Export Co Ltd, accessed January 29, 2021, <https://www.unex.co.il/delek-company>; Bialer, "The Establishment of the Delek Oil Company," 127.

Committee and conducted the company's external negotiations on behalf of the government.¹²⁰ One of Delek's first actions was to lay pipeline from Haifa to Tel Aviv to reduce energy transport costs.¹²¹

Delek also began negotiating new import agreements. After Iran nationalized its oil industry in 1951, the AIOC became interested in increasing Kuwaiti oil production, as the company lost its monopoly over Iranian oil. Delek is credited with persuading AIOC to increase its supply of Kuwaiti crude to Israel, despite political sensitivities related to the Arab oil boycott, and also for encouraging Shell, Esso, and Socony Vacuum to supply Israel with Persian Gulf rather than Caribbean-sourced oil for significant cost savings.¹²² Although the British Foreign Office ended the Delek-AIOC oil deal when it was discovered to avoid a potential political conflict with the Arab League or ruler of Kuwait, Israel capitalized on the formation of the National Iranian Oil Company (NIOC) to secure access to Iranian oil.¹²³ After Iran and Britain settled their dispute over control of Iranian crude in 1954, Israel made deals with foreign oil companies SUPOR and Shell to purchase Iranian oil. Delek secured an agreement directly with NIOC by June 1955.¹²⁴ Delek also successfully negotiated a deal with the Soviet Union, which lowered the price of light fuel oil for Israeli industry and electricity production.¹²⁵

Israeli authorities promoted the development of domestic oil supplies by establishing laws to enable local E&P activities. In 1952, the Israeli Knesset passed the Petroleum Law, which established state ownership of all petroleum on private and public land.¹²⁶ The law

¹²⁰ Bialer, "The Establishment of the Delek Oil Company," 128.

¹²¹ Bialer, 128.

¹²² Uri Bialer, "Alternative Sources - Venezuela, Kuwait," in *Oil and the Arab-Israeli Conflict, 1948-63*, 1st ed., St Antony's Series (London: Palgrave Macmillan, 1999), 132-33, <https://doi-org.libproxy.nps.edu/10.1057/9780230377745>.

¹²³ Bialer, 135; Jones and Petersen, "The Power of the Weak: Israel's Secret Oil Diplomacy: 1948-57," 82.

¹²⁴ Jones and Petersen, "The Power of the Weak: Israel's Secret Oil Diplomacy: 1948-57," 82.

¹²⁵ Jones and Petersen, 80.

¹²⁶ The Ministry of National Infrastructure, Energy and Water Resources, "The Petroleum Law & Regulations," The Ministry of National Infrastructure, Energy and Water Resources, accessed January 23, 2021, <https://www.energy-sea.gov.il/English-Site/Pages/Regulation/The-Petroleum-Law--Regulations.aspx>.

enabled the state to issue preliminary permits, oil drilling licenses, and production leases for 30 to 50 years, and spurred the founding of national petroleum E&P companies. The Petroleum Law also established government oversight of production, ensured the supply of domestic needs first, and guaranteed state revenues through royalties, profit levy, and corporate taxes.¹²⁷

The establishment of a legal framework for oil E&P resulted in marginal domestic oil and gas production. After the IPC abandoned its drilling operations in 1948, newly established Israeli companies attempted to finish the work IPC had started. In 1953, Israel drilled its first exploratory well in the southern Dead Sea region, which was unsuccessful.¹²⁸ However, in 1955, the government-owned Lapidoth Oil Company and Israel Oil Prospectors successfully expanded the IPC's abandoned Huleiqat 1 well and renamed it Heletz.¹²⁹ The Helez-Barur-Kokhav field produced between 2,500 and 4,000 barrels per day (b/d), for a total of 17.2 million barrels (bbl) of oil from 1959 to 1967.¹³⁰ Natural gas was also discovered, in the onshore Zohar field in 1958. Additional natural gas discoveries followed at the Kidod and Kanna'im fields from 1960-1961.¹³¹ Despite these successes, the legacy of the foreign oil monopoly in Palestine, combined with the Zionists' emphasis on agricultural development over oil exploration hindered Israel's independent capacity to develop domestic oil resources. Production from these oil and gas fields was not sufficient to meet Israel's domestic demand, so Israel remained heavily dependent on oil imports.

As the Arab League pressured all foreign oil companies to leave Israel from 1954–1960, Israel acquired foreign oil company assets in a state-regulated manner, by establishing a combination of public and private ownership in its burgeoning energy industry. For

¹²⁷ "Economic Growth Engine," Delek Drilling, November 24, 2015, <https://www.delekdrilling.com/natural-gas/economic-growth>.

¹²⁸ The Ministry of National Infrastructure, Energy and Water Resources, "Exploration History," accessed February 21, 2021, [https://www.energy-sea.gov.il/English-Site/Pages/Oil And Gas in Israel/History-of-Oil--Gas-Exploration-and-Production-in-Israel.aspx](https://www.energy-sea.gov.il/English-Site/Pages/Oil%20And%20Gas%20in%20Israel/History-of-Oil--Gas-Exploration-and-Production-in-Israel.aspx).

¹²⁹ Tschopp, "The Oilfind of Heletz, Israel," 41.

¹³⁰ The Ministry of National Infrastructure, Energy and Water Resources, "History of Oil and Gas Production in Israel," accessed January 22, 2021, [https://www.energy-sea.gov.il/English-Site/Pages/Oil And Gas in Israel/History-of-Oil--Gas-Exploration-and-Production-in-Israel.aspx](https://www.energy-sea.gov.il/English-Site/Pages/Oil%20And%20Gas%20in%20Israel/History-of-Oil--Gas-Exploration-and-Production-in-Israel.aspx).

¹³¹ Bahgat, "Israel's Energy Security," July 2010, 409.

example, when Esso offered to sell its assets to the state in 1954, Israeli officials negotiated for Delek to acquire some equipment and a percentage of clientele in the sale.¹³² In 1957, after Saudi Arabia gave Socony Vacuum an ultimatum to terminate relations with Israel, the Israeli government monitored the conditions of the sale of the company's Palestine assets to a Jewish-American businessman who changed the company name to Sonol.¹³³ In 1958, when Dutch-owned Shell terminated its activity in Palestine, the company turned over its marketing facilities to state-owned Paz.¹³⁴ Finally, when British Petroleum (BP), formerly AIOC, notified Israel that it intended to sell its interest in Oil Refineries Limited (ORL), formerly known as CRL, Paz became its legal owner.¹³⁵ By 1960, the Israeli government controlled 70% of oil imports and distribution in the country through Delek and Paz, while privately owned Sonol managed the remaining 30%.¹³⁶

In response to the departure of Western fuel distribution companies, the government took charge of the state's oil distribution and sought to establish Israel as a viable alternative to the Suez Canal for the transport of foreign oil. Israel initially sought Western funding for the development of its domestic energy infrastructure. Shortly after Egypt nationalized the Suez Canal in July 1956, the Israeli Foreign Ministry dispatched its ambassador to Washington to hold talks with the U.S. State Department about a solution to the Egyptian "bottleneck."¹³⁷ Israel argued that the United States should support the construction of an oil pipeline through Israel, because larger tankers could deliver more Persian Gulf oil to the port at Eilat to be transferred overland to the Mediterranean Sea, than smaller tankers could transfer through the Suez Canal. In addition to making Persian Gulf oil more profitable, the pipeline would make Egypt's nationalization of the Suez Canal less problematic. Despite Israel's

¹³² Uri Bialer, "The Departure of the Oil Companies," in *Oil and the Arab-Israeli Conflict, 1948–63*, St Antony's Series (London: Palgrave Macmillan UK, 1999), 197, https://doi.org/10.1057/9780230377745_12.

¹³³ Sonol Energy, "History," Sonol Energy, accessed August 19, 2021, <https://www.sonolenergy.com/History>; Bialer, "The Departure of the Oil Companies," 197.

¹³⁴ Bialer, "The Departure of the Oil Companies," 213.

¹³⁵ The New York Times, "Paz Oil to Acquire Israel Refinery," *The New York Times*, November 24, 1958, <http://timesmachine.nytimes.com/timesmachine/1958/11/24/83427405.html>.

¹³⁶ Bialer, "The Departure of the Oil Companies," 215.

¹³⁷ Bialer, "Fuel Bridge across the Middle East?," 33.

appeals to Britain, France, and the U.S. for financing, the Eilat pipeline was not viewed as a viable alternative to the Suez Canal.

To compensate for its lack of foreign investment, the Israeli government funded the construction of Israel's first oil pipelines. After the Suez Canal was closed in October 1956, Israel began preparations for pipeline construction. In January 1957, private investors funded construction of a Haifa-Tel Aviv pipeline, and government-issued bonds provided 70% of the cost of the Eilat-Beersheba pipeline, which was completed in March 1957.¹³⁸ Israel set up three oil storage tanks in Eilat in addition to installing 8-inch and 16-inch pipelines connecting Eilat, Beer-Sheva, Ashkelon, and Haifa, due to the low cost of pipeline (see Figure 2).¹³⁹



Figure 2. Map of Energy Infrastructure in Israel¹⁴⁰

To facilitate oil imports from Eilat, Israel negotiated an agreement with Egypt, following the 1956 Arab-Israeli War, to ensure Israeli ships were able to freely sail to port

¹³⁸ Jewish Telegraphic Agency, "Israel Jubilant over Arrival of U.S. Tanker; Cabinet Discusses Pipeline," *Jewish Telegraphic Agency*, no. Israel Plans to Let Noble, (April 8, 1957), <https://www.jta.org/1957/04/08/archive/israel-jubilant-over-arrival-of-u-s-tanker-cabinet-discusses-pipeline>.

¹³⁹ Bialer, "Fuel Bridge across the Middle East?," 34.

¹⁴⁰ Europe Asia Pipeline Company Ltd., "Pipeline Map," accessed August 13, 2021, <https://www.eapc.com/>.

Eilat. Recognizing the economic importance of Israel's freedom of navigation in the Gulf of Aqaba for Persian Gulf oil imports, Israeli politicians raised the strategic importance of access to the port. Although Egypt had prevented Israeli ships from passing through the Straits of Tiran prior to 1956, after Israel constructed the oil pipeline and oil terminal at the port, access to Eilat became more politically sensitive. By 1957, Israeli Foreign Minister Golda Meir declared that an attempt by Egypt to close the Straits of Tiran would be *casus belli* or perceived as an act of war.¹⁴¹

In response to the supply disruption caused by Arab League pressure and the outbreak of the Second Arab-Israeli War, Israel attempted to discourage future breaches of import contracts by orchestrating the details of its energy agreement with Iran to maximize commitment. To replace the loss of fuel supplied by Western oil companies, Delek negotiated a two-year contract with the Soviet Union in July 1956, which increased the volume of its Soviet-supplied imports to 33% of Israel's combined crude and fuel oil imports.¹⁴² However, after the Soviet Union abruptly withdrew from its contract when the war broke out in October 1956, Israel prioritized its Iranian imports..¹⁴³ Although Israel had previously diversified its energy suppliers, by the late 1950s, Israel imported over 90% of its oil from Iran.¹⁴⁴ Iran was considered an ideal energy partner, as the terms of the agreement were economical for Israel and NIOC was eager to sell oil to Europe. Israel did not publicize its agreement with Iran to avoid political backlash and established foreign commercial entities to obscure the nature of the Israeli and Iranian energy partnership.¹⁴⁵

C. PEAK ENERGY SECURITY: 1967–1978

Egyptian closure of the Straits of Tiran, leading up to the Six Day War in June 1967, had a modest negative impact on Israel's energy security, due to the state's previous accumulation of emergency oil stocks. In early May 1967, Israel's defense ministry estimated

¹⁴¹ Guy Laron, *The Six Day War: The Breaking of the Middle East* (Yale University Press, 2017), 83.

¹⁴² Bialer, "The Departure of the Oil Companies," 202.

¹⁴³ Bialer, 204–5.

¹⁴⁴ Bialer, "Fuel Bridge across the Middle East?," 30.

¹⁴⁵ Kaye, Nader, and Roshan, "A Brief History of Israeli-Iranian Cooperation and Confrontation," 12.

that the state's SPR would cover four months of Israel's energy consumption requirements.¹⁴⁶

In addition, Israel had alternative means of obtaining oil imports. Although Iranian oil destined for Israel could not be delivered to Eilat, Israel was prepared to pay increased transport costs for the oil to circumnavigate Africa for delivery to Haifa. Israel could also purchase Venezuelan oil or request an aid package from the United States to offset higher fuel costs.¹⁴⁷ When Egypt imposed a naval blockade on the Straits of Tiran on May 23, 1967, Israel considered sending an oil freighter operated by Israeli Defense Forces (IDF) personnel and berthed in Masawa, Eritrea to pass through the Straits, provoke Egyptian fire, and obtain the pretext needed for an Israeli attack on Egyptian forces.¹⁴⁸ However, because Israel had a buffer of energy supplies and sufficient alternatives, the state did not need to initiate hostilities with Egypt on the basis of energy.

The outcome of the 1967 War proved advantageous for Israel's energy security, as Israel capitalized on its access to lucrative oil fields in the Sinai, enabling the state to become self-sufficient in satisfying its domestic energy requirements.¹⁴⁹ Israel used Sinai oil to bolster its midstream oil operations. After taking control of the Sinai peninsula, Israel negotiated a deal with the Italian state-owned company ENI and indirectly with Egypt to purchase ENI-produced Sinai oil in order to ship it to Eilat, and transfer it overland to Ashkelon.¹⁵⁰ In exchange for the ENI partnership, Israel agreed to pay 50% royalties on the oil pumped to the Italian company.¹⁵¹ To facilitate the commercialization of Sinai oil, Israel expanded its tanker fleet, constructed a new refinery at Ashdod in 1969, and developed its

¹⁴⁶ Laron, *The Six Day War*, 204.

¹⁴⁷ Laron, 203–4.

¹⁴⁸ Michael B. Oren, *Six Days of War: June 1967 and the Making of the Modern Middle East* (Presidio Press, 2017), 165.

¹⁴⁹ Gawdat Bahgat, "Energy and the Arab–Israeli Conflict," *Middle Eastern Studies* 44, no. 6 (2008): 938, <https://www.jstor.org/stable/40262630>.

¹⁵⁰ Bialer, "Fuel Bridge across the Middle East?," 55.

¹⁵¹ Terence Smith, "Israelis at Oil Wells in Sinai Believe Days There Are Numbered," *The New York Times*, January 13, 1975, sec. Archives, <https://www.nytimes.com/1975/01/13/archives/israelis-at-oil-wells-in-sinai-believe-days-there-are-numbered.html>.

petrochemical industry.¹⁵² By 1971, the total volume of oil produced from the Sinai equated to the entirety of Israel's annual domestic consumption.¹⁵³

Israel also significantly increased the previous Sinai production levels to export its excess crude oil supply. After taking control of 117 oil wells on and offshore Sinai, around Abu Rudeis, an Israeli government-owned oil company, Netivei Neft, significantly increased crude oil production at the Bilaiyim Sinai oil field from 4.5 million tons to about 6 million tons.¹⁵⁴ According to the Egypt's state-owned General Petroleum Company, Israel overexploited the Sedr, Assal, and Matarmah oilfields during Israel's 12 year occupation, increasing production levels from 87,000 b/d in 1966 to 92,000 b/d in 1975.¹⁵⁵ Israel conducted exploratory surveys, drilling, and granted new concessions to foreign companies, in addition to allowing other American and Egyptian E&P companies to continue operations unhindered.¹⁵⁶ Israel also granted a concession to a Panamanian-registered company called Neptune, which explored and developed the offshore Alma oil field which began oil production in 1978. That oil was refined in Haifa.¹⁵⁷

In addition to acquiring Sinai oil, Israel used the closure of the Suez Canal in 1967 to persuade Iran to invest in a substantial expansion of the Eilat pipeline. Prior to the 1967 war, the Iranian government was hesitant for NIOC to own part of the Trans-Israel Pipeline (TIPLINE) within Jewish territory, and sought to build a pipeline for Iranian oil to transit

¹⁵² Elias Shoufani, "The Sinai Wedge," *Journal of Palestine Studies* 1, no. 3 (1972): 90, <https://doi.org/10.2307/2535868>.

¹⁵³ Bahgat, "Energy and the Arab-Israeli Conflict," 938.

¹⁵⁴ The New York Times, "Israel Shaken by Scandal At Oil Fields in the Sinai," *The New York Times*, November 15, 1971, sec. Archives, <https://www.nytimes.com/1971/11/15/archives/israel-shaken-by-scandal-at-oil-fields-in-the-sinai-secret-details.html>; Shoufani, "The Sinai Wedge," 86.

¹⁵⁵ World Bulletin, "Egypt to develop Sinai oil fields 'over-exploited' by Israel," *World Bulletin*, November 25, 2013, <https://worldbulletin.dunyabulteni.net/middle-east/egypt-to-develop-sinai-oil-fields-over-exploited-by-israel-h123659.html>.

¹⁵⁶ Shoufani, "The Sinai Wedge," 87–88.

¹⁵⁷ David K Shipler, "Israel Gives Up an Oilfield to Egypt In Biggest Sacrifice for Treaty Yet," *The New York Times*, November 26, 1979, <https://timesmachine.nytimes.com/timesmachine/1979/11/26/111120388.html?pageNumber=2>; J. P. Smith, "Egyptians Reportedly Agree To Sell Sinai Oil to Israel," *Washington Post*, October 19, 1978, <https://www.washingtonpost.com/archive/politics/1978/10/19/egyptians-reportedly-agree-to-sell-sinai-oil-to-israel/egypt-reportedly-agrees-to-sell-sinai-oil-to-israel/b051088a-30ba-4484-8365-bb99a2e130b9/>.

through Iraq to Turkey instead.¹⁵⁸ However, after the Iran-Iraq-Turkey pipeline plan failed, and the Suez Canal was blocked, Mohammad Reza Shah approved of an Iran-Israel partnership to construct the TIPLINE as an important political step in protecting Iran's national interests.¹⁵⁹ The construction of a 42-inch pipeline from Eilat to the Mediterranean Sea was an attractive deal for Iran because the expanded pipeline reduced transport costs, increased throughput capacity, and gave NIOC more control over the transport of Iranian crude oil, making the government-owned company more profitable.¹⁶⁰

Israel worked to incentivize Iran's commitment to supply oil to Israel by enhancing the commercial prospects for Iran's investment in the expanded capacity of the TIPLINE. Israel facilitated Iran's partnership in the energy arrangement by securing affordable loan financing for Iran from Germany, providing tankers for transport, and highlighting the commercial potential of Iranian oil sales to European customers.¹⁶¹ Israel marketed the TIPLINE as a solution for Iran to expand its customer base in southeastern Europe and Turkey. After the Shah became committed to the arrangement, NIOC signed supply contracts with Bulgaria and Romania in early 1967, and after TIPLINE was completed in 1968, Iran pressured foreign firms operating in Iran, including the U.S. Standard Oil Company, to channel their oil through the pipeline to meet the annual flow capacity requirements of European customers.¹⁶² Iran and Israel expected a quick return on investment for the TIPLINE, as the NIOC and smaller members of the foreign oil company consortium in Iran controlled 18% of the country's total production and Iranian crude from Eilat was competitively priced on the global oil market.¹⁶³

The 1970s marked a high point for Israeli energy security, based on the state's self-sufficiency and reliable access to foreign oil. The TIPLINE guaranteed a virtually uninterrupted flow of Iranian oil for Israel's domestic consumption from 1968–1978. The

¹⁵⁸ Bialer, "Fuel Bridge across the Middle East?," 44.

¹⁵⁹ Bialer, 48.

¹⁶⁰ Bialer, 37.

¹⁶¹ Bialer, 35; Laron, *The Six Day War*, 83.

¹⁶² Bialer, "Fuel Bridge across the Middle East?," 50.

¹⁶³ Bialer, 34.

acquisition of Sinai's oil also reduced Israel's reliance on Iran, as Israel replaced much of its Iranian crude oil imports with Sinai oil. Of the eight million tons of crude oil Israel planned to use in 1975, half was to be sourced from Iran, and nearly half from the Sinai.¹⁶⁴ However, this period of security would be short-lived. After the 1973 Arab-Israeli War, Israel entered negotiations for withdrawal from the Sinai, threatening one component of the state's energy security. The Iranian Revolution created an additional shock.

D. COLLAPSE AND RECOVERY: 1979–1991

The fall of the Pahlavi regime in 1979 caused Iran-Israeli energy trade to collapse, as Iranian Supreme Leader Ayatollah Khomeini ended all Iranian crude oil trade with Israel.¹⁶⁵ Iran also made its Iranian oil sales to other states contingent on the commitment to not resell Iranian oil to Israel.¹⁶⁶ In response to Iran's failure to provide imports, Israel effectively nationalized the TIPLINE by ousting Iranian partners and expropriating Iran's investment.¹⁶⁷ The Israeli government then authorized the Eilat-Ashkelon Pipeline Company (EAPC), a subsidiary of the Iranian-Israeli joint venture Trans-Asiatic Company, to continue operating the pipeline, storage tanks, and oil terminals.¹⁶⁸ Although Israel had built up a six-month oil reserve in 1978, prior to the fall of the Shah's regime, these stockpiles were not sufficient to replace the complete loss of Iranian oil.¹⁶⁹ To compensate for the immediate shortfall, Israel ordered an 8% cut in fuel consumption by the armed forces and defense industries, imposed a one-day-a-week ban on the use of private motor vehicles, and increased its tax on

¹⁶⁴ Bialer, 56.

¹⁶⁵ Bahgat, "Israel's Energy Security," July 2010.

¹⁶⁶ Bishara A. Bahbah, "The United States and Israel's Energy Security," *Journal of Palestine Studies* 11, no. 2 (1982): 120–21, <https://doi.org/10.2307/2536273>.

¹⁶⁷ Financial Tribune, "Israeli Firm Told to Pay NIOC \$1.1b in Compensation," *Financial Tribune*, May 21, 2015, <https://financialtribune.com/articles/energy/17268/israeli-firm-told-to-pay-nioc-11b-in-compensation>.

¹⁶⁸ Financial Tribune.

¹⁶⁹ Gawdat Bahgat, "Israel's Energy Security: Regional Implications," *Middle East Policy* 18, no. 3 (Fall 2011): 27, <http://dx.doi.org.libproxy.nps.edu/10.1111/j.1475-4967.2011.00495.x>; Bahgat, "Energy and the Arab-Israeli Conflict," 938.

gasoline.¹⁷⁰ Israel also replaced 20% of its oil imports with purchases from the spot market, from Mexico, Venezuela, Gabon, and Nigeria.¹⁷¹

Lastly, as part of the Egyptian-Israeli peace treaty signed in 1979, Israel withdrew from the Sinai, losing control of its lucrative oil fields.¹⁷² To replace the loss of Sinai production, Israel entered into an oil supply agreement with Egypt, guaranteed by the United States. The Israeli government sought to use oil as a tool to ensure Egypt's commitment to the Egyptian-Israeli peace treaty. In exchange for its withdrawal from the Sinai, Israel demanded a multiyear fixed contract to purchase Sinai oil at Organization of the Petroleum Exporting Countries (OPEC) prices. Although Egypt did not agree to all of Israel's original terms, Egypt agreed to provide Sinai oil to Eilat for 15 years and accepted a cash payment at a reduced cost, which amounted to about 30% of Israel's oil needs and 10% of Egypt's total exports by 1980.¹⁷³ Although the Israelis negotiated a deal to meet their domestic oil consumption needs, the state returned to dependence on foreign suppliers, reducing its energy security.

After the Iranian Revolution, Israel's energy situation also became more financially precarious due to the spike in oil prices caused by the drop in Iranian production and a surge of panic-buying around the world. The sharp rise in fuel prices hit Israel hard, as 99% of Israel's primary energy consumption relied on crude oil, with only 1% sourced from solar energy and natural gas.¹⁷⁴ Coupled with high oil prices, after its withdrawal from Sinai, Israel's domestic crude oil production dropped to less than 1% of the state's oil demand, reaching a low of 600 b/d in 1980. Israel also paid about \$2.25 billion for 165,000 b/d of crude oil imports in 1980 compared to \$700 million in 1978; the amount was nearly equivalent to

¹⁷⁰ Bahbah, "The United States and Israel's Energy Security," 122.

¹⁷¹ Bahbah, 122.

¹⁷² Shippler, "Israel Gives Up an Oilfield to Egypt In Biggest Sacrifice for Treaty Yet."

¹⁷³ Ziv Rubinovitz and Elai Rettig, "Crude Peace: The Role of Oil Trade in the Israeli-Egyptian Peace Negotiations," *International Studies Quarterly* 62, no. 2 (June 1, 2018): 371–82, <https://doi.org/10.1093/isq/sqx073>.

¹⁷⁴ Bahbah, "The United States and Israel's Energy Security," 113.

the entirety of Israel's annual industrial exports.¹⁷⁵ Since only Egypt and Mexico were publicly willing to sell to Israel on a contractual basis, Israel was forced to depend on the fluctuating spot market for the remaining 33–45% of its oil.¹⁷⁶ However, by the mid-1980s, Israel was able to supply 35% of its crude oil from Mexico and 10% from Norway, reducing its dependence on the spot market to 30%.¹⁷⁷

Due to the political and economic risks of high oil prices and supply disruption, in 1980, the Israeli government finalized an oil supply agreement the United States that had initially been negotiated in 1975 and 1979, in exchange for Israel's withdrawal from the Sinai.¹⁷⁸ Under the terms of the guarantee, the U.S. agreed to fill the gap in Israel's oil supply in the event of a shortage, offer a competitive alternative to excessive price and insecure arrangements, or provide at least 4 months of supply if Israel was unable to replace the sudden loss of a main oil source.¹⁷⁹ The agreement was noteworthy, as Israel became the first country to receive an exception to U.S. crude oil export restrictions, during a time when U.S. energy supplies were also viewed as vulnerable to fuel shortages. The United States took an active role helping Israel acquire oil supply from non-OPEC producers and financially compensated Israel for its lost revenue from forfeited Sinai oilfields. However, the United States never had to fulfill the terms of the 1980 Oil Agreement during the deal's 15-year duration, as the specified emergency circumstances never materialized because of shifts in the global oil market.¹⁸⁰ Beginning in 1981, Israel was able to purchase ample amounts of oil from non-OPEC suppliers at reduced prices, due to an oil glut.

By 1986, a decline in OPEC's market share provided a significant boost to Israel's diplomatic and economic interests. As the average price per barrel fell by half, from \$32.19

¹⁷⁵ Judith Miller, "Israel Pressing U.S. on Oil Sales Accord," *New York Times*, August 17, 1980, <http://timesmachine.nytimes.com/timesmachine/1980/08/17/111275689.html>.

¹⁷⁶ Bahbah, "The United States and Israel's Energy Security," 114.

¹⁷⁷ Thomas L. Friedman, "Cheap Oil and Weaker OPEC Are Easing Israel's Burdens," *The New York Times*, March 24, 1986, sec. World, <https://www.nytimes.com/1986/03/24/world/cheap-oil-and-weaker-opec-are-easing-israel-s-burdens.html>.

¹⁷⁸ Bahbah, "The United States and Israel's Energy Security," 127.

¹⁷⁹ New York Times, "U.S. and Israel Sign Pact On Emergency Oil Needs," *New York Times*, October 18, 1980, <http://timesmachine.nytimes.com/timesmachine/1980/10/18/111808107.html>.

¹⁸⁰ Bahbah, "The United States and Israel's Energy Security," 130.

in 1980 to \$13-\$14 by the mid-1980s, Israel enjoyed \$1 billion cost savings, which amounted to 10% of Israel's government budget.¹⁸¹ Additionally, the government was able to reduce state-controlled fuel prices while also collecting a profit on domestic fuel sales, which reduced inflationary pressures, eased Israel's fuel-price sensitive high cost of living and allowed Israel to administer more public services.¹⁸² In 1986, Israeli government officials argued that lower oil prices enabled states like Spain, Ivory Coast, and Poland to pursue diplomatic ties with Israel due to a decline in Arab oil power, and claimed more non-Arab oil producing states had become interested in selling oil to Israel.¹⁸³

E. ENERGY PARTNERSHIPS: 1991–2012

After the fall of the Soviet Union, Israel developed new energy partnerships in Central Asia. Israel began importing oil from Azerbaijan when the state declared independence in August 1991.¹⁸⁴ By 2002, Israel was the second largest importer of Azerbaijani oil, which fulfilled 25–40% of its domestic demand.¹⁸⁵ Israel and Azerbaijan have strong political and economic linkages, due to the historic presence of a Middle Eastern Jewish (Mizrahi) community in Azerbaijan. In the 1870s, Eastern European Jews (Ashkenazi) also began settling near Baku, attracted by the region's oil boom. Israel's energy cooperation with Azerbaijan has deepened over time, as Israeli companies operate within Azerbaijan's energy sector and a subsidiary of the State Oil Company of Azerbaijan was granted oil drilling rights off the coast of Israel.

Israel supported the construction of the Baku-Tbilisi-Ceyhan (BTC) pipeline to transport Azerbaijani oil from the Caspian Sea to the Turkish port of Ceyhan on the

¹⁸¹ Friedman, "Cheap Oil and Weaker OPEC Are Easing Israel's Burdens."

¹⁸² Friedman.

¹⁸³ Friedman.

¹⁸⁴ Oğuzhan Göksel, "Beyond Countering Iran: A Political Economy of Azerbaijan-Israel Relations," *British Journal of Middle Eastern Studies* 42, no. 4 (October 2, 2015): 664, <https://doi.org/10.1080/13530194.2015.1048973>.

¹⁸⁵ Emil Souleimanov, Maya Ehrmann, and Huseyn Aliyev, "Focused on Iran? Exploring the Rationale behind the Strategic Relationship between Azerbaijan and Israel," *Southeast European and Black Sea Studies* 14, no. 4 (October 2, 2014): 478, <https://doi.org/10.1080/14683857.2014.967945>.

Mediterranean Sea, to facilitate its transport to Israel.¹⁸⁶ Figure 3 depicts the BTC route. After the BTC pipeline became operational in 2006, Azerbaijan became one of Israel's top oil suppliers. Israeli energy companies Dor Alon and Delek also invested in a natural gas pipeline from Baku to Erzurum, Turkey which was completed in 2007.¹⁸⁷ Israel has built a strategic partnership with Azerbaijan, based on military, technology, and energy interests. While Israel's primary interest has been affordable and reliable oil imports, Azerbaijan has sought access to Israeli military, industrial, and agricultural technology.

In the 1990s, Kazakhstan also became an integral part of Israel's Central Asia strategy. After establishing diplomatic ties in 1992, Israel established robust economic, military, and political ties with Kazakhstan, which has the largest proven oil reserves in the Caspian Sea region.¹⁸⁸ Israel has invested heavily in the Kazakh oil and gas industry, and Kazakhstan has provided about 25% of Israel's annual oil imports.¹⁸⁹ The government of Kazakhstan invested in the Haifa oil refinery in 2007 when the plant was privatized and shares offered on the Tel Aviv Stock Exchange.¹⁹⁰ Kazakhstan's Deputy Prime Minister Karim Masimov stated that investment in the Haifa oil refinery was part of a larger effort to expand his country's economic reach and strengthen its economy.¹⁹¹ Kazakhstan also expressed interest in refining Kazakh oil in Israel for sale to Europe and East Asia.¹⁹²

¹⁸⁶ Göksel, "Beyond Countering Iran," 665.

¹⁸⁷ Michael B. Bishku, "The Relations of the Central Asian Republics of Kazakhstan and Uzbekistan with Israel," *Middle Eastern Studies* 48, no. 6 (November 1, 2012): 933, <https://doi.org/10.1080/00263206.2012.723628>.

¹⁸⁸ U.S. Energy Information Administration, "Overview of Oil and Natural Gas in the Caspian Sea Region," U.S. Energy Information Administration, August 26, 2013, 14, https://www.eia.gov/international/analysis/regions-of-interest/Caspian_Sea.

¹⁸⁹ Bishku, "The Relations of the Central Asian Republics of Kazakhstan and Uzbekistan with Israel," 933.

¹⁹⁰ Tova Cohen, "Israel to Sell Oil Refineries Haifa Plant in Feb," *Reuters*, January 21, 2007, sec. Oil Report, <https://www.reuters.com/article/israel-oilrefineries-sale-idUKL1037599520070110>.

¹⁹¹ Samuel Ramani, "The Israel-Kazakhstan Partnership," *The Diplomat*, July 19, 2016, <https://thediplomat.com/2016/07/the-israel-kazakhstan-partnership/>.

¹⁹² Sharon Kedmi, "Kazakhstan Wants to Buy Haifa Refinery," *Haaretz*, November 2, 2006, <https://www.haaretz.com/israel-news/business/1.4927756>.



Figure 3. Major Caspian Oil and Natural Gas Infrastructure¹⁹³

Beginning in the 1990s, Israel established energy ties with Russia, as the Russian oil industry found itself in desperate need of new ways to increase its oil exports. The collapse of the Soviet Union had a severe impact on Russian oil production, which dropped from 11 million barrels per day (mbd) to around 6 mbd between 1988 and 1998, due to a sharp decline in Russia's domestic oil demand.¹⁹⁴ Reduced domestic consumption, led to surplus of Russian oil available for export; however, limited pipeline infrastructure capacity constrained an expansion in the volume of Russian exports, driving newly privatized Russian oil companies to seek new routes to reach new customers. Senior Israeli government officials capitalized on Russia's need to expand its export partners, signing a preliminary ten-year energy agreement to purchase Russian crude oil in 1994.¹⁹⁵ Israel began importing Russian

¹⁹³ U.S. Energy Information Administration, "Overview of Oil and Natural Gas in the Caspian Sea Region."

¹⁹⁴ Fiona Hill, "Russia: The 21st Century's Energy Superpower?," *Brookings*, March 1, 2002, <https://www.brookings.edu/articles/russia-the-21st-centurys-energy-superpower/>.

¹⁹⁵ *Wall Street Journal*, "Eastern European Brief: Russia-Israel Energy Deal," May 2, 1994, <http://www.proquest.com/docview/308173218/abstract/DD144768E761418EPQ/1>.

oil in 1997, and between 2001 to 2005, Russia was Israel's top petroleum supplier.¹⁹⁶ In the late 1990s, Prime Minister Ariel Sharon discussed purchasing Russian natural gas and in 2001 Russian-owned Gazprom considered conducting E&P of Israeli natural gas, however neither of these gas proposals materialized.¹⁹⁷

Although Egypt continued to provide oil to Israel as part of the states' peace treaty, Egypt's importance as an oil supplier to Israel diminished between 1995 and 2000. While Israel had imported about 2 million tons of oil per year from Egypt through the TIPLINE at its peak, the volume dropped to 750,000 tons of per year by the early 2000s.¹⁹⁸ The Egyptian-Israeli peace agreement had stipulated that Israel was entitled to purchase Egyptian oil not needed for domestic oil consumption; however, as Egypt's available crude oil supplies declined and Israel's oil demand continued to grow, Israel was forced to look elsewhere for oil suppliers.¹⁹⁹ Egyptian oil exports to Israel ended by 2002.²⁰⁰

With the TIPLINE operating well below its 60-million-ton annual capacity, the EAPC sought to attract foreign oil companies to use Israel as a transit state for their oil and natural gas sales. To keep the TIPLINE relevant and operating at higher capacity, the EAPC transformed it into a bidirectional line, allowing the transport of oil from the Mediterranean to the Red Sea and vice versa, and doubled its oil storage capacity.²⁰¹ In 2003, EAPC completed the reverse flow project of the TIPLINE, allowing Russian sour Urals crude and

¹⁹⁶ Observatory of Economic Complexity, "Where Does Israel Import Crude Petroleum From?," Observatory of Economic Complexity, accessed September 1, 2021, https://oec.world/en/visualize/tree_map/hs92/import/isr/show/52709/2000/; Nick Childs, "Analysis: Russia Seeks Mid-East Role," *BBC News*, April 27, 2005, sec. Middle East World Affairs, http://news.bbc.co.uk/2/hi/middle_east/4490447.stm.

¹⁹⁷ *Platt's Oilgram News*, "Russia's Gazprom Said Interested in Gas E&P in Israel," June 21, 2001, <https://advance-lexis-com.libproxy.nps.edu/api/document?collection=news&id=urn:contentItem:43J1-WN50-0010-415T-00000-00&context=1516831>.

¹⁹⁸ *Access Czech Republic Business Bulletin*, "Oil from Russia Will Flow through Israel," July 15, 2002, <http://www.proquest.com/docview/448177480/abstract/86507F2A740044AEPQ/1>.

¹⁹⁹ Yitzhak Gal and Bader Rock, "Israeli-Egyptian Trade: In-Depth Analysis," Tony Blair Institute for Global Change, October 15, 2018, <https://institute.global/advisory/israeli-egyptian-trade-depth-analysis>; James Stocker, "No EEZ Solution: The Politics of Oil and Gas in the Eastern Mediterranean," *Middle East Journal* 66, no. 4 (2012): 581, <http://www.jstor.org/stable/23361618>.

²⁰⁰ Gal and Rock, "Israeli-Egyptian Trade."

²⁰¹ "Russian-Israeli Deal Could Increase Oil Exports to Asia through Revamped Tipline," *Oil & Gas Journal*, November 6, 2003, <https://www.ogj.com/general-interest/economics-markets/article/17255793/russianisraeli-deal-could-increase-oil-exports-to-asia-through-revamped-tipline>.

Caspian Pipeline Consortium (CPC) blend crude to be transported overland from Ashkelon to Eilat to be shipped by very large crude carrier (VLCC) to Taiwan.²⁰² Israel hoped to improve its connection to the global oil market by offering reduced transit time, substantially reduced costs, and increased potential for sales and oil distribution for foreign oil suppliers. By establishing itself as a viable crude oil transport route to Asian states heavily dependent on crude oil imports such as India and Taiwan, Israel sought to market itself as a valuable energy partner to Russia and other oil traders.

As Russia made plans to expand its energy infrastructure to support increased exports, Israel and Russia negotiated on the construction of a pipeline from Turkey through Israel, to facilitate Russian access to Asian markets. In the early 2000s, Russia had little export sales outside the European market, and while Russian oil was pumped to Black Sea terminals for shipment, ship size restrictions in the Bosphorus prevented the transit of supertankers. In 2006, Israeli and Russian government officials discussed the construction of four parallel undersea pipelines from Turkey to Israel, which would carry oil, natural gas, water, and electricity.²⁰³ Figure 4 presents the proposed 2006 Russia-Turkey-Israel pipeline route. The proposed pipelines would enable Russian energy exports to bypass both the Bosphorus and Suez Canal to transport larger quantities of oil and natural gas more cheaply and efficiently, while giving Israel access to Russian fossil fuels, Turkish electricity, and a connection to European electrical grids.²⁰⁴ The proposed pipelines were never built due to technical and political obstacles, but Israel continued to prioritize access to and the transportation of Russian and Central Asian energy resources.

²⁰² NEFTE Compass, "Holy Oil: Glencore Ships FSU Crudes Via Israel Line," *NEFTE Compass*, October 8, 2003, 1, <http://www.proquest.com/docview/198805460/abstract/625A0FEFDDEA41BAPQ/1>.

²⁰³ Ryan Nadel, "Energy Cooperation Key Part of Moscow Visit. With 90% of Israel's Oil Coming from Russia, Pipeline Plan through Turkey Would Increase Access," *Jerusalem Post*, October 19, 2006, sec. News, <http://www.proquest.com/docview/319593433/abstract/963BDD9E949F4764PQ/1>.

²⁰⁴ Simon Henderson, "Russian Oil to Transit Israel."

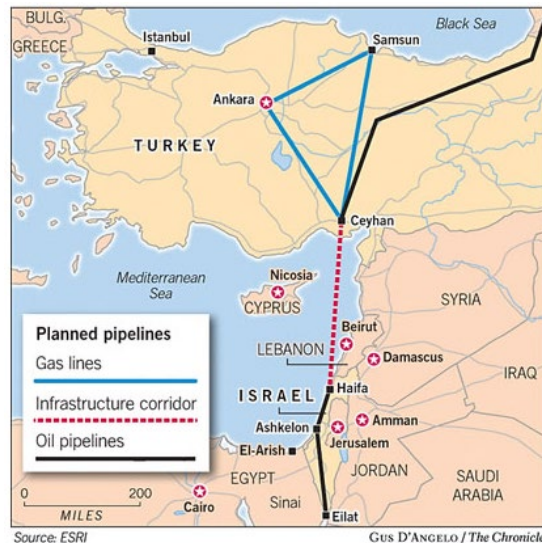


Figure 4. 2006 Russia-Turkey-Israel Pipeline Proposal²⁰⁵

In 2005, Israel negotiated a secret deal to purchase natural gas from Egypt, however the deal was terminated in 2012 due to instability in Egypt.²⁰⁶ By 2008, Egypt had supplied up to 40% of Israel's gas through an undersea pipeline from El-Arish to Ashkelon.²⁰⁷ The deal began to unravel when President Mubarak's opponents challenged the legality of the agreement, and a court ordered an end to exports to Israel in 2010, accusing Mubarak of selling gas below market price.²⁰⁸ Although Egypt's Oil Ministry appealed the court decision and renegotiated a higher gas export price, after a series of attacks on Sinai pipelines disrupted Israel's gas imports in 2011, the Egyptian Natural Gas Holding Company (EGAS) terminated supply in 2012.²⁰⁹

²⁰⁵ Jay Bushinsky, "Turkey, Israel to Build Mediterranean Pipeline," *San Francisco Chronicle*, April 28, 2006, sec. News, <https://www.sfgate.com/news/article/Turkey-Israel-to-build-Mediterranean-pipeline-2498862.php>.

²⁰⁶ *The New York Times*, "Egypt and Israel Sign 15-Year Natural Gas Deal," July 1, 2005, sec. Business, <https://www.nytimes.com/2005/07/01/business/worldbusiness/egypt-and-israel-sign-15year-natural-gas-deal.html>.

²⁰⁷ Das, "Israel's Gas Diplomacy with Egypt," 218.

²⁰⁸ Mohamed Fadel Fahmy, "Israel Gas Deal Sparks Attacks in Egypt," *CNN*, May 14, 2011, <http://www.cnn.com/2011/WORLD/meast/05/14/egypt.israel.al.Sabil.gas/index.html>.

²⁰⁹ Matt Bradley, "Egypt Cancels Israel Gas Deal," *Wall Street Journal*, April 22, 2012, <https://www.wsj.com/articles/SB10001424052702303459004577360213475479688>; Stocker, "No EEZ Solution," 582.

THIS PAGE INTENTIONALLY LEFT BLANK

III. ISRAEL'S DOMESTIC NATURAL GAS DISCOVERIES

A. ENERGY CHALLENGES AND ECONOMIC GROWTH

Following the 1973 Arab-Israeli War, Israel experienced a decade of very high inflation and slow economic growth. After implementing an anti-inflation program, Israel's economy stabilized in the late 1980s. This led to a high rate of economic growth from 1990–1995.²¹⁰ As growth continued, the state's electric power system had insufficient capacity to meet domestic demand. In 2002, a spike in electricity consumption caused Israel to suffer nationwide blackouts, which cost the country about 700 million shekels.²¹¹ Israel's electrical power was particularly vulnerable to interruptions because its electricity grid was not connected to regional neighbors. Consequently, any fluctuations in supply or consumption risked a spike in costs, power shortages, or blackouts.

Faced with high fuel costs and an overburdened electrical grid, Israel needed a solution to its energy troubles, particularly as demand in critical sectors of the economy such as water desalination was expected to increase. Although Israel went to great lengths to increase energy efficiency, demands on national electricity production continued to grow.²¹² Fortunately, these developments coincided with Israel's first significant offshore natural gas discovery, in June 1999. This chapter will describe how the Israeli government and public responded to offshore natural gas discoveries and the domestic and international policies that were implemented to address Israel's energy vulnerabilities.

B. FROM ENERGY SCARCITY TO ENERGY ABUNDANCE

In the 1980s and 1990s, Israel sought to promote greater oil and gas exploration and production efforts through privatization and the establishment of independent public limited

²¹⁰ Ben-Zion Zilberfarb, "From Boom to Bust: The Israeli Economy 1990–2003," *Israel Affairs* 12, no. 2 (April 1, 2006): 221, <https://doi.org/10.1080/13537120500535126>.

²¹¹ Itay Fischhendler, "The Use of Intangible Benefits for Promoting Contested Policies: The Case of Geopolitical Benefits and the Israeli Gas Policy," *Geopolitics* 23, no. 4 (October 2, 2018): 934, <https://doi.org/10.1080/14650045.2017.1350842>.

²¹² Alon Tal, "Addressing Desalination's Carbon Footprint: The Israeli Experience," *Water* 10, no. 197 (February 12, 2018), <https://doi.org/10.3390/w10020197>.

partnerships to encourage drilling; however, activities remained infrequent and generally unsuccessful.²¹³ After 17 years of effort, Delek made Israel's first offshore gas discovery, Noa-1, in June, 1999 in partnership with Houston-based Noble Energy.²¹⁴ In February, 2000, Delek and Noble Energy discovered a second reservoir, Mari-B, southeast of Noa; this became the first Israeli gas field to begin commercial production, supplying Israeli power plants by 2004.²¹⁵ Although these initial gas discoveries were small, Delek and Noble Energy went on to make a total of 11 offshore gas discoveries, establishing the presence of abundant hydrocarbons in the Levant Basin (see Figure 5).²¹⁶ Table 1 identifies the dates of Israeli gas field discoveries and production.

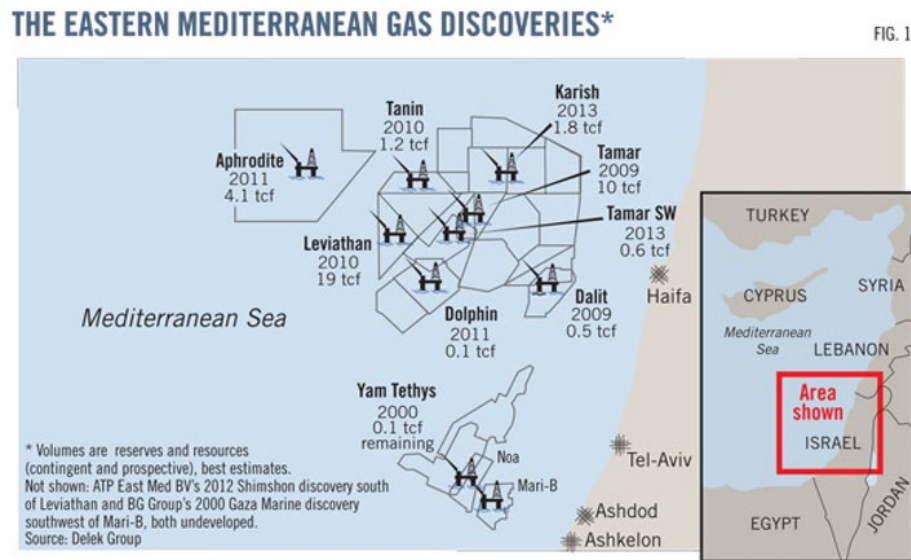


Figure 5. Map of Israeli Oil and Natural Gas Fields²¹⁷

²¹³ Security and Exchange Commission, "History of Oil & Gas Exploration in Israel - 1900 to 2004."

²¹⁴ Delek Group, "History," Delek Group, accessed August 16, 2021, <https://www.delek-group.com/about-us/history/>; The Ministry of National Infrastructure, Energy and Water Resources, "Exploration History."

²¹⁵ The Ministry of National Infrastructure, Energy and Water Resources, "Exploration History."

²¹⁶ Delek Group, "History."

²¹⁷ Bob Tippee, "E. Mediterranean Gas Work Faces Geopolitical Hurdles," *Oil & Gas Journal*, April 7, 2014, <https://www.ogj.com/exploration-development/article/17210652/e-mediterranean-gas-work-faces-geopolitical-hurdles>.

The most significant natural gas discoveries were the Tamar and Leviathan offshore fields, in 2009 and 2010 (see Table 1). These new fields established the Levant Basin as a petroleum province of global standards and gave Israel greater status as a potential regional energy producer. In a March 2010 report, the U.S. Geological Survey projected that the Levant Basin contained 1.7 billion bbl of recoverable oil and 122 trillion cubic feet (tcf) of recoverable natural gas, with Tamar and Leviathan holding a combined 26 tcf of gas.²¹⁸ A 2011 study found that, if half of Israel’s discovered gas was produced at existing extraction rates, Israel would have over 100 years of domestic supply.²¹⁹ These discoveries dramatically changed Israel’s energy situation.

Table 1. Israeli Natural Gas Reserves²²⁰

	Gas Field	Date Discovered	Production Status
Past	Noa	1999	Produced from 2012–2013
	Mari-B	2000	Produced from 2004 -2012
	Pinnacles	2000	Production from 2012–2013
Active	Tamar	2009	Production since 2013
	Leviathan	2010	Production since 2019
Future	Dalit	2009	Production date unknown
	Aphrodite/Ishai	2011	Production set for 2024–2025
	Dolphin	2011	Production date unknown
	Shimshon	2012	Production date unknown
	Tanin	2012	Production set for 2021
	Karish	2013	Production set for 2021
	Royce	2014	Production date unknown
	Daniel	2015	Production date unknown

²¹⁸ C. J. Schenk et al., “Assessment of Undiscovered Oil and Gas Resources of the Levant Basin Province, Eastern Mediterranean,” Fact Sheet 2010–3014 (U.S. Geological Survey, 2010), <https://pubs.usgs.gov/fs/2010/3014/>.

²¹⁹ Michael Ratner, “Israel’s Offshore Natural Gas Discoveries Enhance Its Economic and Energy Outlook,” *Congressional Research Service*, January 31, 2011, 3.

²²⁰ Adapted from: *International Trade Administration*, “Israel Oil and Gas 2021 Energy Resource Guide,” accessed July 21, 2021, <http://www.trade.gov/energy-resource-guide-israel-oil-and-gas>.

C. DOMESTIC RESPONSES

1. Changing The Energy Mix

The discovery of the Tamar and Leviathan fields prompted a dramatic shift in Israel's domestic energy consumption mix. Since the oil crises of 1973–1974 and 1979–1980, Israel had prioritized the reduction of its consumption of oil, to mitigate future political and economic hazards posed by OPEC's potential influence over global oil supplies and prices. Beginning in the 1980s, Israel began seeking energy efficiencies and transitioning oil-dependent power plants to be fueled by coal. Israel also sought to reduce electricity demand by mandating the use of solar-powered water heaters on residential buildings. From 1980–1985, Israel reduced its consumption of oil as a percentage of its electricity production from 100% to 45%. The introduction of natural gas into Israel's energy mix, starting in 2004, enabled Israel to further reduce oil's contribution to electricity generation from 32% in 1999 to less than 1% in 2015.²²¹

Beginning in the early 2000s, Israeli energy industry experts and government policymakers also viewed domestic natural gas production to reduce Israel's consumption of imported coal. Although coal was considered less politically sensitive and volatile than oil, all of Israel's coal supplies were imported from foreign countries, which made increasing domestic energy production inherently appealing.²²² At the same time, Israel's environmental movement began advocating policy interventions to address increasing air pollution, as the reduction of sulfur emissions at three power plants was found to provide a 19% reduction in causes of death.²²³ Between 2012 and 2018, the Environmental Protection Ministry targeted Israel's power stations as the state's leading industrial polluters, arguing that

²²¹ "Electricity Production from Oil Sources (% of Total) - Israel," The World Bank Data, accessed July 29, 2021, <https://data.worldbank.org/indicator/EG.ELC.PETR.ZS?locations=IL>.

²²² Bahgat, "Israel's Energy Security," Fall 2011.

²²³ Maya Negev, "Air Pollution Policy In Israel," *Atmosphere* 11, no. 1065 (October 8, 2020): 2, <https://doi.org/10.3390/atmos11101065>.

coal power plants were responsible for 25% of Israel's pollution, generating 1,000 times more pollutants than natural gas.²²⁴

In response to Israel's natural gas discoveries, the government capitalized on the opportunity to further increase natural gas's share of domestic electricity production for economic and environmental reasons.²²⁵ Natural gas consumption increased from 1.19 bcm in 2004 to 11.25 bcm by 2019.²²⁶ Increased natural gas consumption was led by the electricity sector; it accounted for 78% of Israel's natural gas demand in 2019.²²⁷ By 2019, 60% of Israel's electricity was fueled by natural gas, up from 26% in 2008.²²⁸ Israel's confidence in the benefits of domestic natural gas production led the Ministry of Energy to set an energy mix goal of 83% natural gas and 17% renewables for electricity generation by 2030, aiming for the elimination in Israel's use of oil and coal.²²⁹

2. Energy Policy Reforms

The possibility of a government revenue windfall and the perception that domestic energy production would free Israel from the chronic threat of energy shortages quickly captured the attention of the domestic population and the Israeli government.²³⁰ Natural gas became viewed as the solution to Israel's energy problems. The government of Israel adopted several policy measures to oversee the exploitation of domestic natural gas, handle the economic impact, and manage government revenues. The Israeli National Economic Council expected significant net revenues from gas exports, estimating \$1.5 billion annually per 10

²²⁴ Zafir Rinat, "Who Are Israel's Biggest Polluters?," *Haaretz*, December 2, 2013, <https://www.haaretz.com/.premium-who-are-israels-biggest-polluters-1.5296325>; Nick Kolyohin, "Israel to Stop Using Coal by 2025–2030 -," *Xinhua*, August 11, 2018, http://www.xinhuanet.com/english/2018-08/11/c_137383571.htm.

²²⁵ Ratner, "Israel's Offshore Natural Gas Discoveries Enhance Its Economic and Energy Outlook," 6.

²²⁶ Ashwarya, "Natural Gas Discoveries and Israel's Energy Security."

²²⁷ Ashwarya.

²²⁸ Ratner, "Israel's Offshore Natural Gas Discoveries Enhance Its Economic and Energy Outlook," 6.

²²⁹ International Trade Administration, "Israel - Energy," International Trade Administration, September 13, 2020, <http://www.trade.gov/knowledge-product/israel-energy>.

²³⁰ Sachs and Boersma, "The Energy Island: Israel Deals with Its Natural Gas Discoveries," 3–11.

bcm of exports.²³¹ In October 2011, the Prime Minister appointed an inter-ministerial working group to recommend government policy regarding the management of the natural gas industry. The committee sought to guarantee energy security for Israel's citizens, create certainty for the commercial market, maximize economic benefit, create competition, and provide policy flexibility to react to economic changes.²³²

The inter-ministerial committee, led by Ministry of Energy and Water Resources director Shaul Tzemach, determined that the government had four primary objectives: to maintain reserves for the local market, to make the natural gas market attractive to foreign investors, to keep prices low for consumers, and to raise state revenue from the taxation of gas profits.²³³ After reviewing international gas policies, the committee recommended that 45% of the natural gas be dedicated for the domestic market, leaving 55% for export. In response to the committee's recommendations, national level debate ensued, and numerous interest groups submitted position papers to voice their concerns and interests.²³⁴

During the spring and summer of 2012, Green Course, the largest volunteer environmental organization in Israel, together with 12 other environmental and social organizations, led protest rallies, public debate, and social media discussions to prevent the "theft" of natural gas through export.²³⁵ Green Course and other interest groups called for the cancellation or revision of the Tzemach committee's plan, viewing natural gas as a strategic resource to reduce air pollution, lower costs of living, give energy independence and security to Israel, and create jobs. In response to the protests, in June 2013, the Israeli cabinet approved

²³¹ Itay Fischhendler and Daniel Nathan, "In the Name of Energy Security: The Struggle over the Exportation of Israeli Natural Gas," *Energy Policy* 70 (July 1, 2014): 152, <https://doi.org/10.1016/j.enpol.2014.03.020>.

²³² Israel Inter-Ministerial Tzemach Committee, "Recommendations of the Inter-Ministerial Committee to Examine Government Policy Regarding Natural Gas in Israel," September 2012, https://www.gov.il/BlobFolder/reports/ng_committee/he/main_recommendations_Tzemach_report.pdf.

²³³ Amiram Barkat, "Tzemach committee to recommend allowing gas exports," *Globes*, March 20, 2012, sec. Features, <https://en.globes.co.il/en/article--1000734721>.

²³⁴ Fischhendler and Nathan, "In the Name of Energy Security," 155.

²³⁵ Green Course, "2012-2013 The Fight to Keep the Natural Gas in Israel -," Green Course, June 28, 2016, <https://www.green.org.il/en/2012-2013-fight-keep-natural-gas-israel/>.

a plan to reserve 60% of Israel's natural gas for domestic use: a 15% increase from the originally recommended 45%.²³⁶

In July 2014, the Knesset passed a sovereign wealth fund law to set up the Israeli Citizens' Fund (ICF), intended to accumulate state revenues from taxes on natural gas windfall and revenues from the extraction of other natural resources.²³⁷ Israel's sovereign wealth fund was created to prevent natural resources income from overheating the national currency, and to create a mechanism to fund long-term education programs, welfare, and other government services. Although the ICF was intended to launch in 2018, as of July 2021, Israel's sovereign wealth fund had not yet made sufficient profits to reach the minimum \$1 billion shekels (US\$307 million) required to begin investing.²³⁸

The delay in government revenues is partially attributable to anti-trust disputes, which slowed the commercial development of Tamar and Leviathan. An investigation by the national Competition Authority found that the partners of Tamar and Leviathan held a monopoly on Israel's natural gas market, which subjected them to government restrictions and delayed development timelines. In an effort to increase competition, encourage greater investment, and promote the development of existing gas fields, the government adopted the Gas Framework in 2015.²³⁹ Israel's Energy Ministry allowed Noble Energy and Delek Group to keep control of Leviathan; however, Delek was required to sell its stake in Tamar within six years, and Noble Energy was required to decrease its stake in Tamar to 25%.²⁴⁰ Although Tamar and Leviathan owners signed contracts with the Israel Electric Company (IEC),

²³⁶ Avi Bar-Eli and Moti Bassok, "Israeli Cabinet Votes Yea on Natural Gas Export," *Haaretz*, June 23, 2013, sec. Business.

²³⁷ Yago, "We Need to Rethink the Citizen Wealth Fund."

²³⁸ Reuters, "Israel's Wealth Fund Delayed Again as Tax Revenue Still Short," *Reuters*, July 5, 2021, sec. Middle East, <https://www.reuters.com/world/middle-east/israels-wealth-fund-delayed-again-tax-revenue-still-short-2021-07-05/>.

²³⁹ The Ministry of National Infrastructure, Energy and Water Resources, "Policy and Government Decisions," The Ministry of National Infrastructure, Energy and Water Resources, accessed May 28, 2021, <https://www.energy-sea.gov.il/English-Site/Pages/Regulation/Policy.aspx>.

²⁴⁰ Reuters, "Israel Plans to Let Noble, Delek Keep Control of Leviathan Gas Field," *Reuters*, June 30, 2015, sec. Oil and Gas, <https://www.reuters.com/article/energy-israel-natgas-idUSL8N0ZG1LW20150630>.

disputes related to competitive pricing and domestic quotas have complicated domestic production.²⁴¹

To increase the domestic use of natural gas and reduce dependence on oil imports, the Israeli Ministry of Energy has also adopted measures to replace gasoline and diesel-powered vehicles with electric cars and trucks that run on compressed natural gas. These include investing in expansion of its gas distribution system and vehicle charging stations. In 2018, former Energy Minister Yuval Steinitz stated that Israel plans to reduce taxes on electric vehicles and prohibit the import of gasoline and diesel-fueled vehicles by 2030.²⁴² The Ministry of Energy has argued that Israel's energy security is best served by increasing the use of domestic natural gas and renewables, arguing that reducing coal and oil consumption will decrease air pollution, which causes 2,500 deaths per year.²⁴³

Israeli energy companies have also used anti-trust regulations to attract foreign investment in Israel's natural gas industry. In 2020, Chevron acquired Texas-based Noble Energy, establishing the California-based company as a major investor in Israel's offshore natural gas industry, holding a 25% stake in Tamar and 39.66% stake in Leviathan.²⁴⁴ Separately, after Israel normalized relations with the UAE in September 2020, the EAPC signed a deal in Abu Dhabi, with Dutch-Emirati-Israeli Med-Red Land Bridge joint venture to transport Gulf oil to European markets and from the Mediterranean to the Red Sea.²⁴⁵ In

²⁴¹ Sue Surkes, "IEC Asks Antitrust Boss to Probe Noble Energy for Holding It 'Hostage,'" *The Times of Israel*, October 7, 2020, <https://www.timesofisrael.com/iec-asks-antitrust-boss-to-probe-noble-energy-for-holding-it-hostage/>.

²⁴² Reuters, "Israel Aims for Zero New Gasoline, Diesel-Powered Vehicles by 2030," *Reuters*, October 9, 2018, sec. Environment, <https://www.reuters.com/article/us-israel-electric-vehicles-idUKKCN1MJ1PS>.

²⁴³ Solomon, "Israel Aims to Eliminate Use of Coal, Gasoline and Diesel by 2030."

²⁴⁴ Ron Bousso and Ari Rabinovitch, "Chevron Shuts Tamar Gas Field off Israeli Coast as Unrest Flares," *Reuters*, May 12, 2021, sec. Middle East, <https://www.reuters.com/world/middle-east/chevron-shuts-down-tamar-gas-field-off-israel-coast-wake-unrest-2021-05-12/>.

²⁴⁵ Pipeline & Gas Journal, "Med Red Land Bridge Inaugurates Operations Through EAPC Pipeline Network," *Pipeline & Gas Journal*, April 19, 2021, <https://pgjonline.com/news/2021/april/med-red-land-bridge-inaugurates-operations-through-eapc-pipeline-network>; Sue Surkes, "Green Groups Ask High Court to Halt Secret UAE Oil Deal Signed by State Company," accessed August 13, 2021, <https://www.timesofisrael.com/green-groups-ask-high-court-to-halt-secret-uae-oil-deal-signed-by-state-company/>; Ari Rabinovitch, "The Emirati Oil Deal That Has Infuriated Israeli Environmentalists," *Reuters*, June 15, 2021, sec. Environment, <https://www.reuters.com/business/environment/emirati-oil-deal-that-has-infuriated-israeli-environmentalists-2021-06-14/>.

April 2021, Delek Drilling agreed to sell its 22% share of the Tamar gas field to a UAE-based energy firm, Mubadala Petroleum, which belongs to an Abu Dhabi sovereign wealth fund. Israel also deepened its energy ties with Greece, after Greek-owned Energean made a 28–42 bcm natural gas discovery at Karish in 2019.²⁴⁶ In March 2021, Greek-Italian joint venture IGI Poseidon signed an agreement with Israel National Gas Lines Company to build facilities in Israel for the planned East-Med pipeline.²⁴⁷

3. Securing Gas Fields

In response to Israel's natural gas discoveries, the state has expanded its maritime security assets and changed its naval doctrine to protect its offshore natural gas infrastructure.²⁴⁸ According to Israeli Navy Commander Major General Eli Sharvit, defending Israel's EEZ and strategic assets at sea has become a primary mission of the Israeli Navy.²⁴⁹ In 2011, the Israel Defense Forces (IDF) planned to devote the majority of their Sa'ar 4.5 missile boat capacity to protecting Israeli offshore drilling rigs.²⁵⁰ In 2012, Israeli Navy officials requested a budget increase to fund its new mission, and when gas production at Tamar began in 2013, the Israeli Navy boosted its maritime patrols around Tamar and Leviathan.²⁵¹ In addition to the increased maritime patrols, the Israeli Air Force began conducting intelligence, surveillance, and reconnaissance (ISR) patrols, and Israel signed a contract in May 2015 to purchase six Sa'ar 6 corvettes capable of intercepting rockets, cruise

²⁴⁶ *Reuters*, "Greece's Energean Discovers Natural Gas Reserve Offshore Israel," April 15, 2019, sec. Commodities News, <https://www.reuters.com/article/us-israel-energean-oil-idUSKCN1RR0WY>.

²⁴⁷ *Reuters*, "Greek-Italian Venture Signs Agreement with Israel on Eastmed Gas Pipeline Scheme," March 9, 2021, sec. Utilities - Natural Gas, <https://www.reuters.com/article/greece-israel-natgas-idUSL8N2L73PW>.

²⁴⁸ Yael Teff-Seker, Aviad Rubin, and Ehud Eiran, "Israel's 'Turn to the Sea' and Its Effect on Israeli Regional Policy," *Israel Affairs* 25, no. 2 (March 4, 2019): 234–55, <https://doi.org/10.1080/13537121.2019.1577037>.

²⁴⁹ Seth Frantzman, "Israel Shifts Naval Doctrine with New Sa'ar 6 Warships," *Defense News*, November 5, 2020, <https://www.defensenews.com/naval/2020/11/05/israel-shifts-naval-doctrine-with-new-saar-6-warships/>.

²⁵⁰ Gili Cohen, "Israel Navy to Devote Majority of Missile Boats to Secure Offshore Drilling Rafts," *Haaretz*, January 9, 2012, <https://www.haaretz.com/1.5161319>.

²⁵¹ Gili Cohen, "Israel Navy Demands NIS 3 Billion for Protection of Gas Rigs," *Haaretz*, July 9, 2012, <https://www.haaretz.com/navy-demands-billions-to-protect-gas-rigs-1.5265338>.

missiles, and ballistic missiles launched at gas rigs.²⁵² During fighting between Israel and Hamas in May 2021, Hamas fired dozens of rockets toward the Tamar offshore gas platform, but the rig was protected by a ship-borne Iron Dome anti-missile battery.²⁵³ Hamas also attempted to launch a guided torpedo at the offshore rig; it was thwarted by the IDF.²⁵⁴ In order to protect Israel's offshore gas rigs, the IDF has also significantly improved the offensive and defensive capability of its naval inventory, amended its maritime strategy, and expanded its naval patrol capacity.

Israel has also used its improved naval security capability and shared energy interests as public diplomacy tools, which led to the initiation of defense cooperation with Greece and Cyprus. Since 2011, Israel has conducted annual air and naval exercises with Greece. These initially included the simulation of defending offshore gas drilling installations.²⁵⁵ According to Greek media, the dates of the April 2012 Noble Dina military exercise were changed to coincide with the signing of a tripartite energy memorandum of understanding between Greece, Cyprus, and Israel, to signal that the states were prepared to defend their offshore energy assets.²⁵⁶ In March 2021, Cyprus joined the annual Noble Dina military exercise with Israel, Greece, and France for the first time.²⁵⁷ Prior to 2011, the Israeli Navy was a small force focused on littoral coast guard operations.²⁵⁸ Israel had little military cooperation with

²⁵² Cohen.

²⁵³ Judah Ari Gross, "Hamas Attempting to Hit Tamar Offshore Gas Rig with Rockets," *The Times of Israel*, May 16, 2021, <https://www.timesofisrael.com/hamas-attempting-to-hit-tamar-offshore-gas-rig-with-rockets/>.

²⁵⁴ Yaakov Lappin, "As Underwater Threats Proliferate, Autonomous Israeli Sea Vessel Stands Guard," *Israel Hayom*, June 7, 2021, <https://www.israelhayom.com/2021/06/07/as-underwater-threats-proliferate-autonomous-israeli-sea-vessel-stands-guard/>.

²⁵⁵ Gabe Fisher, "Joint Israeli-Greek Military Drill Seen by Some as Rebuff to Turkey," *The Times of Israel*, April 1, 2012, <http://www.timesofisrael.com/israel-greek-us-military-run-joint-exercises-in-eastern-med/>.

²⁵⁶ Stella Tsolakidou, "Greece Joins Israel-USA Military Exercise in Southern Mediterranean," *Greek Reporter*, March 28, 2012, <https://greekreporter.com/2012/03/28/greece-joins-israel-usa-military-exercise-in-southern-mediterranean/>.

²⁵⁷ Dov S. Zakheim, "Uncertain of U.S. Intentions, Four Allies Exercise Their Naval Muscle," *The Hill*, March 19, 2021, <https://thehill.com/opinion/national-security/543754-uncertain-of-us-intentions-four-allies-exercise-their-naval-muscle>.

²⁵⁸ Orhan Babaoglu, "Reliant Mermaid Naval Exercise: Increasing the Peacetime Role of Navies," Policy Analysis, Policy Watch 943 (Washington Institute, January 18, 2005), <https://www.washingtoninstitute.org/policy-analysis/reliant-mermaid-naval-exercise-increasing-peacetime-role-navies>.

Greece or Cyprus, and primarily conducted humanitarian search and rescue and anti-terrorism force protection exercises to boost peacetime interoperability with Turkey and the U.S. However, since Greece and Israel signed a defense cooperation agreement in 2012, defense cooperation has expanded, as Israel and Greece signed a \$1.65 billion defense procurement deal in April 2021.²⁵⁹ Israel has used its mutual energy interests with Greece and Cyprus to not only enhance its maritime security interests, but to also strengthen its broader security interests.

D. INTERNATIONAL RESPONSES

1. Maritime Boundary Agreements

Since discovering natural gas, Israel has accelerated its efforts to establish agreements to settle its maritime boundaries. Given the potential for disagreement with neighbors over rights to natural gas, Israel has prioritized the establishment of maritime boundaries to enable energy companies to commercially exploit Israel's offshore gas reserves. Despite on-going conflicts with Lebanon and Hamas, and complex relationships with Cyprus, the Palestinian Authority (PA) and Egypt, Israel has managed to engage regional neighbors in negotiations.

Israel prioritized negotiations with Cyprus over the states' bilateral maritime boundary because an official delineation of their EEZs was viewed as essential to Israel's ability to secure and commercialize its offshore resources. In December 2010, Israel signed a bilateral agreement delineating a maritime boundary agreement with Cyprus, establishing the outer limit of Israel's EEZ (see Figure 6). The maritime boundary agreement enabled Cyprus to create blocks and license its EEZ for international oil and gas exploration beginning in August 2011.²⁶⁰ Israel has used the maritime boundary agreement with Cyprus to facilitate negotiations over the ownership of contested gas reservoirs. Since the discovery of the Aphrodite gas field in December 2011, which spans the Israeli and Cypriot EEZs, Israel has engaged in negotiations with Cyprus to ensure that Israel receives fair compensation for the

²⁵⁹ Udi Shaham, "Israel and Greece Sign Record Defence Deal," *Al Jazeera*, April 18, 2021, <https://www.aljazeera.com/news/2021/4/18/israel-greece-sign-record-defence-deal>.

²⁶⁰ Reuters, "Timeline: Turkey's Gas Exploration off Cyprus Raises Tensions," October 14, 2019, sec. Commodities, <https://www.reuters.com/article/us-cyprus-turkey-ship-timeline-idUSKBN1WT20L>.

portion of Aphrodite that falls within Israel's EEZ (see Figure 7).²⁶¹ Additionally, Israel has engaged in multilateral E&P in Cyprus' EEZ, as companies Delek Drilling, Shell, and Noble Energy jointly operate the Aphrodite field.²⁶² Israel has also used its mutual energy interests with Cyprus to establish stronger bilateral ties. In February 2012, Prime Minister Netanyahu became the first Israeli leader to visit Cyprus, discussing energy, agriculture, and tourism with President Christofias.²⁶³ Prior to 2010, Israel and Cyprus did not have close ties due to Cyprus' support for the Palestinians in the Arab-Israeli conflict and Israel's alignment with Turkey. However, Cyprus' desire to exploit offshore energy resources enabled Israel to pursue diplomatic rapprochement.



Figure 6. 2010 Cyprus-Israel Maritime Boundary²⁶⁴

²⁶¹ Ari Rabinovitch and Michele Kambas, "Cyprus, Israel Seek Gas-Sharing Formula to Unlock East Med Energy Hub," *Reuters*, May 7, 2018, <https://www.reuters.com/article/us-israel-cyprus-aphrodite-idUSKBN1I80UQ>.

²⁶² Offshore Technology, "Israel, Cyprus Agree Framework to Settle Dispute over Aphrodite Gas Field," March 11, 2021, <https://www.offshore-technology.com/news/israel-cyprus-framework-aphrodite-field/>.

²⁶³ The Associated Press, "Cyprus: First Visit by an Israeli Leader," February 17, 2012, sec. World, <https://www.nytimes.com/2012/02/17/world/europe/cyprus-first-visit-by-an-israeli-leader.html>.

²⁶⁴ Sovereign Limits, "Cyprus-Israel Maritime Boundary," International Boundaries Database, accessed July 17, 2021, <https://sovereignlimits.com/boundaries/cyprus-israel-maritime>.

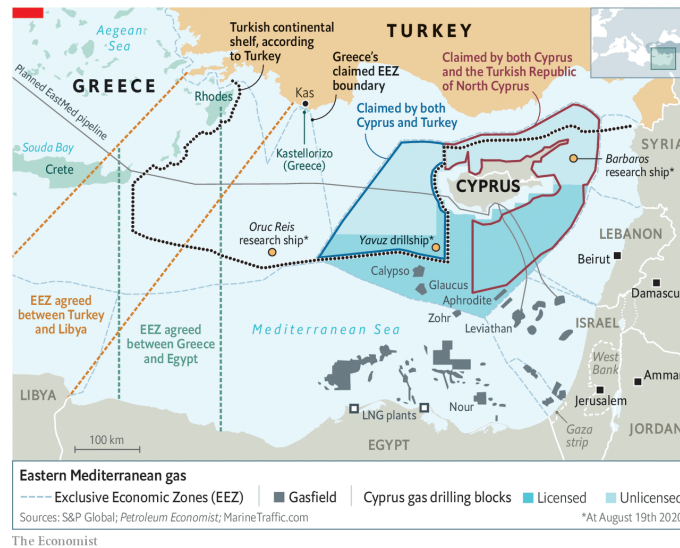


Figure 7. 2020 Eastern Mediterranean Natural Gas Fields²⁶⁵

Israel has also pursued maritime boundary negotiations with Lebanon to facilitate commercial exploitation of the Karish and Tanin gas fields, located near the states' disputed maritime border. Although Lebanon and Israel technically do not have a formal land border agreement, as the "Blue Line" was established by the United Nations following Israel's withdrawal from Lebanon in 2000, the states have been willing to discuss an agreement for commercial reasons.²⁶⁶ Since October 2020, the states have conducted multiple rounds of negotiations with U.S. mediation and UN sponsorship, most recently in May 2021. In 2018, Lebanon signed E&P agreements with a consortium of companies comprised of French-owned Total, Italian-owned Eni, and Russian-owned Novatek in Blocks 4 and 9 (see Figure 8).²⁶⁷ Total drilled Lebanon's first offshore exploration well within Block 4 in early 2020 but failed to make a commercial discovery.²⁶⁸ Lebanon has been optimistic about its gas

²⁶⁵ The Economist, "Angst in the Aegean - A Row between Turkey and Greece over Gas Is Raising Tension in the Eastern Mediterranean."

²⁶⁶ Simon Henderson, "Lines in the Sea: The Israel-Lebanon Maritime Border Dispute," Policy Analysis, Policy Watch 3480 (The Washington Institute, May 3, 2021), <https://www.washingtoninstitute.org/policy-analysis/lines-sea-israel-lebanon-maritime-border-dispute>.

²⁶⁷ "Total Strengthens Its Position in the Mediterranean Region by Entering Two Exploration Blocks Offshore Lebanon," Total Energies, February 9, 2018, <https://totalenergies.com/media/news/press-releases/total-strengthens-position-in-mediterranean-region-by-entering-two-exploration-blocks-offshore-lebanon>.

²⁶⁸ "Exploration and Production," Total Energies, accessed August 6, 2021, <https://lb.totalenergies.com/en/who-we-are/totalenergies-lebanon/exploration-and-production>.

prospects in Block 9, due to its proximity to Karish and Tanin. Lebanon's Ministry of Energy and Water has extended the deadline for exploratory drilling in Block 9 until August 13, 2022; however, Total has said it will avoid drilling within the disputed portion of Block 9 until the border issue is settled.²⁶⁹ Maritime boundary talks had previously been blocked by Hezbollah; however, severe power shortages have likely driven Hezbollah to compromise, as an agreement would allow Lebanon to secure more foreign investments for E&P.²⁷⁰ Although Hezbollah has made militaristic statements regarding its defense of offshore resources and threatening Israeli gas rigs, both Israel and Lebanon have preferred negotiations over military action to promote commercial investments.²⁷¹

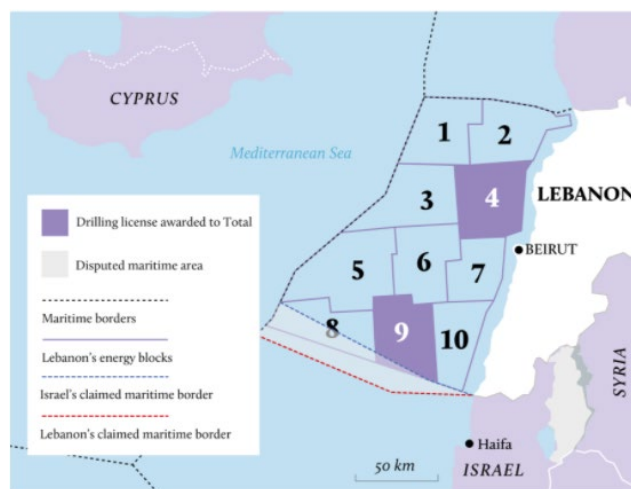


Figure 8. Disputed Israel-Lebanon Maritime Boundary²⁷²

²⁶⁹ Lebanese Petroleum Administration, "Continuation of the Exploration Activities in Blocks 4 and 9," Lebanese Petroleum Administration, January 6, 2021, <https://www.lpa.gov.lb/english/news-amp-media/news/continuation-of-the-exploration-activities-in-blocks-4-and-9>; *The Times of Israel*, "Lebanon Starts Drilling First Offshore Oil and Gas Exploration Well," February 25, 2020, <https://www.timesofisrael.com/lebanon-starts-drilling-first-offshore-oil-and-gas-exploration-well/>.

²⁷⁰ Dana Khraiche, "Lebanese Power Stations Shut Down as Crisis Deepens," *Bloomberg*, July 9, 2021, <https://www.bloomberg.com/news/articles/2021-07-09/lebanese-power-stations-shut-down-as-crisis-deepens>.

²⁷¹ *The Times of Israel*, "Hezbollah Issues Fresh Threat against Israel's Offshore Gas Rigs," February 18, 2018, <https://www.timesofisrael.com/hezbollah-threatens-to-strike-israels-offshore-gas-platforms/>.

²⁷² Source: Mustafa Abu Sneineh and Adam Chamseddine, "Israel and Lebanon's Border Dispute Could Give the UAE a Mediterranean Foothold," *Middle East Eye*, February 13, 2021, <http://www.middleeasteye.net/news/uae-israel-lebanon-gas-mediterranean-foothold>.

Israel's desire to commercialize natural gas from Leviathan likely led the government to adjust its policy position related to Palestinian access to gas resources off of Gaza. Although the 1994 Oslo II Accord gave the Palestinians economic control up to 20 nautical miles off the coast of Gaza, the breakdown of the peace process and Second Intifada from 2000 to 2005 drove Israel to restrict Palestinian maritime privileges and block the development of Gaza's offshore gas reserves, which had been discovered by British Gas (BG) in August 2000.²⁷³ Israel considered purchasing Gaza gas through BG; however, negotiations ended in 2007 due to irreconcilable differences.²⁷⁴ Although the PA signed the United Nations Convention on the Law of the Sea in 2015 and submitted a map of its maritime EEZ to the UN, maritime boundary negotiations did not begin in earnest until the PA cancelled BG's exclusive rights to the Gaza gas reserves and Shell relinquished its stake in the gas to Palestine in 2018.²⁷⁵ By establishing the Palestinian Investment Fund as the main stakeholder of the gas resources, an opening was created to allow Egypt to become an operator of Gaza's gas reserves.²⁷⁶ Israel and Egypt also became more interested in bolstering PA control of Gaza's offshore gas resources as a potential solution to the Palestinian energy crisis.²⁷⁷ The potential for Egypt, Israel, and the PA to mutually benefit from Gaza's offshore gas resources enabled the PA and Egypt (and Israel, tacitly) to begin negotiating their politically sensitive maritime boundary in November 2020.²⁷⁸

²⁷³ Ahmad Melhem, "Will Israel Go through with Plan to Develop Gaza Gas Field?," *Al Monitor*, January 28, 2020, <https://www.al-monitor.com/originals/2020/01/palestinian-authority-israel-import-gas-gaza-field-power.html>.

²⁷⁴ Anaïs Antreasyan, "Gas Finds in the Eastern Mediterranean: Gaza, Israel, and Other Conflicts," *Journal of Palestine Studies* 42, no. 3 (2013): 33, <https://doi.org/10.1525/jps.2013.42.3.29>.

²⁷⁵ Nidal al-Mughrabi, "Shell Gives up on Gaza's Offshore Gas Field - Palestinians," *Reuters*, March 5, 2018, sec. Business News, <https://www.reuters.com/article/uk-israel-palestinians-gas-idUKKBN1GH2F4>.

²⁷⁶ Nidal al-Mughrabi, "Palestinians, Seeking New Developer, Offer 45 Pct Stake in Gaza Gas Field," *Reuters*, April 4, 2018, sec. Utilities - Natural Gas, <https://www.reuters.com/article/israel-palestinians-gas-idUSL5N1RH2D5>.

²⁷⁷ Michael Harari, "The Diplomatic Potential in Developing Gaza's Offshore Gas Field," *The Jerusalem Post*, May 16, 2020, sec. Opinion, <https://www.jpost.com/opinion/the-diplomatic-potential-in-developing-gazas-offshore-gas-field-628272>.

²⁷⁸ Ahmad Abu Amer, "Egypt to Negotiate Sea Border with Palestine," *Al Monitor*, November 3, 2020, <https://www.al-monitor.com/originals/2020/11/palestine-egypt-negotiations-maritime-border-demarcation.html>.

By February 2021, the Egyptian Minister of Petroleum & Mineral Resources signed a memorandum of understanding for EGAS to help develop the Gaza Marine field, with Israeli approval.²⁷⁹ Israel has also supported plans by Qatar and the EU to fund a gas pipeline extension to connect Leviathan to Gaza by 2023, to meet Gaza's energy demand until production from the PA-Egyptian-owned gas field begins.²⁸⁰ Despite the political sensitivity of Gaza's EEZ, Israel has supported the negotiation of Gaza's maritime boundaries with Egypt and the development of Palestinian natural gas, as these agreements have supported Israel's ambition to solve energy liabilities, develop the regional gas market, and expand the region's natural gas infrastructure.

2. Regional Energy Trade

After its discoveries of Tamar and Leviathan, Israel began examining its policies and options for exporting natural gas. In 2010, the most promising recipients for exports were Greece, Turkey, and Jordan, with high hopes for potential exports to Europe. In August 2010, Prime Minister Netanyahu proposed building a pipeline for natural gas sales to Greek Prime Minister Papandreou during a visit to Greece, without having discussed the plan with the Ministry of National Infrastructure.²⁸¹ However, by the time the Israeli government decided that it would authorize the export of up to 40% of its natural gas production in June 2013, the prospects of exports to Turkey and Greece had diminished due to concerns about insufficient demand in the European gas market and geopolitical complications related to Turkey and Cyprus.

In 2014, the most promising recipients for Israeli gas exports became the PA, Jordan, and Egypt. In 2014, Israel negotiated export contracts with the PA and Jordan. Although Israel's export contract with the PA was cancelled due to Israeli anti-trust issues, the PA was

²⁷⁹ Aaron Boxerman, "PA and Egypt Agree to Develop Natural Gas Field off Gaza," *The Times of Israel*, February 21, 2021, https://www.timesofisrael.com/liveblog_entry/pa-and-egypt-agree-to-develop-natural-gas-field-off-gaza/.

²⁸⁰ Ari Rabinovitch and Nidal Al-Mughrabi, "Gas to Gaza? The Pipeline That Might Provide a Lifeline," *Reuters*, February 23, 2021, sec. Energy, <https://www.reuters.com/business/energy/gas-gaza-pipeline-that-might-provide-lifeline-2021-02-23/>.

²⁸¹ Avi Bar-Eli, "Netanyahu Offers Natural Gas to Greece," *Haaretz*, August 29, 2010, <https://www.haaretz.com/1.5106507>.

the first non-Israeli customer to agree to purchase Israeli gas, to fuel the Jenin power plant in the West Bank.²⁸² Noble Energy also signed a 15-year natural gas deal with two Jordanian companies in 2014.²⁸³ Despite Jordanian public opposition toward energy cooperation with Israel, privately-owned Arab Potash Company and Jordan Bromine Company signed modest gas export agreements for Noble Energy to provide 66 bcm gas exports total from the Tamar field to industrial facilities at the Dead Sea.²⁸⁴ The exports to Jordan began in 2017.²⁸⁵ In 2016, Israel signed a much larger 15-year contract to supply 1.59 tcf to Jordan's National Electric Power Company from Leviathan, which began receiving natural gas through the Israel-Jordan Gas Pipeline in January 2020.²⁸⁶ Although Israel's trade agreements with Jordan and the PA were all met with strong Arab public opposition, Israel has continued to seek energy trade with its Arab neighbors.

Israel's gas export deal with Egypt took longer to establish due to complications related to the termination of Egyptian gas exports to Israel in 2012, previously discussed at the end of Chapter 2. At the time, regional analysts viewed the failed 2005 gas deal as evidence that geopolitical tensions would continue to trump economic considerations, and some scholars feared that the failed gas deal would aggravate political tensions between Egypt and Israel.²⁸⁷ In response to the breach of contract, Israel requested international arbitration to compensate for expenses, as the IEC was forced to use more expensive diesel and fuel oil to

²⁸² Eran Azran, "Palestinians Become First Customer of Israel's Leviathan Gas Field," *Haaretz*, January 6, 2014, <https://www.haaretz.com/israel-news/business/palestinians-to-buy-israeli-gas-1.5308230>.

²⁸³ Eran Azran, "Israel Quietly Begins Exporting Natural Gas to Jordan amid Political Sensitivities," *Haaretz*, March 2, 2017, sec. Business, <https://www.haaretz.com/israel-news/business/israel-quietly-begins-exporting-gas-to-jordan-1.5443894>.

²⁸⁴ The Ministry of National Infrastructure, Energy and Water Resources, "Export," The Ministry of National Infrastructure, Energy and Water Resources, accessed July 21, 2021, [https://www.energy-sea.gov.il/English-Site/Pages/Gas Markets/Israels-Export-Options.aspx](https://www.energy-sea.gov.il/English-Site/Pages/Gas%20Markets/Israels-Export-Options.aspx); Azran, "Israel Quietly Begins Exporting Natural Gas to Jordan amid Political Sensitivities."

²⁸⁵ *International Trade Administration*, "Israel Oil and Gas 2021 Energy Resource Guide."

²⁸⁶ *The Economist*, "Jordan Agrees Gas Purchase Deal with Israel," September 29, 2016, <http://country.eiu.com/article.aspx?articleid=1894657373>.

²⁸⁷ Steve LeVine, "Why Israel's Gas Deal with Egypt Really Blew up," *Foreign Policy*, April 23, 2012, <https://foreignpolicy.com/2012/04/23/why-israels-gas-deal-with-egypt-really-blew-up/>.

supply its power stations.²⁸⁸ In December 2015, the International Chamber of Commerce ordered the Egyptian Ministry of Petroleum to pay \$2 billion to IEC and the Eastern Mediterranean Gas Company in compensation, which Egypt appealed.²⁸⁹

Despite this dispute, Israel and Egypt continued to pursue commercial energy agreements. In 2018, Delek Drilling and Noble Energy announced a \$15 billion export agreement to sell 2.3 tcf of natural gas from Leviathan and Tamar over a 10-year period to Egyptian company Dolphinus Holdings.²⁹⁰ The deal was amended in October 2019, increasing the total volume supplied to 3 tcf over 15 years, and exports began in January 2020 through the Eastern Mediterranean Gas (EMG) pipeline (see Figure 9).²⁹¹ Finally, Egypt and Israel agreed to a significantly reduced \$500 million settlement over their gas dispute, which Egypt agreed to pay over a period of 8 years.²⁹²

In addition to supporting regional export deals, the Israeli government has recently supported the increase of gas export levels by encouraging offshore pipeline construction. The Ministry of Energy has backed undersea pipeline proposals to connect Israeli and Cypriot gas fields to Europe, a gas pipeline from the Leviathan field to Cyprus, and a pipeline linking Leviathan to Egypt's LNG facilities in Damietta or Idku (see Figure 9).²⁹³

²⁸⁸ *Reuters*, "Swiss Court Tells Egyptian Energy Companies to Compensate Israel," April 28, 2017, sec. Commodities, <https://www.reuters.com/article/us-israel-egypt-compensation-idUSKBN17U2QC>.

²⁸⁹ *Reuters*.

²⁹⁰ Josef Federman, "Israeli Gas Company Announces \$15B Export Deal with Egypt," *Washington Post*, February 19, 2018, sec. Middle East, https://www.washingtonpost.com/world/middle_east/israeli-gas-company-announces-15b-export-deal-with-egypt/2018/02/19/af7b2fae-1575-11e8-930c-45838ad0d77a_story.html.

²⁹¹ *Bloomberg*, "Noble Energy Amends Gas Sales Contracts With Dolphinus Holdings Limited, Increasing Firm Sales Volumes Into Egypt," *Bloomberg*, October 2, 2019, <https://www.bloomberg.com/press-releases/2019-10-02/noble-energy-amends-gas-sales-contracts-with-dolphinus-holdings-limited-increasing-firm-sales-volumes-into-egypt>.

²⁹² *Reuters*, "Egypt in \$500 Million Settlement with Israel Electric Corp -Statement," June 16, 2019, sec. Integrated Oil & Gas, <https://www.reuters.com/article/egypt-energy-israel-idUSL8N23N0TY>.

²⁹³ The Ministry of National Infrastructure, Energy and Water Resources, "Export."

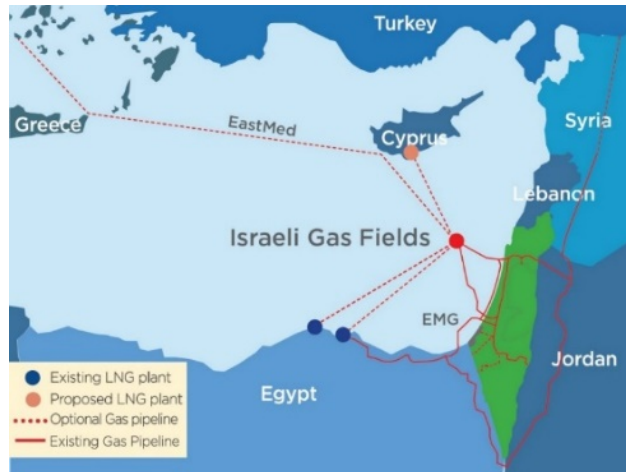


Figure 9. Israel Ministry of Energy Gas Export Options²⁹⁴

These broader export plans have not yet come to fruition. Egypt halted its own LNG exports from Idku for a few months in March 2020, in response to weak global spot prices triggered by increased supply from new American, Russian, and Australian LNG plants, as well as a decline in gas demand due to the COVID-19 pandemic.²⁹⁵ However, forecasts by the International Energy Agency (IEA) expected a strong rebound in LNG demand in 2021, a 7% jump in global demand from pre-COVID levels by 2024, and moderate growth in global LNG consumption through 2040.²⁹⁶ To capitalize on a limited window of 20–25 years for natural gas exports, before the gas market is expected to weaken, an inter-ministerial committee recently recommended an easing of export quotas, from 40 to 52%, and not imposing export quotas on new gas fields.²⁹⁷ In 2019, Israel had previously loosened the requirement to connect all gas fields to Israel and reduced the amount of gas

²⁹⁴ The Ministry of National Infrastructure, Energy and Water Resources.

²⁹⁵ U.S. Energy Information Administration, “Global Liquefied Natural Gas Trade Was Flat in 2020 amid Pandemic,” July 9, 2021, <https://www.eia.gov/todayinenergy/detail.php?id=48656>; Stuart Elliott, “No Egyptian LNG Cargoes Shipped since March on Low Prices, Coronavirus,” May 19, 2020, <https://www.spglobal.com/platts/en/market-insights/latest-news/natural-gas/051920-no-egyptian-lng-cargoes-shipped-since-march-on-low-prices-coronavirus>.

²⁹⁶ Anna Shiryayevskaya, Ann Koh, and Stephen Stapczynski, “The Era of Cheap Natural Gas Ends as Prices Surge by 1,000%,” *Bloomberg*, August 5, 2021, sec. Markets, <https://www.bloomberg.com/news/articles/2021-08-06/the-era-of-cheap-natural-gas-ends-as-prices-surge-by-1-000>.

²⁹⁷ Shoshanna Solomon, “Israel Reportedly Set to Ease Export Quotas of Natural Gas,” *The Times of Israel*, May 31, 2021, <https://www.timesofisrael.com/israel-reportedly-set-to-ease-export-quotas-of-natural-gas/>.

required to be provided to the domestic market from each offshore gas field to increase the quantity of gas available for export.²⁹⁸

In addition to enhancing the economic benefits that Israel receives from gas exports, the Israeli government has emphasized and attempted to increase the benefits that accrue to other regional states. Capitalizing on Egyptian and Cypriot enthusiasm following those states' large offshore gas discoveries, Israel supported Egypt's ambitions to use its existing LNG facilities to become a regional LNG transport hub, rather than constructing its own Israeli LNG export terminal. Additionally, Israel has supported Cyprus' ambitions to become an "important hydrocarbons player in the Eastern Mediterranean" and an "energy interconnection node."²⁹⁹ The Delek Group and Noble Energy are credited with making Cyprus' first natural gas discovery (Aphrodite), and Israel has supported the EuroAsia Interconnector project, to link the power grids of Israel, Cyprus, and Greece (see Figure 10).³⁰⁰ In addition, Israel has actively participated in the EMGF, viewing it as an essential component of its broader regional policy with Europe and the Middle East.³⁰¹ From Israel's perspective, these initiatives increase the commercial potential of energy development while lowering the security risks from regional instability.

²⁹⁸ The Ministry of National Infrastructure, Energy and Water Resources, "Policy and Government Decisions."

²⁹⁹ Charles Ellinas, "Harnessing the Hydrocarbons Potential," Cyprus Profile, accessed August 20, 2021, <https://www.cyprusprofile.com/sectors/energy-and-environment>.

³⁰⁰ EuroAsia Interconnector, "EuroAsia at a Glance," EuroAsia Interconnector, accessed August 13, 2021, https://euroasia-interconnector.com/at-glance/?__cf_chl_jschl_tk__=pmd_a117b09d67121d29c8464d8cc831898a8f0b4bb2-1628894056-0-gqNtZGzNAc2jcnBszQii.

³⁰¹ Gabriel Mitchell, "The Eastern Mediterranean Gas Forum: Cooperation in the Shadow of Competition," *The Israeli Institute for Regional Foreign Policies*, September 2020, 2, <https://mitvim.org.il/wp-content/uploads/Gabriel-Mitchell-The-Eastern-Mediterranean-Gas-Forum-September-2020.pdf>.

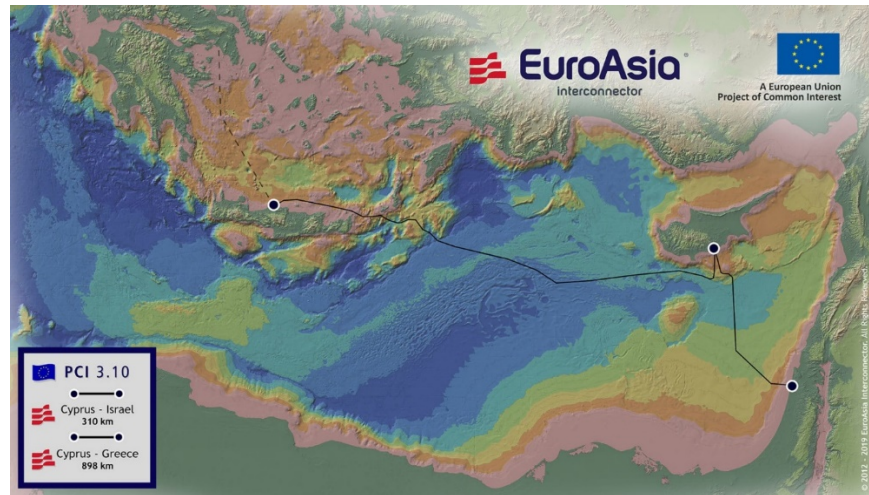


Figure 10. EuroAsia Interconnector³⁰²

In summary, the Israeli public and policymakers responded very positively to its offshore natural gas discoveries, as natural gas provided a welcome solution to its electricity shortages and provided opportunities to support Israel’s long-term economic growth and facilitate Israel’s diplomatic agenda to establish stronger regional ties. Initially, the government supported domestic natural gas to sales to the IEC to reduce its oil and coal imports. After the discovery of Tamar and Leviathan opened the possibility of a large government windfall from both domestic sales and export revenues, the government promoted the transformation of its domestic energy infrastructure and prioritized the establishment of a favorable regulatory environment to maximize state benefit from its offshore resources. The IDF also increased its maritime capability to defend its gas rigs from security threats and established greater defense cooperation with regional neighbors. Internationally, the government pursued maritime boundary agreements to facilitate the E&P of natural gas and authorized gas export agreements with Jordan, Egypt, and the PA. The Israeli Ministry of Energy has also encouraged the construction of offshore pipeline construction to facilitate future exports to Greece, Cyprus, and Europe, promoted a regional gas forum to coordinate policies and resolve disputes, and supported the energy ambitions of fellow natural gas producers.

³⁰² EuroAsia Interconnector, “EuroAsia at a Glance.”

THIS PAGE INTENTIONALLY LEFT BLANK

IV. ISRAEL'S ENERGY SECURITY POLICY RESPONSE

Chapter four will first discuss the research findings by outlining the main energy security strategies employed by Israel from 1948–2012 and from 2013–2021 and identify noteworthy similarities and differences between these two time periods. The analysis will then assess the impact of natural gas discoveries on Israel's approach to energy security. Finally, the chapter will discuss the implications of its findings for the field of energy security studies, Israel's economy, and regional peace and security, concluding with proposals for potential areas of further research.

A. RESEARCH FINDINGS

Given the state's limited energy resources for the first 65 years of its history, Israel's energy policy was initially characterized by the primary objective of ensuring state survival. After Israel's war of independence, Israel cultivated its relationships with great powers to circumvent the Arab embargo. As Western powers had conducted limited E&P in Palestine, the state capitalized on existing oil infrastructure, resources, and expertise to jumpstart Israel's domestic E&P industry and maximized its opportunity for E&P in the Sinai to develop its midstream and downstream capability. As Israel struggled to maintain reliable fuel suppliers, officials prioritized expanding its oil transport infrastructure, tanker fleet, and petrochemical industry, and worked to orchestrate attractive energy deals with fuel suppliers. Due to the persistent threat of supply disruption, Israeli officials heavily managed oil contracts and fuel distribution, protected the state's port access, established a SPR, and regulated domestic consumption. Finally, recognizing the liability of its oil dependency, the state prioritized energy efficiencies and pursued sources of energy deemed less politically and economically risky (see Table 2, left column).

Since making large offshore natural gas discoveries, Israel has sought to maximize the social benefits of its recent energy abundance. Although the Israeli consortium that made the Leviathan and Tamar discoveries was principally profit-motivated, Israel's natural gas discoveries have largely been beholden to public interests. Israel transformed its energy infrastructure to increase its domestic consumption of natural gas and established

a regulatory framework and sovereign wealth fund to manage state revenues from exports. However, rather than selling its gas to global LNG producers like Russian-owned Gazprom or Australian-owned Woodside, Israel built a local gas market and used natural gas as a tool to foster positive regional relations.³⁰³ Israel has negotiated regional agreements to facilitate gas field development in contested areas, encouraged foreign ownership and multilateral E&P of Israeli gas fields, and established a regional gas forum for greater collaboration. Israel has also used energy as a platform to project its influence and promote its larger security objectives, by improving its capacity to defend its maritime EEZ, supporting multilateral projects to export Israeli gas outside the Levant region, endorsing the energy ambitions of other states, and developing energy security strategies with other states. Finally, Israel has worked to establish the state's position as a leader in the region's emerging gas market and deemphasized its connection with its legacy oil industry (see Table 2, right column).

Table 2. Comparison of Israel's Energy Security Strategies

1948-2012	2013-2021
Leveraged oil infrastructure to preserve ties with Western energy companies	Transforming electricity generation and transportation to use gas and renewables
Pursued foreign funding and self-funded oil transport and storage capability	Reduced coal and oil imports in favor of domestic production and renewables
Expanded its petrochemical industry, constructed Ashdod refinery	Established regulations and sovereign wealth fund to profit from gas E&P
Orchestrated secretive deals to circumvent embargo, acquire regional oil supplies	Decreased relevance of legacy onshore oil E&P, transport, and refinery operations
Established strategic energy partnerships with Russia, Central Asian oil producers	Increased maritime security of offshore gas platforms, views gas as strategic asset
Emphasized energy diplomacy; cajoled energy guarantees from great powers	Cultivated energy relations with potential regional customers, aspiring gas suppliers

³⁰³ Hedy Cohen, "Russia Wants Share in Israeli Gas," *Globes*, April 26, 2016, <https://en.globes.co.il/en/article-russia-wants-share-in-israeli-gas-1001119921>.

1948-2012	2013-2021
De facto nationalized TIPLINE after Iran ended oil imports; denied PA gas rights	Negotiated agreements to facilitate gas field development in contested areas
Maximized Sinai E&P, exported excess supply to develop domestic oil industry	Supported foreign ownership, multilateral E&P, regional infrastructure projects
Protected port access for oil imports, established SPR, regulated consumption	Promoted regional gas forum to coordinate policies, communicate, resolve disputes
Increased coal consumption and energy efficiencies to decrease oil imports	Supported neighbors' energy ambitions, developed joint energy strategies

Israel's energy security strategies before and after 2013 were similar in some respects, likely because elements of Israel's early security threats continue to influence the state up to the present day. Despite Israel's improved relations with some regional states, the potential for renewed conflict with non-state actors such as Hezbollah and Hamas is on-going, making Israeli efforts to prevent supply disruption from threatening Israel's stability and security just as critical today as it was in 1948. Additionally, Israel continues to view access to energy as vital to its national security, as government ministers influence the establishment of foreign energy partnerships, activities of domestic E&P companies, and the behavior of local energy consumers to ensure the energy sector supports Israel's political stability and economic growth. As Israel's political and economic situation remains complex, the government has continued to closely monitor, manage, and reform the state's energy sector to protect its vital energy resources and respond to contingencies.

Some of the major differences in Israel's strategies involve its relationships with great powers and regional neighbors, government transparency regarding its energy policies, the complexity of its energy partnerships, and its acceptable level of risk. First, Israel has prioritized the development of its energy partnerships with regional states, rather than great powers such as Russia and Great Britain. Israel has also become much more transparent about its energy relations, in contrast to its prior secretive deals with Great Britain, Iran and Egypt. Israel's commercial agreements with international oil companies have also modernized, as foreign commercial ownership and operations of Israeli gas

resources has become standard practice, in contrast to a government-dominated oil industry which struggled to acquire and retain foreign investment. Finally, Israeli energy security policy has become more confident, relying on its domestic industry, and forging potentially risky partnerships, perceiving the political and economic gains to outweigh the liabilities.

B. RESEARCH ANALYSIS

This section assesses whether and how Israel's energy security strategies changed after 2012, based on the hypotheses proposed in Chapter 1. First, it finds that Israel historically employed a combative approach to energy deals and foreign partnerships, and an integrationist approach to its participation and connection to the global energy market. The second and third sections discuss the changes observed in Israel's procurement of energy supplies from the global energy market and its energy foreign relations. Lastly, it determines that, since 2013, Israel has adopted a more protectionist approach to its energy supply and participation with the global energy market and more collaborative approach to its energy partnerships, in pursuit of building a regional gas market.

1. 1948-2012: Combative-Integration

From 1948 – 2012, Israel primarily used a combative approach in its energy foreign relations. As the state of Israel was established under insecure energy circumstances, the government hyper-vigilantly advocated for its energy requirements with great powers and defended its energy interests in response to the Arab-Israeli conflict and anti-Zionist sentiment. Israel aggressively promoted its energy interests by using the Haifa oil refinery as leverage to secure British fuel imports despite the Arab embargo, securing German financing for its fuel oil payments, cajoling the Shah of Iran into selling Israel oil, and obtaining an unprecedented energy supply guarantee from the United States. Israel also acted more adversarially toward regional opponents, rapidly exploiting Sinai oil resources during its occupation in a way that antagonized Egypt, punitively denying Iran its share in TIPLINE profits in response to the end of Iranian oil exports, and denying Palestinian requests for natural gas and electricity-related accommodations.

Israel also pursued an integration-oriented approach to its participation in the global energy system. As a new state lacking experience with the global oil market, Israel

prioritized its relationships with greater powers such as Great Britain and the United States to meet its minimum energy requirements. Having inherited oil operations capability from its colonial legacy, Israel prioritized processing, storing, transporting, marketing, and refinery operations as tools to improve its status and relevance within the global energy system, and to establish negotiating leverage with foreign oil suppliers. Israel also relied heavily on energy diplomacy to establish agreements with major fossil fuel producers such as Kazakhstan, Azerbaijan, and Russia, and promoted pipeline projects with its primary energy suppliers to stay connected to its main sources of oil.

2. Approach To The Global Energy Market

The thesis' initial two hypotheses explored how Israel's increased energy independence affected its approach to its participation with the global energy market. Hypothesis 1A posited that increased independence would lead to a more protectionist approach, while Hypothesis 1B proposed that it would lead to a more integrationist approach. As previously outlined, the underlying assumption of a protectionist response is that, when states are less dependent on external sources of energy, they will choose to be more inward-focused and self-reliant, placing less value on connections with major energy producers, participation in the global energy market, and energy imports. In contrast, an integrationist response would indicate that, in response to energy abundance, states will choose to be more outwardly-focused, nurturing ties with major energy producers, promoting projects which increase access to the global energy resources, and pursuing both import and export interdependence.

This thesis finds that, when its domestic energy supply increased, Israel adopted a more protectionist approach, using natural gas as both an opportunity and justification to increasingly withdraw itself from the vagaries of the global energy market. Although Israel cannot completely substitute natural gas and renewables for crude oil, Israel views greater separation from the global oil trade and reduced coal imports as in Israel's best interest. Israel has demonstrated its protectionist approach through its focus on protecting its energy resources for domestic use first, setting ambitious goals to eliminate the use of oil and coal imports in electricity and transportation, and decreasing domestic upstream, midstream,

and downstream oil operations which were essential to Israel's prior integrationist strategy. Compared to Israel's previous integrationist efforts to entice the United States to invest in Israel's pipelines to bypass the Suez Canal or to make the TIPLINE bi-directional to attract Russian and Caspian Sea oil exports, Israel is much less focused on its status as an oil transit hub for major oil producers or aligning its energy requirements with those of great powers.

Israel's focus has shifted more inward due to the expectation that Israel's existing energy resources and technological innovations are sufficient to meet Israel's future energy requirements. Since 2013, the prevailing public opinions and political rhetoric in Israel have highlighted the importance of protecting Israel's gas fields as a strategic resource for domestic use. At the inauguration of the Leviathan rig in 2019, former Israeli Prime Minister Benjamin Netanyahu said, "Israel is becoming an energy power. Israel is independent and is not dependent on anyone for its energy needs."³⁰⁴ As offshore gas fields have become the main fuel source for Israel's electricity, the state has increased defense spending to protect its EEZ with heavily-armed patrol boats, drones, and submarines.³⁰⁵ Israel's security focus and political rhetoric regarding threats to its offshore energy infrastructure has shown that Israel's domestic resources have gained strategic importance and are central to Israel's energy security strategy.³⁰⁶

Israel has also prioritized significant regulatory and infrastructure adjustments to move its domestic energy system away from oil and coal imports, to be more self-sustainable. Israel's goal of eliminating coal and oil imports in electricity generation and eliminating the use of petroleum and diesel in the transportation sector is remarkable, given Israel's prior history of actively seeking reliable sources of crude oil, deemed vital for economic growth. One could argue that Israel primarily seeks to reduce coal and oil

³⁰⁴ Reuters, "Leviathan Gas Rig Reaches Israel," *Reuters*, January 31, 2019, sec. Commodities News, <https://www.reuters.com/article/us-israel-energy-netanyahu-idUSKCN1PP257>.

³⁰⁵ Arie Egozi, "Israel Boosts Protection Of Gas Fields, Shipping," *Breaking Defense*, February 4, 2019, <https://breakingdefense.com/2019/02/israel-boosts-protection-of-gas-fields-shipping/>.

³⁰⁶ Judah Ari Gross, "With High-Tech Warships, Navy Readies to Guard Gas Fields from Hezbollah, Hamas," *The Times of Israel*, February 5, 2018, <https://www.timesofisrael.com/with-high-tech-warships-navy-readies-to-guard-gas-fields-from-hezbollah-hamas/>.

consumption to reduce pollution and improve its climate footprint; however, Israel's confidence in its energy abundance and position as a regional energy leader has given it ability to prioritize environmental considerations over safeguarding its continued access to the global oil market.

Israel has also actively pursued policies since 2013 that decrease its participation in the global oil market.³⁰⁷ As Israel enjoys a strong economy and has made considerable diplomatic inroads with Arab states, making the oil weapon less potent, Israel has shown substantially less interest in domestic crude oil E&P. Although Israel continues to rely on crude oil imports, oil is viewed much less favorably by the public and policymakers. In February 2020, Israeli officials announced that the government would no longer issue permits for shale oil exploration, due to its high environmental costs.³⁰⁸ In September 2021, Israeli Energy Minister Elharrar announced that Israel will no longer issue any onshore oil exploration permits.³⁰⁹ Israeli policymakers have also considered sunseting the Haifa ORL which has acted as a central component of Israel's energy security strategy, providing leverage to negotiate for oil imports, a resource to refine petroleum products for the local economy, and a major driver of Israel's economy. After one of the refinery cooling towers collapsed in June 2020, the Ministry of Environmental Protection announced that the incident was a "signal about the beginning of the end" for Haifa's petrochemical industry.³¹⁰ In April 2021, a government panel recommended closing the oil refineries in the Haifa area within 10 years.³¹¹ The Israeli public and policymakers have also questioned

³⁰⁷ Itay Zehorai, "Israel Is among the Top 20 Global Economies in GDP per Capita for the First Time," *Forbes Israel*, May 5, 2021, <https://forbes.co.il/e/israel-is-among-the-top-20-global-economies-in-gdp-per-capita-for-the-first-time/>.

³⁰⁸ Sue Surkes, "In Win for Environment, Israel Won't Issue New Oil Shale Exploration Permits," *The Times of Israel*, February 18, 2020, <https://www.timesofisrael.com/in-win-for-environment-israel-wont-issue-new-oil-shale-exploration-permits/>.

³⁰⁹ Tsvetana Paraskova, "Israel Stops Onshore Oil Exploration Permits," *Oil Price*, September 1, 2021, <https://oilprice.com/Latest-Energy-News/World-News/Israel-Stops-Onshore-Oil-Exploration-Permits.html>.

³¹⁰ Shani Ashkenazi, "Can Israel Quit Dependence on Oil Refineries?," *Globes*, June 25, 2020, sec. Features, <https://en.globes.co.il/en/article-can-israel-quit-dependence-on-oil-refineries-1001333769>.

³¹¹ Zafir Rinat, "Government Panel Wants Oil Refineries in Northern Israel Shut Within 10 Years," *Haaretz*, April 26, 2021, <https://www.haaretz.com/israel-news/.premium-government-panel-wants-oil-refineries-in-northern-israel-shut-within-10-years-1.9748821>.

the necessity of a recent agreement for the UAE to transport oil through the TIPLINE to the Mediterranean, putting the deal on hold, indicating oil transit deals with major energy producers have become less relevant to Israel's energy security strategy.³¹²

In short, Israel's new energy abundance has made its connection to oil and coal suppliers, oil industry operations, and energy diplomacy with great powers less necessary. Instead, Israel has prioritized the creation of a new regional natural gas market which supports its domestic natural gas production ambitions, even though prices for its domestically-produced gas have been higher than purchasing gas from global natural gas producers.³¹³

3. Approach To Energy Foreign Relations

The thesis' second pair of hypotheses considered how increased energy independence would affect Israel's approach to relations with energy partners, particularly regarding energy related projects, negotiations, and disputes. The "combative" hypothesis 2A proposed that, when states are less dependent on imports, they act more forcefully or aggressively in pursuit of their energy interests, as they are less constrained by potential negative political or economic repercussions imposed on them by other states. In contrast, the "collaborative" 2B hypothesis argued that states act more cooperatively toward other states, as they have more to gain politically or economically from fostering positive interactions. For the collaborative hypothesis to be supported, Israel would have become more willing to negotiate mutually beneficial energy agreements, pursue joint or multilateral energy initiatives, and amicably settle disputes.

This thesis finds that, when its domestic energy supply increased, Israel adopted a more collaborative approach to its energy foreign relations. Israel views its relationships with energy partners less combatively than in the past, as it sees the growth and success of

³¹² Al Jazeera, "Red Sea Coral Reefs 'under Threat' from Israel-UAE Oil Deal," *Al Jazeera*, February 15, 2021, <https://www.aljazeera.com/news/2021/2/15/red-sea-coral-reefs-under-threat-from-israel-uae-oil-deal>.

³¹³ Sue Surkes, "New Gas Deal Expected to Slash Electricity Prices, but Some Say It's Not Enough," *The Times of Israel*, July 11, 2021, <https://www.timesofisrael.com/new-gas-deal-expected-to-slash-electricity-prices-but-some-say-its-not-enough/>.

a regional natural gas market as fundamental to its own long term energy security. Israel demonstrated a collaborative approach through its increased focus on negotiating international agreements over contested maritime territory, coordinating regional gas infrastructure and export initiatives, and promoting mechanisms to resolve commercial disputes.

Israel has used natural gas to build rapport with regional states by negotiating international agreements that support Israel's ambition to grow the regional natural gas market. Israel accelerated maritime boundary negotiations with Lebanon and the PA, albeit through neutral parties, to facilitate the development of offshore natural gas fields in contested territory. Israel's openness to allowing Egyptian-Palestinian development of the Gaza gas field is a dramatic shift in policy, compared to 2003, when Prime Minister Ariel Sharon refused to allow British Gas to sell Gaza gas to Israel due to a concern about how the funds given to the Palestinian treasury would be used.³¹⁴ Energy abundance has also allowed Israel to exercise strategic patience, waiting to establish maritime boundary agreements before exploiting offshore resources. Rather than aggressively exploiting offshore natural gas fields in contested territory like Israel did in the Sinai after the war in 1967, the state pursued international agreements with Cyprus, Lebanon, Egypt, and the PA, to avoid an escalation of tensions.

Israel has also supported the bilateral and multilateral development of regional natural gas infrastructure, organizations, and alliances, which indicate Israel sees its energy interests as aligned with other Eastern Mediterranean natural gas suppliers. One could argue that Israel primarily seeks to cooperate with Egypt and Cyprus due to logistical necessity; however, Israel had the option to sell directly to major natural gas producers and instead chose to use its natural gas to work with its neighbors. Israel has also encouraged foreign ownership of its gas fields and multinational E&P operations, sharing the wealth, so to speak, with regional partners. Israel's confidence in its energy abundance allowed it

³¹⁴ Eric Silver, "Sharon Vetoes British Gas Deal to Supply Israel with Natural Gas," *The Independent*, October 12, 2013, sec. News, <https://www.independent.co.uk/news/business/news/sharon-vetoes-british-gas-deal-to-supply-israel-with-natural-gas-100920.html>; Cohen, "Russia Wants Share in Israeli Gas."

to promote greater collaboration, to invest in regional gas pipeline infrastructure and the mutually beneficial export ambitions of its neighbors.³¹⁵

Israel has also sought to depoliticize commercial energy disputes and by supporting mechanisms that promote commercial-level energy cooperation and dispute resolution. In contrast to Israel's de facto nationalization of Iran's financial stake in the TIPLINE after Iran ended its oil exports to Israel, the Israeli Ministry of Energy and IEC treated the breach of contract over Egyptian gas exports as a "business conflict and not a clash between governments," pursuing international arbitration over the incident to recoup costs and settling with Egypt, based on Israel's goal of re-establishing energy ties with Egypt.³¹⁶ Additionally, in March 2021, after 9 years of negotiations, the energy ministers of Cyprus and Israel agreed to a framework to resolve ownership of 10% of Aphrodite, which satisfied both countries.³¹⁷ Israel's role as a founding member of the EMGF and continued efforts to promote intergovernmental communication related to natural gas also indicates the state is highly motivated to ensure the amicable resolution of energy-related disputes.

Israel's new energy abundance has increased the value of Israel's collaboration with its regional neighbors, as potential customers, and fellow gas suppliers. Israel's emphasis on multilateral projects, regional infrastructure, and conflict resolution indicates Israel views the benefits to be gained through transforming the regional energy system around natural gas and renewables are essential for Israel's long-term energy security.

4. 2013-Today: Protectionist-Collaboration

To summarize, since 2013, Israel has adopted a protectionist-collaborative approach to energy security, prioritizing greater autonomy from the global energy market in favor of greater self-reliance while also acting more cooperatively with regional states to promote the growth of natural gas usage in the region. In some ways, the protectionist-

³¹⁵ *Israeli Ministry of Energy*, "East Mediterranean Gas Forum," June 7, 2021, https://www.gov.il/en/departments/news/emgf_070721.

³¹⁶ CNN, "Egyptian Companies Abruptly Halt Gas Exports to Israel," *CNN*, April 23, 2012, <https://www.cnn.com/2012/04/22/world/meast/egypt-israel-gas-deal/index.html>.

³¹⁷ Offshore Technology, "Israel, Cyprus Agree Framework to Settle Dispute over Aphrodite Gas Field."

collaborative nomenclature appears counterintuitive; however, these two trends reflect the complexities of Israel's historic energy situation as well as its present challenges. Israel's present approach to valuing increased "protectionist isolationism" from oil and coal imports reflects both Israel's historic bad blood with importers, the weaponization of oil by OPEC, and fatigue with reliance on great powers, combined with Israel's newly discovered confidence in its self-sufficiency as a regional energy power. As Israel now enjoys a sense of greater energy independence, the government has the luxury of behaving more collaboratively toward its neighbors, particularly as the state views greater political and economic benefit from cooperation with regional states. Israel's seemingly contradictory protectionist-collaborative approach to energy security also supports Israel's paradoxical strategies of aggressive deterrence against anti-Zionist adversaries and normalization with Gulf monarchies. In short, Israel's abundant offshore gas resources has simultaneously encouraged Israel to increase its energy protectionism in terms of promoting self-sufficiency, while also promoting regional natural gas initiatives and exports.

C. IMPLICATIONS

This section examines four primary implications of the thesis' findings related to Israel's economy, Israel's security, regional peace and stability, and the larger body of energy security literature. First, because Israel's protectionist approach has delayed a government windfall and led to higher natural gas prices for Israel's economy, Israel may adjust its sourcing decisions in the future to balance its economic interests. Second, although Israel has reduced its susceptibility to supply disruption or high oil prices from imports, the state's tolerance level in response to energy security threats to its domestic resources depends on its ability to find sufficient substitutes following a loss of supply. Third, although Israel is more likely to act collaboratively in response to its energy abundance, its energy relations are shaped by its internal politics and the politics of its regional energy partners. Lastly, although it is difficult to draw direct lines of causation, the research findings suggest that energy abundance may encourage states to act less unilaterally interventionist and more congenially in foreign policy decisions.

First, the research findings related to Israel's domestic response to natural gas resources have implications for Israel's future economic growth. Israel's domestic policy decisions have tried to balance promoting its nascent natural gas industry, supplying its domestic consumers with competitive prices, and collecting government revenue from the natural gas industry. Despite efforts to balance competing interests, some policies, such as anti-trust regulations, have had a detrimental impact on commercial profits, by slowing the commercial development of its natural gas fields and delaying the government's expected windfall. As such, Israel's approach to the global energy market may adjust its focus in the future to increase government revenues over protecting its domestic supply. Additionally, because the policy of requiring natural gas sales to supply the domestic market first has also likely contributed to higher costs to Israel's economy, policymakers may shift to a more integrationist approach depending on the activities of commercial gas companies and domestic gas market conditions. Should domestic gas prices become too high, the IEC may consider purchasing lower priced natural gas imports to improve domestic energy costs. Lastly, Israel's ambition as a regional energy power is contingent on its ability to monetize its offshore energy resources. Although Israel's domestic economic conditions have been favorable, the profitability of its natural gas exports and the potential for ambitious undersea pipeline projects are still susceptible to market conditions. Yet, because natural gas prices are generally regionally dependent and the gas supplies fall under Israel's direct control, the government likely views a protectionist-collaborative energy strategy as the most effective way to balance a stable, reliable, long-term energy supply for Israel with hopes of substantial government revenues from regional exports.

Second, the research findings have implications for Israel's security risks. Israel's increased reliance on domestic offshore resources and the IDF mission to protect Israel's gas rigs has increased the symbolic and strategic significance of energy as a target for Israel's adversaries, and increased the likelihood that an attack on Israel's domestic energy resources could provoke a more forceful response from Israel's military. Although nationalist language is common for politicians to use when speaking to domestic audiences, statements by Israeli politicians have demonstrated some of the pitfalls of Israel's decision to place heavier emphasis on its domestic energy resources, as foundational to the state's

energy mix. While energy abundance has allowed Israel to consume less oil and coal, Israel's increased dependence on local sources of energy have only transferred the supply disruption risks, not eliminated them. Historically, Israel has not viewed energy security as a reason to go to war; however, a state's calculation on the existential threat of energy disruption primarily depends on the ability for its supply to be satisfactorily substituted. The real consideration regarding Israel's predisposition to take forceful action over energy resources depends on how well Israel develops alternative sources of natural gas and/or renewable resources. At the same time, the limits of Israel's collaborative responses to neighbors over energy projects deserve deeper analysis.

Third, the thesis' findings have implications for regional peace and stability. Israel's tendency to act more collaboratively in response to energy abundance suggests that more combative or resource nationalist behavior is most commonly a response to energy scarcity. While energy scarcity is more likely to motivate resource nationalist behavior, recent natural gas discoveries have discouraged Israel from engaging in combative energy behavior, as it perceives its energy situation to be more stable and secure. It is important to note that, although Israel has generally adopted a more collaborative approach to its energy security, the state's policy decisions depend on domestic politics as well as the domestic politics of its regional neighbors. It is unlikely that Israel would act benevolently should a hostile actor attempt to sabotage Israel's domestic energy production, and unlikely that Israel would act cooperatively if an export partner stopped paying their gas bill for political reasons. Yet, Israel's tendency for collaboration does have implications for the concern that the Israel-Egypt-Cyprus-Greece energy alliance is exacerbating tensions with Turkey. Although many commentators have highlighted how competition over natural gas has increased the risk for military confrontation, both Israel and Turkey have shown an interest in renewing energy ties. In 2017, Israel imported \$40 million of crude petroleum from Turkey, equating to less than 2% of Israel's total crude oil imports, which increased to \$2.43 billion in 2019 or 33.7% of Israel's crude oil imports in 2019.³¹⁸ Additionally, Turkey invited former Energy Minister Steinitz to attend an international diplomacy

³¹⁸ Observatory of Economic Complexity, "Where Does Israel Import Crude Petroleum From?"

conference in April 2021 and, according to a statement by the office of the Turkish Presidency in July 2021, President Erdoğan discussed cooperation in energy, tourism, and technology with Israeli President Isaac Herzog.³¹⁹ In short, Israel's relations with Turkey could promote an amelioration of energy tensions in the region.

Lastly, the research findings have implications for the broader energy security literature. Due to the difficulties of establishing causal factors and directions of causation in state behavior and foreign policy decisions, this thesis did not attempt to determine whether Israel's energy abundance has led to an adjustment in Israel's interest in strategic partnership or international engagement with legacy oil suppliers such as Azerbaijan, Kazakhstan, or influenced Israel's calculus in on-going conflicts. While some have speculated that the United States' interest in foreign intervention in the Middle East has waned due to a decline in the energy significance of U.S. security presence in the Gulf region, it is difficult to draw a similar comparison for Israel, due to a lack of insight into the energy-related motivations of Israel's current foreign policy behavior and the presence of multiple factors shaping Israel's national security strategy and foreign policy decisions. However, the research findings do suggest that, in general, energy abundance likely encourages less unilaterally interventionist and more congenial foreign policy.

D. TOPICS FOR FURTHER RESEARCH

Further research could build upon the findings of this thesis by exploring the emerging role of renewables and electricity in Israel's energy security strategy. Although Israel's transition to renewables has been slow, the state has goals for greater regional collaboration in renewable energies. Israel has already promoted its role as a technological pioneer in solar energy. Additionally, although Israel has historically limited its connection to the electrical grids of its Arab neighbors, the construction of the EuroAsia Interconnector would be extraordinary, as it would end Israel's plight as a quintessential energy island by

³¹⁹ Ragip Soylu, "Turkey Invites Israeli Energy Minister to Antalya Forum in Rare Outreach," Middle East Eye, April 22, 2021, <http://www.middleeasteye.net/news/turkey-israel-high-level-visit-invitation-energy-minister-yuval-steinitz>; Daily Sabah, "New Administration Ushers Opportunity for Better Turkey-Israel Energy Ties," *Daily Sabah*, July 13, 2021, <https://www.dailysabah.com/business/energy/new-administration-ushers-opportunity-for-better-turkey-israel-energy-ties>.

connecting Israel to Europe's electrical grid. It would be interesting to conduct further research if/when the EuroAsia construction is completed to see if there are changes to Israel's electricity policies with Egypt, Jordan, and the PA in response to greater energy abundance provided by its connection to European electricity.

Further research could also identify shifts in Israel's energy vulnerabilities, specifically related to renewables and electricity. As natural gas is expected to fuel Israel's growing electricity demand, all of the large-scale energy projects outlined in Israel's 2019 infrastructure workplan involved electricity generation, transmission, and distribution.³²⁰ While Israel's increased self-sufficiency makes it less susceptible to volatile oil prices, power outages due to technical malfunctions or cyber-attacks against Israel's energy infrastructure have become a growing security concern.³²¹ In January 2016, Israel's electrical grid was targeted by a severe cyber-attack, and in January 2020, Israel thwarted a cyber-attack against one of its power stations.³²² While Israel's adversaries may not target natural gas offshore platforms directly, as Israel expands the network, pipelines, and scope of its regional gas market, the complexity of Israel's energy security concerns will also inevitably increase. Additional research could be conducted about the specific risks of greater dependence on electricity, as electricity cannot be stored, which is another example of Israel transferring rather than eliminating risk.³²³ Finally, if Israel continues to prioritize self-sufficiency in combination with deregulating its electrical grid, unexpected black swan events have the potential to have a much larger than expected impact. Examples such as the U.S. East Coast run on gas stations following the ransomware attack against Colonial

³²⁰ Government of Israel, "Infrastructure For Growth 2019," 22–28, accessed September 5, 2021, <https://infrastructure.pmo.gov.il/media/1054/infrastructure-for-growth-2019.pdf>.

³²¹ *The Times of Israel*, "Power Outages across Israel; Electric Company: 'Unequivocally Not Cyberattack,'" October 30, 2020, <https://www.timesofisrael.com/power-outages-reported-across-israel/>.

³²² *Reuters*, "Israel Says It Thwarted Serious Cyber Attack on Power Station," January 29, 2020, sec. Internet News, <https://www.reuters.com/article/us-israel-cyber-powerstation-idUSKBN1ZS1SU>; Danna Harman, "Israel's Electrical Grid Targeted by 'Severe Cyberattack,'" *Haaretz*, January 26, 2016, <https://www.haaretz.com/israel-news/.premium-israel-s-electrical-grid-targeted-by-severe-cyberattack-1.5396042>.

³²³ "The Geopolitics of Cross-Border Electricity Grids_ The Israeli-Arab Case | Elsevier Enhanced Reader," 535, accessed September 7, 2021, <https://doi.org/10.1016/j.enpol.2016.09.012>.

Pipeline and the widespread blackouts in Texas in response to freezing temperatures demonstrate the types of energy security concerns Israel could face in the future.³²⁴

In conclusion, the activities of Israel's diplomats and government officials indicate that energy self-sufficiency and cooperation have become top priorities for Israel. The connection between former Israeli Energy Minister Yuval Steinitz and Egyptian Petroleum Minister Tarek El Molla was considered one of the cornerstones of Israeli-Egyptian bilateral ties.³²⁵ In some respects, energy abundance has enabled Israel to reduce the risk of politically motivated oil supply disruption, the negative impact of high oil prices, and coal pollution while also promoting its natural gas ambitions through multinational initiatives with regional partners. Although some of Israel's energy challenges have improved, further exploration into the nature of potential future energy crises and supply disruptions are important due to the fundamental difficulties in predicting the impact of energy dynamics on state behavior and regional stability.

³²⁴ Erin Douglas, "Texas Power Outage: Why Natural Gas Went down during the Winter Storm," *The Texas Tribune*, February 16, 2021, <https://www.texastribune.org/2021/02/16/natural-gas-power-storm/>; William Turton and Kartikay Mehrotra, "Hackers Breached Colonial Pipeline Using Compromised Password," *Bloomberg*, June 4, 2021, <https://www.bloomberg.com/news/articles/2021-06-04/hackers-breached-colonial-pipeline-using-compromised-password>.

³²⁵ Gabriel Mitchell, "Lessons from Israel and Egypt's Lukewarm Peace," *Atlantic Council*, April 20, 2021, <https://www.atlanticcouncil.org/blogs/menasource/lessons-from-israel-and-egypts-lukewarm-peace/>.

LIST OF REFERENCES

- Access Czech Republic Business Bulletin*. "Oil from Russia Will Flow through Israel." July 15, 2002., ProQuest.
- Adler, Abigail. "Israel Officially Joins the International Energy Agency." *The Jerusalem Post*, December 11, 2020. <https://www.jpost.com/israel-news/israel-officially-joins-the-international-energy-agency-651799>.
- Al Jazeera*. "Gas Pipeline in Egypt's Sinai Attacked, Israel Imports Unaffected." February 3, 2020. <https://www.aljazeera.com/economy/2020/2/3/gas-pipeline-in-egypts-sinai-attacked-israel-imports-unaffected>.
- . "Red Sea Coral Reefs 'under Threat' from Israel-UAE Oil Deal." February 15, 2021. <https://www.aljazeera.com/news/2021/2/15/red-sea-coral-reefs-under-threat-from-israel-uae-oil-deal>.
- Al-Kassim, Mohammad. "UAE-Israel Deal Changes the Players in the Middle East Energy Game." *The Jerusalem Post*, September 26, 2020, sec. Middle East. <https://www.jpost.com/metro/uae-israel-deal-changes-the-players-in-the-middle-east-energy-game-643625>.
- Amer, Ahmad Abu. "Egypt to Negotiate Sea Border with Palestine." *Al Monitor*, November 3, 2020. <https://www.al-monitor.com/originals/2020/11/palestine-egypt-negotiations-maritime-border-demarcation.html>.
- Antreasyan, Anaïs. "Gas Finds in the Eastern Mediterranean: Gaza, Israel, and Other Conflicts." *Journal of Palestine Studies* 42, no. 3 (2013): 29–47. <https://doi.org/10.1525/jps.2013.42.3.29>.
- Arbell, Dan. "The U.S.-Turkey-Israel Triangle." Analysis Paper. Center for Middle East Policy, October 2014. <https://www.brookings.edu/wp-content/uploads/2016/06/USTurkeyIsrael-TriangleFINAL.pdf>.
- Arielli, Nir. "'Haifa Is Still Burning': Italian, German and French Air Raids on Palestine during the Second World War." *Middle Eastern Studies* 46, no. 3 (2010): 331–47. <https://www.jstor.org/stable/20720675>.
- Ashkenazi, Shani. "Can Israel Quit Dependence on Oil Refineries?" *Globes*, June 25, 2020, sec. Features. <https://en.globes.co.il/en/article-can-israel-quit-dependence-on-oil-refineries-1001333769>.
- Ashwarya, Sujata. "Natural Gas Discoveries and Israel's Energy Security." *Georgetown Journal of International Affairs*, May 25, 2020. <https://gjia.georgetown.edu/2020/05/25/natural-gas-discoveries-and-israels-energy-security/>.

- Auty, Richard M., and Alan H. Gelb. "Political Economy of Resource-Abundant States." In *Resource Abundance and Economic Development*, edited by Richard M. Auty. Oxford: Oxford University Press, 2001. <http://ebookcentral.proquest.com/lib/ebook-nps/detail.action?docID=3052798>.
- Azran, Eran. "Israel Quietly Begins Exporting Natural Gas to Jordan amid Political Sensitivities." *Haaretz*, March 2, 2017, sec. Business. <https://www.haaretz.com/israel-news/business/israel-quietly-begins-exporting-gas-to-jordan-1.5443894>.
- . "Palestinians Become First Customer of Israel's Leviathan Gas Field." *Haaretz*, January 6, 2014. <https://www.haaretz.com/israel-news/business/palestinians-to-buy-israeli-gas-1.5308230>.
- Bahbah, Bishara A. "The United States and Israel's Energy Security." *Journal of Palestine Studies* 11, no. 2 (1982): 113–31. <https://doi.org/10.2307/2536273>.
- Bahgat, Gawdat. "Energy and the Arab-Israeli Conflict." *Middle Eastern Studies* 44, no. 6 (2008): 937–44. <https://www.jstor.org/stable/40262630>.
- . "Energy Partnership: Israel and the Persian Gulf." *Energy Policy* 33, no. 5 (March 1, 2005): 671–77. <https://doi.org/10.1016/j.enpol.2003.09.012>.
- . "Israel's Energy Security: Regional Implications." *Middle East Policy* 18, no. 3 (Fall 2011): 25–34. <http://dx.doi.org.libproxy.nps.edu/10.1111/j.1475-4967.2011.00495.x>.
- . "Israel's Energy Security: The Caspian Sea and the Middle East." *Israel Affairs* 16, no. 3 (July 2010): 406–15. <https://doi.org/10.1080/13537121.2010.487729>.
- Baker, Allen. "Israel-Lebanon Maritime Boundary Negotiations - Some Unique Aspects." Jerusalem Center for Public Affairs, October 2020. <https://jcpa.org/article/israel-lebanon-maritime-boundary-negotiations-to-begin/>.
- Bar-Eli, Avi. "Netanyahu Offers Natural Gas to Greece." *Haaretz*, August 29, 2010. <https://www.haaretz.com/1.5106507>.
- Bar-Eli, Avi, and Moti Bassok. "Israeli Cabinet Votes Yea on Natural Gas Export." *Haaretz*, June 23, 2013, sec. Business.
- Barkat, Amiram. "Tzemach committee to recommend allowing gas exports." *Globes*, March 20, 2012, sec. Features. <https://en.globes.co.il/en/article--1000734721>.
- Barkey, Henri J, and Ellen Laipson. "The Prospects for Conflict or Cooperation." *The Cairo Review of Global Affairs*, August 19, 2020. <https://www.thecaireview.com/essays/the-prospects-for-conflict-or-cooperation/>.

- Barma, Naazneen. "Petroleum, Governance, and Fragility: The Micro-Politics of Petroleum in Postconflict States." In *Beyond the Resource Curse*, edited by Brenda Shaffer and Ziyadov, Taleh. Philadelphia: University of Pennsylvania Press, 2012. <http://ebookcentral.proquest.com/lib/ebook-nps/detail.action?docID=3442009>.
- Baru, Sanjaya. "Geo-Economics and Strategy." *Survival* 54, no. 3 (June 2012): 47–58. <https://doi.org/10.1080/00396338.2012.690978>.
- Bialer, Uri. "Alternative Sources - Venezuela, Kuwait." In *Oil and the Arab-Israeli Conflict, 1948–63*, 1st ed. St Antony's Series. London: Palgrave Macmillan, 1999. <https://doi-org.libproxy.nps.edu/10.1057/9780230377745>.
- . "Fuel — Supply and Demand in Mandatory Palestine." In *Oil and the Arab-Israeli Conflict, 1948–63*, 7–20. St Antony's Series. London: Palgrave Macmillan UK, 1999. https://doi.org/10.1057/9780230377745_2.
- . "Fuel Bridge across the Middle East-Israel, Iran, and the Eilat-Ashkelon Oil Pipeline." *Israel Studies* 12, no. 3 (October 2007): 29–67. <https://doi.org/10.2979/ISR.2007.12.3.29>.
- . "International Oil Diplomacy and War." In *Oil and the Arab-Israeli Conflict, 1948–63*, 59–83. St Antony's Series. London: Palgrave Macmillan UK, 1999. https://doi.org/10.1057/9780230377745_2.
- . "The 1948 War." In *Oil and the Arab-Israeli Conflict, 1948–63*, 39–58. St Antony's Series. London: Palgrave Macmillan UK, 1999. https://doi.org/10.1057/9780230377745_4.
- . "The Departure of the Oil Companies." In *Oil and the Arab-Israeli Conflict, 1948–63*, 194–215. St Antony's Series. London: Palgrave Macmillan UK, 1999. https://doi.org/10.1057/9780230377745_12.
- . "The Establishment of the Delek Oil Company." In *Oil and the Arab-Israeli Conflict, 1948–63*, edited by Uri Bialer, 115–29. St Antony's Series. London: Palgrave Macmillan UK, 1999. https://doi.org/10.1057/9780230377745_8.
- Bishku, Michael B. "The Relations of the Central Asian Republics of Kazakhstan and Uzbekistan with Israel." *Middle Eastern Studies* 48, no. 6 (November 1, 2012): 927–40. <https://doi.org/10.1080/00263206.2012.723628>.
- Bloomberg. "Noble Energy Amends Gas Sales Contracts With Dolphinus Holdings Limited, Increasing Firm Sales Volumes Into Egypt." October 2, 2019. <https://www.bloomberg.com/press-releases/2019-10-02/noble-energy-amends-gas-sales-contracts-with-dolphinus-holdings-limited-increasing-firm-sales-volumes-into-egypt>.

- Bousso, Ron, and Ari Rabinovitch. "Chevron Shuts Tamar Gas Field off Israeli Coast as Unrest Flares." *Reuters*, May 12, 2021, sec. Middle East. <https://www.reuters.com/world/middle-east/chevron-shuts-down-tamar-gas-field-off-israel-coast-wake-unrest-2021-05-12/>.
- Boxerman, Aaron. "PA and Egypt Agree to Develop Natural Gas Field off Gaza." *The Times of Israel*, February 21, 2021. https://www.timesofisrael.com/liveblog_entry/pa-and-egypt-agree-to-develop-natural-gas-field-off-gaza/.
- Bradley, Matt. "Egypt Cancels Israel Gas Deal." *Wall Street Journal*, April 22, 2012. <https://www.wsj.com/articles/SB10001424052702303459004577360213475479688>.
- Bushinsky, Jay. "Turkey, Israel to Build Mediterranean Pipeline." *San Francisco Chronicle*, April 28, 2006, sec. News. <https://www.sfgate.com/news/article/Turkey-Israel-to-build-Mediterranean-pipeline-2498862.php>.
- Childs, Nick. "Analysis: Russia Seeks Mid-East Role." *BBC News*, April 27, 2005, sec. Middle East World Affairs. http://news.bbc.co.uk/2/hi/middle_east/4490447.stm.
- CNN. "Egyptian Companies Abruptly Halt Gas Exports to Israel." April 23, 2012. <https://www.cnn.com/2012/04/22/world/meast/egypt-israel-gas-deal/index.html>.
- Cohen, Ariel. "Turkey-Libya Maritime Deal Upsets Mediterranean Energy Plan." *Forbes*, January 8, 2020. <https://www.forbes.com/sites/arielcohen/2020/01/08/turkey-libya-maritime-deal-upsets-mediterranean-energy-plan/>.
- Cohen, Gili. "Israel Navy Demands NIS 3 Billion for Protection of Gas Rigs." *Haaretz*, July 9, 2012. <https://www.haaretz.com/navy-demands-billions-to-protect-gas-rigs-1.5265338>.
- . "Israel Navy to Devote Majority of Missile Boats to Secure Offshore Drilling Rafts." *Haaretz*, January 9, 2012. <https://www.haaretz.com/1.5161319>.
- Cohen, Hedy. "Russia Wants Share in Israeli Gas." *Globes*, April 26, 2016. <https://en.globes.co.il/en/article-russia-wants-share-in-israeli-gas-1001119921>.
- Cohen, Tova. "Israel to Sell Oil Refineries Haifa Plant in Feb." *Reuters*, January 21, 2007, sec. Oil Report. <https://www.reuters.com/article/israel-oilrefineries-sale-idUKL1037599520070110>.
- Colgan, Jeff D. "Oil, Domestic Politics, and International Conflict." *Energy Research & Social Science* 1 (March 1, 2014): 198–205. <https://doi.org/10.1016/j.erss.2014.03.005>.

- . *Petro-Aggression: When Oil Causes War*. New York: Cambridge University Press, 2013. <http://ebookcentral.proquest.com/lib/ebook-nps/detail.action?docID=1113099>.
- Commentary Magazine*. “Oil, Palestine, and the Powers: The Struggle for Strategic Resources in the Middle East.” May 1, 1947. <https://www.commentarymagazine.com/articles/commentary-bk/oil-palestine-and-the-powersthe-struggle-for-strategic-resources-in-the-middle-east/>.
- Daily Sabah*. “New Administration Ushers Opportunity for Better Turkey-Israel Energy Ties.” July 13, 2021. <https://www.dailysabah.com/business/energy/new-administration-ushers-opportunity-for-better-turkey-israel-energy-ties>.
- Dalay, Galip. “Turkey, Europe, and the Eastern Mediterranean: Charting a Way out of the Current Deadlock.” *Brookings* (blog), January 28, 2021. <https://www.brookings.edu/research/turkey-europe-and-the-eastern-mediterranean-charting-a-way-out-of-the-current-deadlock/>.
- Daniel, Clifton. “Terrorists Blast Haifa Oil Pipeline.” *New York Times*. March 15, 1947. <http://timesmachine.nytimes.com/timesmachine/1947/03/15/95522042.html>.
- Das, Hirak Jyoti. “Israel’s Gas Diplomacy with Egypt.” *Contemporary Review of the Middle East* 7, no. 2 (June 1, 2020): 215–33. <https://doi.org/10.1177/2347798920901877>.
- Delek Group*. “History.” Accessed August 16, 2021. <https://www.delek-group.com/about-us/history/>.
- Demiryol, Tolga. “Between Security and Prosperity: Turkey and the Prospect of Energy Cooperation in the Eastern Mediterranean.” *Turkish Studies* 20, no. 3 (May 27, 2019): 442–64. <https://doi.org/10.1080/14683849.2018.1534204>.
- Dike, Jude Chukwudi. “Measuring the Security of Energy Exports Demand in OPEC Economies.” *Energy Policy* 60 (September 1, 2013): 594–600. <https://doi.org/10.1016/j.enpol.2013.05.086>.
- Douglas, Erin. “Texas Power Outage: Why Natural Gas Went down during the Winter Storm.” *The Texas Tribune*, February 16, 2021. <https://www.texastribune.org/2021/02/16/natural-gas-power-storm/>.
- Duffield, John S. *Fuels Paradise: Seeking Energy Security in Europe, Japan, and the United States*. Baltimore: Johns Hopkins University Press, 2015. <http://ebookcentral.proquest.com/lib/ebook-nps/detail.action?docID=3318890>.
- Delek Drilling*. “Economic Growth Engine,” November 24, 2015. <https://www.delekdrilling.com/natural-gas/economic-growth>.

- Egozi, Arie. "Israel Boosts Protection Of Gas Fields, Shipping." *Breaking Defense*, February 4, 2019. <https://breakingdefense.com/2019/02/israel-boosts-protection-of-gas-fields-shipping/>.
- Ellinas, Charles. "Harnessing the Hydrocarbons Potential." *Cyprus Profile*. Accessed August 20, 2021. <https://www.cyprusprofile.com/sectors/energy-and-environment>.
- Elliott, Stuart. "No Egyptian LNG Cargoes Shipped since March on Low Prices, Coronavirus," May 19, 2020. <https://www.spglobal.com/platts/en/market-insights/latest-news/natural-gas/051920-no-egyptian-lng-cargoes-shipped-since-march-on-low-prices-coronavirus>.
- Elwerfelli, Ali, and James Benhin. "Oil a Blessing or Curse: A Comparative Assessment of Nigeria, Norway and the United Arab Emirates." *Theoretical Economics Letters* 08, no. 05 (2018): 1136–60. <https://doi.org/10.4236/tel.2018.85076>.
- Eran, Oded. "Natural Gas in the Eastern Mediterranean: Will Economic Wisdom Prevail?" *Institute for National Security Studies*, 2019. <http://www.jstor.org/stable/resrep19418>.
- EuroAsia Interconnector*. "EuroAsia at a Glance." Accessed August 13, 2021. https://euroasia-interconnector.com/at-glance/?__cf_chl_jschl_tk__=pmd_a117b09d67121d29c8464d8cc831898a8f0b4bb2-1628894056-0-gqNtZGzNAc2jcnBszQii.
- Europe Asia Pipeline Company Ltd*. "Pipeline Map." Accessed August 13, 2021. <https://www.eapc.com/>.
- Fahmy, Mohamed Fadel. "Israel Gas Deal Sparks Attacks in Egypt." *CNN*, May 14, 2011. <http://www.cnn.com/2011/WORLD/meast/05/14/egypt.israel.al.Sabil.gas/index.html>.
- Federman, Josef. "Israeli Gas Company Announces \$15B Export Deal with Egypt." *Washington Post*, February 19, 2018, sec. Middle East. https://www.washingtonpost.com/world/middle_east/israeli-gas-company-announces-15b-export-deal-with-egypt/2018/02/19/af7b2fae-1575-11e8-930c-45838ad0d77a_story.html.
- Financial Tribune*. "Israeli Firm Told to Pay NIOC \$1.1b in Compensation." May 21, 2015. <https://financialtribune.com/articles/energy/17268/israeli-firm-told-to-pay-nioc-11b-in-compensation>.
- Fischhendler, Itay. "The Use of Intangible Benefits for Promoting Contested Policies: The Case of Geopolitical Benefits and the Israeli Gas Policy." *Geopolitics* 23, no. 4 (October 2, 2018): 929–53. <https://doi.org/10.1080/14650045.2017.1350842>.

- Fischhendler, Itay, and Daniel Nathan. "In the Name of Energy Security: The Struggle over the Exportation of Israeli Natural Gas." *Energy Policy* 70 (July 1, 2014): 152–162. <https://doi.org/10.1016/j.enpol.2014.03.020>.
- Fisher, Gabe. "Joint Israeli-Greek Military Drill Seen by Some as Rebuff to Turkey." *The Times of Israel*, April 1, 2012. <http://www.timesofisrael.com/israel-greek-us-military-run-joint-exercises-in-eastern-med/>.
- Frantzman, Seth. "Israel Shifts Naval Doctrine with New Sa'ar 6 Warships." *Defense News*, November 5, 2020. <https://www.defensenews.com/naval/2020/11/05/israel-shifts-naval-doctrine-with-new-saar-6-warships/>.
- Friedman, Ron. "Israel, Turkey to Normalize Ties, after PM Apologizes for Flotilla Deaths." *The Times of Israel*, March 22, 2013. <http://www.timesofisrael.com/obama-applauds-call-between-israeli-turkish-prime-ministers/>.
- Friedman, Thomas L. "Cheap Oil and Weaker OPEC Are Easing Israel's Burdens." *The New York Times*, March 24, 1986, sec. World. <https://www.nytimes.com/1986/03/24/world/cheap-oil-and-weaker-opec-are-easing-israel-s-burdens.html>.
- Gal, Yitzhak, and Bader Rock. "Israeli-Egyptian Trade: In-Depth Analysis." Tony Blair Institute for Global Change, October 15, 2018. <https://institute.global/advisory/israeli-egyptian-trade-depth-analysis>.
- Gendzier, Irene. *Dying to Forget: Oil, Power, Palestine, and the Foundations of U.S. Policy in the Middle East*. New York: Columbia University Press, 2015. <http://ebookcentral.proquest.com/lib/ebook-nps/detail.action?docID=4012151>.
- Göksel, Oğuzhan. "Beyond Countering Iran: A Political Economy of Azerbaijan-Israel Relations." *British Journal of Middle Eastern Studies* 42, no. 4 (October 2, 2015): 655–75. <https://doi.org/10.1080/13530194.2015.1048973>.
- Goldthau, Andreas, Wade Hoxtell, and Jan Martin Witte. "Global Energy Governance: The Way Forward." In *Global Energy Governance: The New Rules of the Game*, edited by Andreas Goldthau and Jan Martin Witte. Berlin: Global Public Policy Institute, 2010.
- Government of Israel*. "Infrastructure For Growth 2019." Accessed September 5, 2021. <https://infrastructure.pmo.gov.il/media/1054/infrastructure-for-growth-2019.pdf>.
- Green Course*. "2012-2013 The Fight to Keep the Natural Gas in Israel -." June 28, 2016. <https://www.green.org.il/en/2012-2013-fight-keep-natural-gas-israel/>.
- Greene, David L. "Measuring Energy Security: Can the United States Achieve Oil Independence?" *Energy Policy*, Energy Security - Concepts and Indicators with regular papers, 38, no. 4 (April 1, 2010): 1614–21. <https://doi.org/10.1016/j.enpol.2009.01.041>.

- Greer, John Michael. *Not the Future We Ordered: Peak Oil, Psychology, and the Myth of Progress*. London: Taylor & Francis Group, 2013.
<http://ebookcentral.proquest.com/lib/ebook-nps/detail.action?docID=1120673>.
- Gross, Judah Ari. " Hamas Attempting to Hit Tamar Offshore Gas Rig with Rockets." *The Times of Israel*, May 16, 2021. <https://www.timesofisrael.com/hamas-attempting-to-hit-tamar-offshore-gas-rig-with-rockets/>.
- . "With High-Tech Warships, Navy Readies to Guard Gas Fields from Hezbollah, Hamas." *The Times of Israel*, February 5, 2018. <https://www.timesofisrael.com/with-high-tech-warships-navy-readies-to-guard-gas-fields-from-hezbollah-hamas/>.
- Gürel, Ayla, and Laura Le Cornu. "Can Gas Catalyse Peace in the Eastern Mediterranean?" *The International Spectator* 49, no. 2 (April 3, 2014): 11–33.
<https://doi.org/10.1080/03932729.2014.906799>.
- World History Project*. "Haifa Oil Refinery Massacre." Accessed February 4, 2021.
<https://worldhistoryproject.org/1947/12/30/haifa-oil-refinery-massacre>.
- Hameed, Sameena. "Political Economy of Rentierism in the Middle East and Disruptions from the Digital Space." *Contemporary Review of the Middle East* 7, no. 1 (March 1, 2020): 54–89. <https://doi.org/10.1177/2347798919889782>.
- Harari, Michael. "The Diplomatic Potential in Developing Gaza's Offshore Gas Field." *The Jerusalem Post*, May 16, 2020, sec. Opinion. <https://www.jpost.com/opinion/the-diplomatic-potential-in-developing-gazas-offshore-gas-field-628272>.
- Harkov, Lahav. "New Mediterranean Energy Forum Launched with Israel as Member. Forum Includes Egypt, Israel, Greece, Cyprus, Jordan, the PA and Italy." *Jerusalem Post*, September 23, 2020. <http://libproxy.nps.edu/login?url=https://www.proquest.com/docview/2447270188?accountid=12702>.
- Harman, Danna. "Israel's Electrical Grid Targeted by 'Severe Cyberattack.'" *Haaretz*, January 26, 2016. <https://www.haaretz.com/israel-news/.premium-israel-s-electrical-grid-targeted-by-severe-cyberattack-1.5396042>.
- Henderson, Simon. "Lines in the Sea: The Israel-Lebanon Maritime Border Dispute." Policy Analysis. Policy Watch 3480. The Washington Institute, May 3, 2021. <https://www.washingtoninstitute.org/policy-analysis/lines-sea-israel-lebanon-maritime-border-dispute>.
- Herranz-Surrallés, Anna. "An Emerging EU Energy Diplomacy? Discursive Shifts, Enduring Practices." *Journal of European Public Policy* 23, no. 9 (October 20, 2016): 1386–1405. <https://doi.org/10.1080/13501763.2015.1083044>.

- Hill, Fiona. "Russia: The 21st Century's Energy Superpower?" *Brookings*, March 1, 2002. <https://www.brookings.edu/articles/russia-the-21st-century-energy-superpower/>.
- U.S. Securities and Exchange Commission*. Security and Exchange Commission Report for Zion Oil & Gas, Inc. Accessed February 5, 2021. <https://www.sec.gov/Archives/edgar/data/1131312/000113131206000077/history.htm>.
- Hockenos, Paul. "No Gas, No War Between Turkey, Greece, and Cyprus in the Mediterranean." Accessed October 28, 2020. <https://foreignpolicy.com/2020/09/10/turkey-greece-cyprus-no-gas-no-war-in-the-mediterranean/>.
- Hugh Lovatt. "Israel's Geopolitical Windfall - Europe, Turkey, and New Eastern Mediterranean Conflict Lines." European Council on Foreign Relations. Accessed August 23, 2021. https://ecfr.eu/special/eastern_med/israel.
- Hughes, Llewelyn. "The Limits of Energy Independence: Assessing the Implications of Oil Abundance for U.S. Foreign Policy." *Energy Research & Social Science* 3 (September 2014): 55–64. <https://doi.org/10.1016/j.erss.2014.07.001>.
- International Energy Agency*. "About IEA Membership." July 16, 2021. <https://www.iea.org/about/membership>.
- International Trade Administration*. "Israel - Energy." September 13, 2020. <http://www.trade.gov/knowledge-product/israel-energy>.
- . "Israel Commercial Guide - Energy." September 13, 2020. <http://www.trade.gov/knowledge-product/israel-energy>.
- . "Israel Oil and Gas 2021 Energy Resource Guide." Accessed July 21, 2021. <http://www.trade.gov/energy-resource-guide-israel-oil-and-gas>.
- Israel Inter-Ministerial Tzemach Committee*. "Recommendations of the Inter-Ministerial Committee to Examine Government Policy Regarding Natural Gas in Israel," September 2012. https://www.gov.il/BlobFolder/reports/ng_committee/he/main_recommendations_Tzemach_report.pdf.
- Israeli Ministry of Energy*. "East Mediterranean Gas Forum." June 7, 2021. https://www.gov.il/en/departments/news/emgf_070721.
- . "Energy Economy Objectives for the Year 2030." October 2018. https://www.energy-sea.gov.il/English-Site/Pages/Regulation/energy_economy_objectives_2030.pdf.
- Itayim, Fuad. "Strengths and Weaknesses of the Oil Weapon." *The Adelphi Papers* 15, no. 115 (August 1975): 1–7. <https://doi.org/10.1080/05679327508448393>.

- Jewish Telegraphic Agency*. “\$20,000,000 Refinery Under Construction in Haifa.” March 21, 1939. <https://www.jta.org/1939/03/21/archive/20000000-refinery-under-construction-in-haifa>.
- . “Israel Jubilant over Arrival of U.S. Tanker; Cabinet Discusses Pipeline.” no. Israel Plans to Let Noble, (April 8, 1957). <https://www.jta.org/1957/04/08/archive/israel-jubilant-over-arrival-of-u-s-tanker-cabinet-discusses-pipeline>.
- Joffe, Tzvi. “Jordan’s Constitutional Court Rules Gas Deal with Israel Can’t Be Ended.” *The Jerusalem Post*, May 13, 2020, sec. Middle East. <https://www.jpost.com/middle-east/jordans-constitutional-court-rules-gas-deal-with-israel-cant-be-ended-627828>.
- Jonas, Gareth. “Conflict in the Eastern Mediterranean Is About Much More than Natural Gas.” Center for the National Interest, October 28, 2020. <https://nationalinterest.org/blog/buzz/conflict-eastern-mediterranean-about-much-more-natural-gas-171535>.
- Jones, Clive, and Tore T. Petersen, eds. “The Power of the Weak: Israel’s Secret Oil Diplomacy: 1948–57.” In *Israel’s Clandestine Diplomacies*. Oxford: Oxford University Press, 2013. <http://ebookcentral.proquest.com/lib/ebook-nps/detail.action?docID=4311903>.
- Kaye, Dalia Dassa, Alireza Nader, and Parisa Roshan. “A Brief History of Israeli-Iranian Cooperation and Confrontation.” In *Israel and Iran*, 9–18. A Dangerous Rivalry. RAND Corporation, 2011. <http://www.jstor.org/stable/10.7249/mg1143osd.7>.
- Kaysen, Carl. “Is War Obsolete?” *International Security* 14, no. 4 (1990): 42–64. <https://doi.org/10.2307/2538750>.
- Kedmi, Sharon. “Kazakhstan Wants to Buy Haifa Refinery.” *Haaretz*, November 2, 2006. <https://www.haaretz.com/israel-news/business/1.4927756>.
- Kelanic, Rosemary A. “The Petroleum Paradox: Oil, Coercive Vulnerability, and Great Power Behavior.” *Security Studies* 25, no. 2 (April 2, 2016): 181–213. <https://doi.org/10.1080/09636412.2016.1171966>.
- Kenemer, Daniel. “BTC Pipeline to Open Today.” *The Jerusalem Post*, July 12, 2006. <https://www.jpost.com/business/business-news/btc-pipeline-to-open-today>.
- Kershner, Isabel, and Mona El-Naggar. “Pipeline Blast in Sinai, Said to Be Sabotage, Cuts Gas Supply in Israel and Jordan.” *The New York Times*, April 27, 2011, sec. World. <https://www.nytimes.com/2011/04/28/world/middleeast/28sinai.html>.
- Khraiche, Dana. “Lebanese Power Stations Shut Down as Crisis Deepens.” *Bloomberg*, July 9, 2021. <https://www.bloomberg.com/news/articles/2021-07-09/lebanese-power-stations-shut-down-as-crisis-deepens>.

- Kolyohin, Nick. "Israel to Stop Using Coal by 2025–2030 -." *Xinhua*, August 11, 2018. http://www.xinhuanet.com/english/2018-08/11/c_137383571.htm.
- Krauss, Clifford. "Israel's Energy Dilemma: More Natural Gas Than It Can Use or Export." *The New York Times*, July 5, 2019, sec. Business. <https://www.nytimes.com/2019/07/05/business/energy-environment/israel-natural-gas-offshore.html>.
- Lappin, Yaakov. "As Underwater Threats Proliferate, Autonomous Israeli Sea Vessel Stands Guard." *Israel Hayom*, June 7, 2021. <https://www.israelhayom.com/2021/06/07/as-underwater-threats-proliferate-autonomous-israeli-sea-vessel-stands-guard/>.
- Laron, Guy. *The Six Day War: The Breaking of the Middle East*. Yale University Press, 2017.
- Larsen, Erling Røed. "Escaping the Resource Curse and the Dutch Disease?" *American Journal of Economics & Sociology* 65, no. 3 (July 2006): 605–40. <https://doi.org/10.1111/j.1536-7150.2006.00476.x>.
- Lebanese Petroleum Administration*. "Continuation of the Exploration Activities in Blocks 4 and 9." January 6, 2021. <https://www.lpa.gov.lb/english/news-and-media/news/continuation-of-the-exploration-activities-in-blocks-4-and-9>.
- LeVine, Steve. "Why Israel's Gas Deal with Egypt Really Blew up." *Foreign Policy*, April 23, 2012. <https://foreignpolicy.com/2012/04/23/why-israels-gas-deal-with-egypt-really-blew-up/>.
- Lewan, Kenneth M. "How West Germany Helped to Build Israel." *Journal of Palestine Studies* 4, no. 4 (1975): 41–64. <https://doi.org/10.2307/2535601>.
- Little, Douglas. "Pipeline Politics: America, TAPLINE, and the Arabs." *The Business History Review* 64, no. 2 (1990): 255–85. <https://doi.org/10.2307/3115583>.
- Looney, Robert E. "Oil Revenues and Viable Development: Impact of the Dutch Disease on Saudi Arabian Diversification Efforts." *American-Arab Affairs*, no. 27 (Winter 1989): 9. <http://hdl.handle.net/10945/40491>.
- Looney, Robert E. "The New Geoeconomics of Energy." In *Advances in Geoeconomics*, edited by J. Mark Munoz, 1st ed. Routledge, 2016. <https://doi.org/10.4324/9781315669021>.
- Mahdi, Ahmed. "Geoeconomic Leverage of Natural Gas Resources in the Mediterranean: The Case of Israel." *Contemporary Arab Affairs* 12, no. 4 (December 1, 2019): 141–55. <https://doi.org/10.1525/caa.2019.12.4.141>.

- McCulley, Russell. "Tamar a Triumph for Both Noble and Israel." *Offshore*, December 12, 2013. <https://www.offshore-mag.com/subsea/article/16761306/tamar-a-triumph-for-both-noble-and-israel>.
- Meidan, Michal. "The Implications of China's Energy-Import Boom." *Survival* 56, no. 3 (May 4, 2014): 179–200. <https://doi.org/10.1080/00396338.2014.920147>.
- Meierding, Emily. *The Oil Wars Myth: Petroleum and the Causes of International Conflict*. Cornell University Press, 2020.
- Melhem, Ahmad. "Will Israel Go through with Plan to Develop Gaza Gas Field?" *Al Monitor*, January 28, 2020. <https://www.al-monitor.com/originals/2020/01/palestinian-authority-israel-import-gas-gaza-field-power.html>.
- Michael L. Ross. "The Political Economy of the Resource Curse." *World Politics* 51, no. 2 (January 1999): 297–322. <http://www.jstor.org/stable/25054077>.
- Miller, Judith. "Israel Pressing U.S. on Oil Sales Accord." *New York Times*. August 17, 1980. <http://timesmachine.nytimes.com/timesmachine/1980/08/17/111275689.html>.
- Mitchell, Gabriel. "Lessons from Israel and Egypt's Lukewarm Peace." *Atlantic Council*, April 20, 2021. <https://www.atlanticcouncil.org/blogs/menasource/lessons-from-israel-and-egypts-lukewarm-peace/>.
- . "The Eastern Mediterranean Gas Forum: Cooperation in the Shadow of Competition." *The Israeli Institute for Regional Foreign Policies*, September 2020, 13. <https://mitvim.org.il/wp-content/uploads/Gabriel-Mitchell-The-Eastern-Mediterranean-Gas-Forum-September-2020.pdf>.
- Morton, Michael Quentin. "The Land That Oil Forgot: Palestine, 1913–1948." *GEO ExPro* 17, no. 1 (May 5, 2020). <http://www.geoexpro.com/articles/2020/05/the-land-that-oil-forgot-palestine-1913-1948>.
- Mughrabi, Nidal al-. "Palestinians, Seeking New Developer, Offer 45 Pct Stake in Gaza Gas Field." *Reuters*, April 4, 2018, sec. Utilities - Natural Gas. <https://www.reuters.com/article/israel-palestinians-gas-idUSL5N1RH2D5>.
- . "Shell Gives up on Gaza's Offshore Gas Field - Palestinians." *Reuters*, March 5, 2018, sec. Business News. <https://www.reuters.com/article/uk-israel-palestinians-gas-idUKKBN1GH2F4>.
- Nadel, Ryan. "Energy Cooperation Key Part of Moscow Visit. With 90% of Israel's Oil Coming from Russia, Pipeline Plan through Turkey Would Increase Access." *Jerusalem Post*. October 19, 2006, sec. News. <http://www.proquest.com/docview/319593433/abstract/963BDD9E949F4764PQ/1>.

- NEFTE Compass. "Holy Oil: Glencore Ships FSU Crudes Via Israel Line." October 8, 2003, 1. <http://www.proquest.com/docview/198805460/abstract/625A0FEFDDEA41BAPQ/1>.
- Negev, Maya. "Air Pollution Policy In Israel." *Atmosphere* 11, no. 1065 (October 8, 2020). <https://doi.org/10.3390/atmos11101065>.
- Norman Angell. *The Great Illusion: A Study of the Relation of Military Power to National Advantage*. Third. England: G. P. Putnam's Sons, 1911.
- Observatory of Economic Complexity*. "Where Does Israel Import Crude Petroleum From?" Accessed September 1, 2021. https://oec.world/en/visualize/tree_map/hs92/import/isr/show/52709/2000/.
- Offshore Technology*. "Israel, Cyprus Agree Framework to Settle Dispute over Aphrodite Gas Field." March 11, 2021. <https://www.offshore-technology.com/news/israel-cyprus-framework-aphrodite-field/>.
- Oren, Michael B. *Six Days of War: June 1967 and the Making of the Modern Middle East*. Presidio Press, 2017.
- Orhan Babaoglu. "Reliant Mermaid Naval Exercise: Increasing the Peacetime Role of Navies." Policy Analysis. Policy Watch 943. Washington Institute, January 18, 2005. <https://www.washingtoninstitute.org/policy-analysis/reliant-mermaid-naval-exercise-increasing-peacetime-role-navies>.
- O'Sullivan, Meghan. *Windfall: How the New Energy Abundance Upends Global Politics and Strengthens America's Power*. New York: Simon & Schuster, 2017.
- Paraskova, Tsvetana. "Israel Stops Onshore Oil Exploration Permits." Oil Price, September 1, 2021. <https://oilprice.com/Latest-Energy-News/World-News/Israel-Stops-Onshore-Oil-Exploration-Permits.html>.
- Perkins, Ellie. "Book Review: Sustaining Development in Mineral Economies: The Resource Curse Thesis, by Richard M. Auty. London and New York: Routledge, 1993." *Critical Sociology* 21, no. 1 (April 1, 1995): 158–60. <https://doi.org/10.1177/089692059502100114>.
- Pipeline & Gas Journal*. "Med Red Land Bridge Inaugurates Operations Through EAPC Pipeline Network." April 19, 2021. <https://pgjonline.com/news/2021/april/med-red-land-bridge-inaugurates-operations-through-eapc-pipeline-network>.
- Platt's Oilgram News*. "Russia's Gazprom Said Interested in Gas E&P in Israel." June 21, 2001. <https://advance-lexis-com.libproxy.nps.edu/api/document?collection=news&id=urn:contentItem:43J1-WN50-0010-415T-00000-00&context=1516831>.

- Rabinovitch, Ari. "The Emirati Oil Deal That Has Infuriated Israeli Environmentalists." *Reuters*, June 15, 2021, sec. Environment. <https://www.reuters.com/business/environment/emirati-oil-deal-that-has-infuriated-israeli-environmentalists-2021-06-14/>.
- Rabinovitch, Ari, and Nidal Al-Mughrabi. "Gas to Gaza? The Pipeline That Might Provide a Lifeline." *Reuters*, February 23, 2021, sec. Energy. <https://www.reuters.com/business/energy/gas-gaza-pipeline-that-might-provide-lifeline-2021-02-23/>.
- Rabinovitch, Ari, and Michele Kambas. "Cyprus, Israel Seek Gas-Sharing Formula to Unlock East Med Energy Hub." *Reuters*, May 7, 2018, sec. Commodities. <https://www.reuters.com/article/us-israel-cyprus-aphrodite-idUSKBN1I80UQ>.
- Ramani, Samuel. "The Israel-Kazakhstan Partnership." *The Diplomat*, July 19, 2016. <https://thediplomat.com/2016/07/the-israel-kazakhstan-partnership/>.
- Ratner, Michael. "Israel's Offshore Natural Gas Discoveries Enhance Its Economic and Energy Outlook." *Congressional Research Service*, January 31, 2011, 14.
- Ratner, Michael, and Jim Zanotti. "Antitrust Case Complicates Israel's Energy Future." IF10140. Congressional Research Service, February 27, 2015. <https://congressional.proquest.com/congressional/docview/t21.d22.crs-2015-rsi-0146?accountid=12702>.
- Reuters*. "Egypt in \$500 Million Settlement with Israel Electric Corp -Statement." June 16, 2019, sec. Integrated Oil & Gas. <https://www.reuters.com/article/egypt-energy-israel-idUSL8N23N0TY>.
- . "Greece's Energean Discovers Natural Gas Reserve Offshore Israel." April 15, 2019, sec. Commodities News. <https://www.reuters.com/article/us-israel-energean-oil-idUSKCN1RR0WY>.
- . "Greek-Italian Venture Signs Agreement with Israel on Eastmed Gas Pipeline Scheme." March 9, 2021, sec. Utilities - Natural Gas. <https://www.reuters.com/article/greece-israel-natgas-idUSL8N2L73PW>.
- . "Israel Aims for Zero New Gasoline, Diesel-Powered Vehicles by 2030." October 9, 2018, sec. Environment. <https://www.reuters.com/article/us-israel-electric-vehicles-idUKKCN1MJ1PS>.
- . "Israel Plans to Let Noble, Delek Keep Control of Leviathan Gas Field." June 30, 2015, sec. Oil and Gas. <https://www.reuters.com/article/energy-israel-natgas-idUSL8N0ZG1LW20150630>.

- . “Israel Says It Thwarted Serious Cyber Attack on Power Station.” January 29, 2020, sec. Internet News. <https://www.reuters.com/article/us-israel-cyber-powerstation-idUSKBN1ZS1SU>.
- . “Israeli Government Approves 40 Pct Limit on Natural Gas Exports.” June 23, 2013, sec. Oil & Gas Exploration & Production. <https://www.reuters.com/article/israel-natgas-idUSL5N0EZ0BQ20130623>.
- . “Israel’s Wealth Fund Delayed Again as Tax Revenue Still Short.” July 5, 2021, sec. Middle East. <https://www.reuters.com/world/middle-east/israels-wealth-fund-delayed-again-tax-revenue-still-short-2021-07-05/>.
- . “Leviathan Gas Rig Reaches Israel.” January 31, 2019, sec. Commodities News. <https://www.reuters.com/article/us-israel-energy-netanyahu-idUSKCN1PP257>.
- . “Saudi Arabia, U.S. to Cooperate on Security of Global Energy Supply: Saudi Press.” October 28, 2019. <https://www.reuters.com/article/us-saudi-nigeria-usa-idUSKBN1X724T>.
- . “Swiss Court Tells Egyptian Energy Companies to Compensate Israel.” April 28, 2017, sec. Commodities. <https://www.reuters.com/article/us-israel-egypt-compensation-idUSKBN17U2QC>.
- . “Timeline: Turkey’s Gas Exploration off Cyprus Raises Tensions.” October 14, 2019, sec. Commodities. <https://www.reuters.com/article/us-cyprus-turkey-ship-timeline-idUSKBN1WT20L>.
- Rinat, Zafir. “Government Panel Wants Oil Refineries in Northern Israel Shut Within 10 Years.” *Haaretz*, April 26, 2021. <https://www.haaretz.com/israel-news/.premium-government-panel-wants-oil-refineries-in-northern-israel-shut-within-10-years-1.9748821>.
- . “Who Are Israel’s Biggest Polluters?” *Haaretz*, December 2, 2013. <https://www.haaretz.com/.premium-who-are-israels-biggest-polluters-1.5296325>.
- Ros-Lehtinen, Ileana. United States-Israel Strategic Partnership Act, II H.R.938 § 201 (2014). <https://www.congress.gov/bill/113th-congress/house-bill/938>.
- Ross, Michael L. “Blood Barrels; Why Oil Wealth Fuels Conflict.” *Foreign Affairs* 87, no. 3 (June 2008): 5.
- Ross, Michael L. “The Political Economy of the Resource Curse; Reviewed Works: The Paradox of Plenty: Oil Booms and Petro-States by Terry Lynn Karl; Natural Resource Abundance and Economic Growth by Jeffrey D. Sachs, Andrew M. Warner; Winners and Losers: How Sectors Shape the Developmental Prospects of States by D. Michael Shafer.” *World Politics* 51, no. 2 (1999): 297–322. <http://www.jstor.org/stable/25054077>.

- . “What Have We Learned about the Resource Curse?” *Annual Review of Political Science* 18, no. 1 (2015): 239–59. <https://doi.org/10.1146/annurev-polisci-052213-040359>.
- Rubinovitz, Ziv, and Elai Rettig. “Crude Peace: The Role of Oil Trade in the Israeli-Egyptian Peace Negotiations.” *International Studies Quarterly* 62, no. 2 (June 1, 2018): 371–82. <https://doi.org/10.1093/isq/sqx073>.
- Ruble, Isabella. “European Union Energy Supply Security: The Benefits of Natural Gas Imports from the Eastern Mediterranean.” *Energy Policy* 105 (June 1, 2017): 341–53. <https://doi.org/10.1016/j.enpol.2017.03.010>.
- Oil & Gas Journal*. “Russian-Israeli Deal Could Increase Oil Exports to Asia through Revamped Tipline,” November 6, 2003. <https://www.ogj.com/general-interest/economics-markets/article/17255793/russianisraeli-deal-could-increase-oil-exports-to-asia-through-revamped-tipline>.
- Sachs, Jeffrey D., and Andrew M. Warner. “Natural Resource Abundance and Economic Growth.” National Bureau of Economic Research, December 1, 1995. <https://doi.org/10.3386/w5398>.
- Sachs, Natan, and Tim Boersma. “The Energy Island: Israel Deals with Its Natural Gas Discoveries.” Policy Paper. Foreign Policy. Brookings, February 2015. <https://www.brookings.edu/wp-content/uploads/2016/06/energy-island-web.pdf>.
- Schenk, C. J., M.A. Charpentier, R.R. Klett, T.R. Brownfield, M.E. Pitman, J.K. Cook, and M.E. Tennyson. “Assessment of Undiscovered Oil and Gas Resources of the Levant Basin Province, Eastern Mediterranean.” Fact Sheet 2010–3014. U.S. Geological Survey, 2010. <https://pubs.usgs.gov/fs/2010/3014/>.
- Shaffer, Brenda. “Can New Energy Supplies Bring Peace?” *The German Marshall Fund of the United States*, Eastern Mediterranean Energy Project Policy Brief, March 2014, 6.
- . “Israel’s Energy Resource Management Policy: Lessons for Small Markets.” *Energy Law Journal* 37, no. 2 (2016): 21.
- Shaham, Udi. “Israel and Greece Sign Record Defence Deal.” *Al Jazeera*, April 18, 2021. <https://www.aljazeera.com/news/2021/4/18/israel-greece-sign-record-defence-deal>.
- Shipler, David K. “Israel Gives Up an Oilfield to Egypt In Biggest Sacrifice for Treaty Yet.” *The New York Times*. November 26, 1979. <https://timesmachine.nytimes.com/timesmachine/1979/11/26/111120388.html?pageNumber=2>.

- Shiryayevskaya, Anna, Ann Koh, and Stephen Stapczynski. "The Era of Cheap Natural Gas Ends as Prices Surge by 1,000%." *Bloomberg*, August 5, 2021, sec. Markets. <https://www.bloomberg.com/news/articles/2021-08-06/the-era-of-cheap-natural-gas-ends-as-prices-surge-by-1-000>.
- Shoufani, Elias. "The Sinai Wedge." *Journal of Palestine Studies* 1, no. 3 (1972): 85–94. <https://doi.org/10.2307/2535868>.
- Silver, Eric. "Sharon Vetoes British Gas Deal to Supply Israel with Natural Gas." *The Independent*, October 12, 2013, sec. News. <https://www.independent.co.uk/news/business/news/sharon-vetoes-british-gas-deal-to-supply-israel-with-natural-gas-100920.html>.
- Simon Henderson. "Russian Oil to Transit Israel: The Trans-Israel Pipeline Is Reborn." *The Washington Institute for Near East Policy* 805 (November 17, 2003). <https://www.washingtoninstitute.org/policy-analysis/russian-oil-transit-israel-trans-israel-pipeline-reborn>.
- Smith, J. P. "Egyptians Reportedly Agree To Sell Sinai Oil to Israel." *Washington Post*, October 19, 1978. <https://www.washingtonpost.com/archive/politics/1978/10/19/egyptians-reportedly-agree-to-sell-sinai-oil-to-israel/egypt-reportedly-agrees-to-sell-sinai-oil-to-israel/b051088a-30ba-4484-8365-bb99a2e130b9/>.
- Smith, Terence. "Israelis at Oil Wells in Sinai Believe Days There Are Numbered." *The New York Times*, January 13, 1975, sec. Archives. <https://www.nytimes.com/1975/01/13/archives/israelis-at-oil-wells-in-sinai-believe-days-there-are-numbered.html>.
- Sneineh, Mustafa Abu, and Adam Chamseddine. "Israel and Lebanon's Border Dispute Could Give the UAE a Mediterranean Foothold." *Middle East Eye*, February 13, 2021. <http://www.middleeasteye.net/news/uae-israel-lebanon-gas-mediterranean-foothold>.
- Solomon, Ariel Ben. "'Turkey Closer to Energy Agreement with Israel.'" *The Jerusalem Post*, May 13, 2013. <https://www.jpost.com/international/report-turkey-close-to-agreement-on-gas-with-israel-312970>.
- Solomon, Shoshanna. "Israel Aims to Eliminate Use of Coal, Gasoline and Diesel by 2030." *The Times of Israel*, February 27, 2018. <https://www.timesofisrael.com/israel-aims-to-eliminate-use-of-coal-gasoline-and-diesel-by-2030/>.
- . "Israel Reportedly Set to Ease Export Quotas of Natural Gas." *The Times of Israel*, May 31, 2021. <https://www.timesofisrael.com/israel-reportedly-set-to-ease-export-quotas-of-natural-gas/>.

- . “Israel to Start Pumping Gas from Leviathan, Making Country an Energy Powerhouse.” *The Times of Israel*, December 16, 2019. <https://www.timesofisrael.com/start-of-leviathan-natural-gas-production-seen-as-major-milestone-for-israel/>.
- Sonol Energy*. “History.” Accessed August 19, 2021. <https://www.sonolenergy.com/History>.
- Souleimanov, Emil, Maya Ehrmann, and Huseyn Aliyev. “Focused on Iran? Exploring the Rationale behind the Strategic Relationship between Azerbaijan and Israel.” *Southeast European and Black Sea Studies* 14, no. 4 (October 2, 2014): 471–88. <https://doi.org/10.1080/14683857.2014.967945>.
- Sovacool, Benjamin K. “Solving the Oil Independence Problem: Is It Possible?” *Energy Policy* 35, no. 11 (November 1, 2007): 5505–14. <https://doi.org/10.1016/j.enpol.2007.06.002>.
- Sovereign Limits*. “Cyprus–Israel Maritime Boundary.” International Boundaries Database. Accessed July 17, 2021. <https://sovereignlimits.com/boundaries/cyprus-israel-maritime>.
- Soylu, Ragip. “Turkey Invites Israeli Energy Minister to Antalya Forum in Rare Outreach.” *Middle East Eye*, April 22, 2021. <http://www.middleeasteye.net/news/turkey-israel-high-level-visit-invitation-energy-minister-yuval-steinitz>.
- Stergiou, Andreas. “Turkey–Cyprus–Israel Relations and the Cyprus Conflict.” *Journal of Balkan and Near Eastern Studies* 18, no. 4 (July 3, 2016): 375–92. <https://doi.org/10.1080/19448953.2016.1195994>.
- Stivers, William. “International Politics and Iraqi Oil, 1918–1928: A Study in Anglo-American Diplomacy.” *The Business History Review* 55, no. 4 (1981): 517–40. <https://doi.org/10.2307/3114774>.
- Stocker, James. “No EEZ Solution: The Politics of Oil and Gas in the Eastern Mediterranean.” *Middle East Journal* 66, no. 4 (2012): 579–97. <http://www.jstor.org/stable/23361618>.
- Surkes, Sue. “Green Groups Ask High Court to Halt Secret UAE Oil Deal Signed by State Company.” Accessed August 13, 2021. <https://www.timesofisrael.com/green-groups-ask-high-court-to-halt-secret-uae-oil-deal-signed-by-state-company/>.
- . “IEC Asks Antitrust Boss to Probe Noble Energy for Holding It ‘Hostage.’” *The Times of Israel*, October 7, 2020. <https://www.timesofisrael.com/iec-asks-antitrust-boss-to-probe-noble-energy-for-holding-it-hostage/>.

- . “In Win for Environment, Israel Won’t Issue New Oil Shale Exploration Permits.” *The Times of Israel*, February 18, 2020. <https://www.timesofisrael.com/in-win-for-environment-israel-wont-issue-new-oil-shale-exploration-permits/>.
- . “Mistake to Leave Turkey out of New East Med Gas Club – International Expert.” Accessed October 29, 2020. <https://www.timesofisrael.com/mistake-to-leave-turkey-out-of-new-east-med-gas-club-international-expert/>.
- . “New Gas Deal Expected to Slash Electricity Prices, but Some Say It’s Not Enough.” *The Times of Israel*, July 11, 2021. <https://www.timesofisrael.com/new-gas-deal-expected-to-slash-electricity-prices-but-some-say-its-not-enough/>.
- Tal, Alon. “Addressing Desalination’s Carbon Footprint: The Israeli Experience.” *Water* 10, no. 197 (February 12, 2018). <https://doi.org/10.3390/w10020197>.
- Teff-Seker, Yael, Aviad Rubin, and Ehud Eiran. “Israel’s ‘Turn to the Sea’ and Its Effect on Israeli Regional Policy.” *Israel Affairs* 25, no. 2 (March 4, 2019): 234–55. <https://doi.org/10.1080/13537121.2019.1577037>.
- The Arab Weekly*. “UAE, U.S. and Israel to Establish ‘Energy Partnership.’” February 10, 2020. <https://the arabweekly.com/uae-us-and-israel-establish-energy-partnership>.
- The Economist*. “America Lifts Its Ban on Oil Exports.” December 18, 2015. <https://www.economist.com/finance-and-economics/2015/12/18/america-lifts-its-ban-on-oil-exports>.
- . “Angst in the Aegean - A Row between Turkey and Greece over Gas Is Raising Tension in the Eastern Mediterranean.” August 22, 2020. <https://www.economist.com/international/2020/08/20/a-row-between-turkey-and-greece-over-gas-is-raising-tension-in-the-eastern-mediterranean>.
- . “Jordan Agrees Gas Purchase Deal with Israel.” September 29, 2016. <http://country.eiu.com/article.aspx?articleid=1894657373>.
- . “The Dutch Disease.” November 26, 1977. The Economist Historical Archive, 1843–2015. <http://link.gale.com/apps/doc/GP4100110906/ECON?u=navalps&sid=zotero&xid=eb03910f>.
- “The Geopolitics of Cross-Border Electricity Grids_ The Israeli-Arab Case | Elsevier Enhanced Reader.” Accessed September 7, 2021. <https://doi.org/10.1016/j.enpol.2016.09.012>.
- The Ministry of National Infrastructure, Energy and Water Resources. “Exploration History.” Accessed February 21, 2021. [https://www.energy-sea.gov.il/English-Site/Pages/Oil And Gas in Israel/History-of-Oil--Gas-Exploration-and-Production-in-Israel.aspx](https://www.energy-sea.gov.il/English-Site/Pages/Oil%20And%20Gas%20in%20Israel/History-of-Oil--Gas-Exploration-and-Production-in-Israel.aspx).

- . “Export.” Accessed July 21, 2021. [https://www.energy-sea.gov.il/English-Site/Pages/Gas Markets/Israels-Export-Options.aspx](https://www.energy-sea.gov.il/English-Site/Pages/Gas%20Markets/Israels-Export-Options.aspx).
- . “History of Oil and Gas Production in Israel.” Accessed January 22, 2021. [https://www.energy-sea.gov.il/English-Site/Pages/Oil And Gas in Israel/History-of-Oil--Gas-Exploration-and-Production-in-Israel.aspx](https://www.energy-sea.gov.il/English-Site/Pages/Oil%20And%20Gas%20in%20Israel/History-of-Oil--Gas-Exploration-and-Production-in-Israel.aspx).
- . “Policy and Government Decisions.” Accessed May 28, 2021. <https://www.energy-sea.gov.il/English-Site/Pages/Regulation/Policy.aspx>.
- . “The Petroleum Law & Regulations.” Accessed January 23, 2021. <https://www.energy-sea.gov.il/English-Site/Pages/Regulation/The-Petroleum-Law--Regulations.aspx>.
- The New York Times*. “Cyprus: First Visit by an Israeli Leader.” *The New York Times*, February 17, 2012, sec. World. <https://www.nytimes.com/2012/02/17/world/europe/cyprus-first-visit-by-an-israeli-leader.html>.
- . “Egypt and Israel Sign 15-Year Natural Gas Deal.” July 1, 2005, sec. Business. <https://www.nytimes.com/2005/07/01/business/worldbusiness/egypt-and-israel-sign-15year-natural-gas-deal.html>.
- . “Faisal Dedicates Big Iraqi Pipeline.” November 19, 1952. <http://timesmachine.nytimes.com/timesmachine/1952/11/19/93589716.html>.
- . “Israel Shaken by Scandal At Oil Fields in the Sinai.” November 15, 1971, sec. Archives. <https://www.nytimes.com/1971/11/15/archives/israel-shaken-by-scandal-at-oil-fields-in-the-sinai-secret-details.html>.
- . “Mrs. Meir Says Moses Made Israel Oil-Poor.” June 11, 1973, sec. Archives. <https://www.nytimes.com/1973/06/11/archives/mrs-meir-says-moses-made-israel-oilpoor.html>.
- . “Paz Oil to Acquire Israel Refinery.” November 24, 1958. <http://timesmachine.nytimes.com/timesmachine/1958/11/24/83427405.html>.
- . “U.S. and Israel Sign Pact On Emergency Oil Needs.” October 18, 1980. <http://timesmachine.nytimes.com/timesmachine/1980/10/18/111808107.html>.
- The Times of Israel*. “Hezbollah Issues Fresh Threat against Israel’s Offshore Gas Rigs.” February 18, 2018. <https://www.timesofisrael.com/hezbollah-threatens-to-strike-israels-offshore-gas-platforms/>.
- . “Lebanon Starts Drilling First Offshore Oil and Gas Exploration Well.” *The Times of Israel*, February 25, 2020. <https://www.timesofisrael.com/lebanon-starts-drilling-first-offshore-oil-and-gas-exploration-well/>.

- . “Power Outages across Israel; Electric Company: ‘Unequivocally Not Cyberattack.’” October 30, 2020. <https://www.timesofisrael.com/power-outages-reported-across-israel/>.
- Tippee, Bob. “E. Mediterranean Gas Work Faces Geopolitical Hurdles.” *Oil & Gas Journal*, April 7, 2014. <https://www.ogj.com/exploration-development/article/17210652/e-mediterranean-gas-work-faces-geopolitical-hurdles>.
- Toman, Michael A. “International Oil Security: Problems and Policies.” *Brookings*, March 1, 2002. <https://www.brookings.edu/articles/international-oil-security-problems-and-policies/>.
- Total Energies. “Exploration and Production.” Accessed August 6, 2021. <https://lb.totalenergies.com/en/who-we-are/totalenergies-lebanon/exploration-and-production>.
- . “Total Strengthens Its Position in the Mediterranean Region by Entering Two Exploration Blocks Offshore Lebanon,” February 9, 2018. <https://totalenergies.com/media/news/press-releases/total-strengthens-position-in-mediterranean-region-by-entering-two-exploration-blocks-offshore-lebanon>.
- Trilnick, Itai, and Avi Bar-Eli. “Turkish Company Lobbying Israel for Gas Exports to Turkey.” *Haaretz*, February 14, 2013. <https://www.haaretz.com/israel-news/business/.premium-turkish-company-lobbying-for-israeli-gas-1.5229773>.
- Tsafos, Nikos. “What Does Calypso Mean for Cyprus and Eastern Mediterranean Gas?” Center for Strategic & International Studies, February 9, 2018. <https://www.csis.org/analysis/what-does-calypso-mean-cyprus-and-eastern-mediterranean-gas>.
- Tschopp, H.J. “The Oilfind of Heletz, Israel.” *Bulletin of the Swiss Association of Petroleum Geologists and Engineers* 22, no. 63 (February 29, 1956): 41–54. <https://doi.org/10.5169/SEALS-188030>.
- Tsolakidou, Stella. “Greece Joins Israel-USA Military Exercise in Southern Mediterranean.” *Greek Reporter*, March 28, 2012. <https://greekreporter.com/2012/03/28/greece-joins-israel-usa-military-exercise-in-southern-mediterranean/>.
- Turck, Nancy. “The Arab Boycott of Israel.” *Foreign Affairs* 55, no. 3 (1977): 472–93. <https://doi.org/10.2307/20039682>.
- . “The Middle East: The Arab Boycott of Israel,” January 28, 2009. <https://www.foreignaffairs.com/articles/middle-east/1977-04-01/middle-east-arab-boycott-israel>.

- Turton, William, and Kartikay Mehrotra. "Hackers Breached Colonial Pipeline Using Compromised Password." *Bloomberg*, June 4, 2021. <https://www.bloomberg.com/news/articles/2021-06-04/hackers-breached-colonial-pipeline-using-compromised-password>.
- United Nations Conciliation Commission for Palestine*. "The Haifa Refinery." August 23, 1949. <https://www.un.org/unispal/document/auto-insert-210673/>.
- United Petroleum Export Co Ltd*. "About Delek Group." Accessed January 29, 2021. <https://www.unex.co.il/delek-company>.
- U.S. Energy Information Administration*. "Despite the U.S. Becoming a Net Petroleum Exporter, Most Regions Are Still Net Importers." February 6, 2020. <https://www.eia.gov/todayinenergy/detail.php?id=42735>.
- . "Global Liquefied Natural Gas Trade Was Flat in 2020 amid Pandemic." U.S. Energy Information Administration, July 9, 2021. <https://www.eia.gov/todayinenergy/detail.php?id=48656>.
- . "Overview of Oil and Natural Gas in the Caspian Sea Region." U.S. Energy Information Administration, August 26, 2013. https://www.eia.gov/international/analysis/regions-of-interest/Caspian_Sea.
- Vidakis, Ionniis, Georgios Baltos, and Janis Balodis. "Geopolitics of Energy versus Geoenergy of Politics." *Sociālo Zinātņu Vēstnesis*, May 14, 2018. <https://doi.org/10.5281/zenodo.1246786>.
- Vidal, Marta. "Jordanians Voice Concerns over Imports of Israeli Gas." *Al Jazeera*, January 30, 2020. <https://www.aljazeera.com/economy/2020/1/30/jordanians-voice-concerns-over-imports-of-israeli-gas>.
- Vivoda, Vlado. "Japan's Energy Security Predicament Post-Fukushima." *Energy Policy* 46 (July 2012): 135–43. <https://doi.org/10.1016/j.enpol.2012.03.044>.
- Wall Street Journal*. "Eastern European Brief: Russia-Israel Energy Deal." May 2, 1994. <http://www.proquest.com/docview/308173218/abstract/DD144768E761418EPQ/1>.
- Waltz, Kenneth N. "Structural Realism after the Cold War." *International Security* 25, no. 1 (2000): 5–41. <http://www.jstor.org/stable/2626772>.
- Winrow, Gareth M. "The Anatomy of a Possible Pipeline: The Case of Turkey and Leviathan and Gas Politics in the Eastern Mediterranean." *Journal of Balkan and Near Eastern Studies* 18, no. 5 (September 2, 2016): 431–47. <https://doi.org/10.1080/19448953.2016.1196012>.

- World Bank Data*. “Electricity Production from Oil Sources - Israel.” Accessed July 29, 2021. <https://data.worldbank.org/indicator/EG.ELC.PETR.ZS?locations=IL>
- World Bulletin*. “Egypt to develop Sinai oil fields ‘over-exploited’ by Israel.” November 25, 2013. <https://worldbulletin.dunyabulteni.net/middle-east/egypt-to-develop-sinai-oil-fields-over-exploited-by-israel-h123659.html>.
- World Integrated Trade Solution*. “Israel Net Energy Imports.” Accessed August 12, 2021. <https://wits.worldbank.org/CountryProfile/en/Country/ISR/StartYear/1995/EndYear/2018/Indicator/EG-IMP-CONS-ZS>.
- Yago, Glenn. “We Need to Rethink the Citizen Wealth Fund.” *The Jerusalem Post*, September 9, 2020. <https://www.jpost.com/opinion/we-need-to-rethink-the-citizen-wealth-fund-opinion-641694>.
- Yergin, Daniel. “Ensuring Energy Security.” *Foreign Affairs* 85, no. 2 (2006): 69–82. <https://doi.org/10.2307/20031912>.
- Zakheim, Dov S. “Uncertain of U.S. Intentions, Four Allies Exercise Their Naval Muscle.” *The Hill*, March 19, 2021. <https://thehill.com/opinion/national-security/543754-uncertain-of-us-intentions-four-allies-exercise-their-naval-muscle>.
- Zehorai, Itay. “Israel Is among the Top 20 Global Economies in GDP per Capita for the First Time.” *Forbes Israel*, May 5, 2021. <https://forbes.co.il/e/israel-is-among-the-top-20-global-economies-in-gdp-per-capita-for-the-first-time/>.
- Zilberfarb, Ben-Zion. “From Boom to Bust: The Israeli Economy 1990–2003.” *Israel Affairs* 12, no. 2 (April 1, 2006): 221–33. <https://doi.org/10.1080/13537120500535126>.

THIS PAGE INTENTIONALLY LEFT BLANK

INITIAL DISTRIBUTION LIST

1. Defense Technical Information Center
Ft. Belvoir, Virginia
2. Dudley Knox Library
Naval Postgraduate School
Monterey, California