



AMERICAN UNIVERSITY OF BEIRUT

JORDAN, ISRAEL, AND ENERGY SECURITY IN THE  
EASTERN MEDITERRANEAN

by  
WAYLON PIERCE FAIRBANKS

A thesis  
submitted in partial fulfillment of the requirements  
for the degree of Master of Arts  
to the Department of Political Studies and Public Administration  
of the Faculty of Arts and Sciences  
at the American University of Beirut

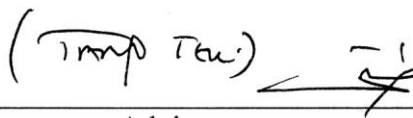
Beirut, Lebanon  
February 2020

AMERICAN UNIVERSITY OF BEIRUT

JORDAN, ISRAEL, AND ENERGY SECURITY IN THE  
EASTERN MEDITERRANEAN

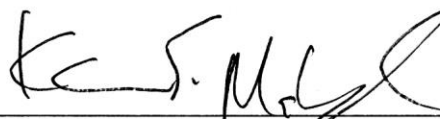
by  
WAYLON PIERCE FAIRBANKS

Approved by:



Dr. Tariq Tell, Assistant Professor  
Political Studies and Public Administration

Advisor



Dr. Karim Makdisi, Associate Professor  
Political Studies and Public Administration

Member of Committee



Dr. Ali Ahmad, Program Director  
Issam Fares Institute, Energy Policy and Security

Member of Committee



Dr. Walid Khadduri, Consultant  
MEES

Member of Committee

Date of thesis/dissertation defense: February 18, 2020

AMERICAN UNIVERSITY OF BEIRUT

THESIS, DISSERTATION, PROJECT RELEASE FORM

Student Name:

FAIRBANKS                      WAYLON                      PIERCE  
Last                                      First                                      Middle

Master's Thesis                       Master's Project                       Doctoral Dissertation

I authorize the American University of Beirut to: (a) reproduce hard or electronic copies of my thesis, dissertation, or project; (b) include such copies in the archives and digital repositories of the University; and (c) make freely available such copies to third parties for research or educational purposes.

I authorize the American University of Beirut, to: (a) reproduce hard or electronic copies of it; (b) include such copies in the archives and digital repositories of the University; and (c) make freely available such copies to third parties for research or educational purposes after:

**One ---- year from the date of submission of my thesis, dissertation, or project.**

**Two ---- years from the date of submission of my thesis, dissertation, or project.**

**Three ---- years from the date of submission of my thesis, dissertation, or project.**

Waylon Fairbanks                      19/2/2020

Signature

Date

This form is signed when submitting the thesis, dissertation, or project to the University Libraries

## ACKNOWLEDGMENTS

I would like to express my sincerest gratitude to my advisor, Dr. Tariq Tell, for his assistance and knowledge in completing this thesis. Special thanks as well to Dr. Karim Makdisi for serving on my committee; it was a privilege to take two courses with him and benefit not only from his diverse areas of expertise but also his intellectual integrity. Thanks also to Dr. Ali Ahmad for providing valuable feedback and perspective to my work, and lastly to Dr. Walid Khadduri whose career as a journalist and energy expert is without parallel. It was an honor to have each of these four men on my committee.

I am grateful to my employer, Middle East Economic Survey, for providing me with training in the energy sector and the unequaled historical archive that made this thesis possible. I would especially like to thank long-time publisher Basim Itayim, whose support and guidance encouraged me to hunker down and complete this thesis. Thanks as well to Peter Stevenson and Marios 'aboce' Koundouros for being the best colleagues one could have.

I would like to thank my mother Shannon for their unwavering support in everything I do, and my father Edward, whose advice is always keen and on point. I also owe a debt of gratitude to the Bardawil and Contavelis families for being like a second family to me in Lebanon – and to Kelly in particular.

Lastly, I would like to dedicate this thesis to the memory of Greg Verfaillie.

# AN ABSTRACT OF THE THESIS OF

Waylon Pierce Fairbanks for Master of Arts  
Major: Political Studies

Title: Jordan, Israel and Energy Security in the Eastern Mediterranean

On January 1, 2020, the Hashemite Kingdom of Jordan received its first natural gas imports from neighboring Israel as part of a 15-year, \$10 billion gas sales contract signed in 2016 between state power provider NEPCO and operator of the giant Leviathan offshore gas field, American firm Noble Energy. The deal is the largest instance of economic cooperation between an Arab state and Israel (rivaled only by Egypt's subsequent gas import deal), and in spite of Jordan and Israel's 1994 peace treaty, has proven extremely controversial in Jordan – leading to dozens of protests, parliamentary condemnation, and pressure to renege on the contract. This thesis attempts explain why the Jordanian monarchy opted for such a controversial policy decision, particularly following years of anti-liberalization protests and the Arab Spring. The key finding is that for Jordan's rulers, maintaining energy security is more than a technocratic calculation; indeed, it is a matter of regime survival. And at the same time, the deal is not a total departure from the past: key historical path dependent developments are critical to understanding the outcome – specifically relating to Israel-Jordan relations dating back to the British mandate as well as Jordan's energy sector. Starting with the concept of energy security – broadly defined here as “the uninterrupted availability of energy sources at an affordable price” – this thesis examines the history of Jordan's energy sector, its links to the kingdom's financial outlay, and crucially, the particular role that energy provision has played in its rentier economic model. Taking all these factors together, it becomes clear that despite the negative optics of the Israel-Jordan deal and the subsequent protests it inspired, discounted and consistent imports from Israel were too good for the monarchy to pass up. Additionally, this thesis also demonstrates some of the unintended consequences that emerged out of International Monetary Fund liberalization efforts, as well as the key role the United States played in orchestrating the agreement. Lastly, it suggests that – along with a parallel gas import deal between Egypt and Israel – that the recent hydrocarbons discoveries in the Eastern Mediterranean are finally having an impact regional geopolitics.

# CONTENTS

ACKNOWLEDGEMENTS .....	v
ABSTRACT .....	vi
LIST OF ILLUSTRATIONS .....	ix
Chapter	
I. INTRODUCTION .....	1
A. Background .....	1
B. Purpose and Plan of the Thesis .....	3
II. ENERGY SECURITY AND AUTHORARIANISM.....	9
A. Energy Security .....	10
1. A Word on Security .....	10
2. Definitions and Conceptions .....	11
B. The Energy Mix .....	17
C. The Authoritarian Bargain and Energy .....	20
III. A BRIEF HISTORY OF JORDAN-ISRAEL ECONOMIC TIES .....	28
A. Electrification, Water, and the Mandate .....	28
B. Economic Cooperation between 1948 and 1994 .....	30
C. Peace and ‘Prosperity’ after 1994 .....	30

<b>IV. THE DEVELOPMENT OF JORDAN’S ENERGY SECTOR AND THE CRISIS .....</b>	<b>42</b>
A. Emergence from the Dark .....	42
B. Sectorial Growth .....	46
C. Liberalization .....	48
D. The Growing Energy Crisis .....	52
E. Political Crisis .....	60
<b>V. ENERGY SECURITY AND THE JORDAN-ISRAEL DEAL .....</b>	<b>64</b>
A. Energy Solutions .....	64
B. Initial Agreement and Blowback .....	70
C. The 2016 Contract and Reactions .....	76
D. Project Completion and Implications .....	79
<b>VI. CONCLUSION AND IMPLICATIONS .....</b>	<b>86</b>
A. Thesis Summary .....	86
B. Geopolitical and Theoretical Implications .....	87
<b>BIBLIOGRAPHY .....</b>	<b>90</b>



## ILLUSTRATIONS

Figure	Page
1.1 Map of Eastern Mediterranean energy infrastructure .....	1
1.2 Leviathan Gas Sales Deals .....	6
2.1 4 A's of Energy Security .....	12
2.2 Low Vulnerability of Vital Energy Systems Model .....	13
2.3 Seven Themes of Energy Security .....	14
2.4 Energy Trilemma.....	16
2.5 IEA's Global Total Final Consumption .....	18
2.6 Jordan Energy Mix.....	18
2.7 Energy security by energy type .....	19
3.1 US Foreign Assistance to Jordan .....	34
3.2 Jordan-Israel Trade Balance.....	35
3.3 2017 Jordan-Israel Trade Flows by Type .....	37
3.4 Tamar Sales Agreements .....	38
3.5 Map of Red Sea-Dead Sea project .....	40
4.1 Jordan's Peak Energy Demand vs. Total Capacity .....	51
4.2 Jordan's four IPPs .....	51
4.3 Jordan Primary Energy Mix .....	53
4.4 Map Arab Gas Pipeline .....	54
4.5 Jordan Fossil Fuel Consumption .....	55
4.6 Jordan Annual Fuel Import Bill .....	56
4.7 Egyptian Gas Exports to Jordan .....	56

4.9	Jordan's Public Finances .....	58
4.10	NEPCO Operating Losses .....	59
4.11	Jordan's Debt (\$ billion) and Growth (% GDP) .....	60
5.1	Electricity fuel by source % .....	67
5.2	Jordan Gas Imports .....	70
5.3	Leviathan Sales Deals .....	79
5.4:	Map of Leviathan tie-in to Jordanian Gas Grid .....	81

# CHAPTER I

## INTRODUCTION

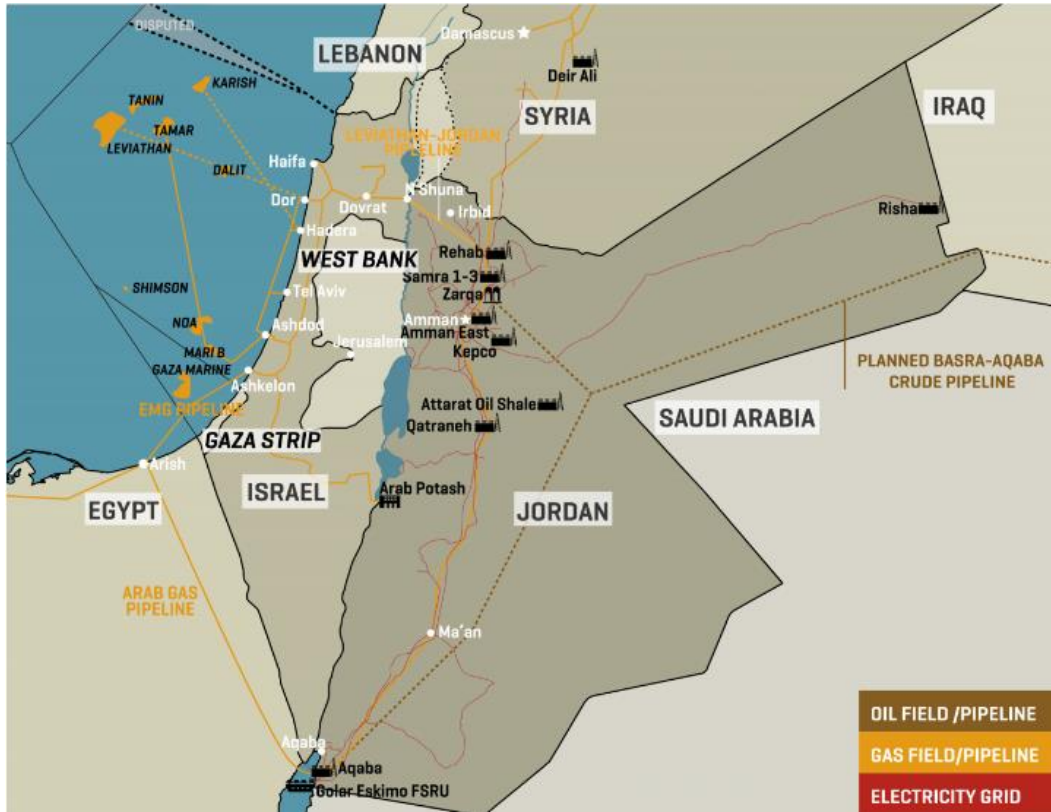


Fig. 1.1: Map of Eastern Mediterranean Energy Infrastructure  
Source: Middle East Economic Survey

### A. Background

In spite of its historical legacy of economic integration, the Eastern Mediterranean has, over the last century, seen interstate and civil conflicts render it a fractious mosaic of states with economic ties that could be described as minimal at best. At its core – both geographically and symbolically – the Israel-Palestine conflict has proven the key purveyor of this disintegration from the 1930s until the present. Officially, the state of Israel only has diplomatic ties with two of its neighbors – Jordan and Egypt – having signed peace treaties in 1994 and 1979 respectively. But for a

variety of reasons – perhaps mainly the strong popular opposition to normalization of relations with Israel – neither country has managed to significantly trade ties with the Jewish state.

In this light, the recent startup of natural gas exports from Israel to both Jordan and Egypt stand out as a sea change in terms of regional integration. In January 2020, Jordan and Egypt began receiving significant volumes of natural gas from Israel’s 22 trillion cubic feet (tcf) Leviathan offshore gas field – the largest in the Mediterranean.

In 2016, Jordan’s National Electric Power Company (NEPCO) signed a 15-year, \$10 billion deal with Leviathan’s operator US firm Noble Energy to buy 1.59tcf (or 45 billion cubic meters [bcm]) of sales gas. This will cover almost all of Jordan’s gas demand over the period and fundamentally reshape Jordan’s energy sector. In 2018, “private” Egyptian firm (with ties to the military) Dolphinus also signed a 15-year agreement to import 60bcm (an implied \$14 billion contract), also with Noble Energy, to import Israeli gas. The Egyptian volumes will be liquefied for re-export since Egypt is already a gas producer, whilst the Jordanian volumes will be central to the country’s power mix; for this reason, among others, the political and economic implications of the Jordan-Israel agreement are more significant.

When Jordan’s NEPCO and Noble signed the initial letter of intent (LOI) in 2014, the agreement looked higher unlikely to ever come to fruition. The announcement of the agreement was immediately met with protests<sup>1</sup>, which activists have managed to sustain intermittently until today. Jordan’s parliament even voted to nullify the agreement, but the Constitutional Court overruled parliament’s “utter rejection” of the

---

<sup>1</sup> Suzanna Goussous, “Activists Reject Gas Deal with Israel”, *The Jordan Times*, September 28, 2016, <https://www.jordantimes.com/news/local/activists-reject-gas-deal-israel>

gas deal.<sup>2</sup> Egypt's agreement appears to be conducted through a network offshore firms owned largely by military and government officials, hence the lack of press coverage and public outcry over the deal.<sup>3</sup> But in the Jordanian case, the subject of this thesis, the optics and implications of the agreement remain jarring. Yet against all popular outcry, the contract has persevered. On January 1, 2020, Jordan public natural gas grid received its first gas flows from Leviathan.<sup>4</sup> Another round of protests and parliamentary condemnation have since ensued, but all indications suggest that Jordan will be locked into buying Israeli gas through 2035, with a significant burden if imports are halted.

## **B. Purpose and Plan for the Thesis**

The purpose of this thesis is to explain the dynamics that led Jordan's monarchy, despite the risk of political backlash, to agree to import Israeli gas. Our starting point is the concept of energy security, which the International Energy Agency (IEA) defines as "the uninterrupted availability of energy sources at an affordable price".<sup>5</sup> No doubt, Jordan's desire to secure consistent energy imports at a relatively low \$6 per million BTU (British thermal units) was a key driver behind the regime's motivations – especially as we shall see, in the context of the ongoing energy crisis

---

<sup>2</sup> Raed Omari, "Constitutional Court Says Parliament has no say over gas deal with Israel", *The Jordan Times*, September 16, 2019, <https://www.jordantimes.com/news/local/constitutional-court-says-parliament-has-no-say-over-gas-deal-israel>

<sup>3</sup> Hossam Bahgat, "Who's buying Israeli gas? A company owned by the General Intelligence Service", *Masa Masr*, October 23, 2018, <https://madamasr.com/en/2018/10/23/feature/politics/whos-buying-israeli-gas-a-company-owned-by-the-general-intelligence-service/>

<sup>4</sup> Suleiman al-Khalidi, "Jordan Gets First Natural Gas Supplies from Israel", *Reuters*, January 1, 2020, <https://www.reuters.com/article/jordan-israel-gas/jordan-gets-first-natural-gas-supplies-from-israel-idUSL8N2960Q9>

<sup>5</sup> "Energy Security", *International Energy Agency*, n.d., <https://www.iea.org/topics/energy-security>

Jordan was acting from 2010-2014. But both the drivers behind the deal and the implication are more complicated than either party lets on.

The Jordanian facilitators of the agreement defend it purely on grounds of energy security, best evidenced by NEPCO's 2016 statement that "signing the deal is in line with the government's policy to diversify energy resources and increase the competitiveness of the major national industries."<sup>6</sup> Palace and Ministry of Energy spokespeople essentially defend the agreement purely on energy security terms, pointing out that the agreement is between Noble Energy, an American firm, and NEPCO – not between Israel and Jordan. In Israel, the main backers of the agreement have been the Benjamin Netanyahu government, his allies, and the various Israeli energy companies with interests in the deal (Delek, Ratio oil, etc.). Their narrative can be exemplified by Israeli Energy Minister Yuval Steinitz, who said following the beginning of gas flows that "the fact that the three countries, Israel, Egypt and Jordan are now collaborating together and are already connected with a regional gas transmission system ... is significant and it will contribute to peace and security in the Middle East" adding that the deal was "just the start" of cooperation.<sup>7</sup> In other words, the agreement is less about energy security and more about Israel's progressing normalization with the Arab world. Noble Energy, which received strong backing from the US State Department, has broadly espoused the Israeli narrative, with one executive praising "both Jordan and Egypt and the support and cooperation in both places.... It

---

<sup>6</sup> Mohammad Ghazal, "NEPCO says gas deal with Israel saves Jordan \$600m a year", *Jordan Times*, September 29, 2016,

<https://www.jordantimes.com/news/local/nepco-says-gas-deal-israel-saves-jordan-600m-year>

<sup>7</sup> Lewis and Rabinovitch, "Israel Starts Exporting".

has been absolutely remarkable, the impact that Leviathan has had on the region. When you think about how it's brought together the countries.”<sup>8</sup>

Whilst there is truth and oversimplification in all of these narratives, perhaps the more interesting aspect of the Noble-NEPCO agreement is how it fits into the broader historical content. Thus, after developing the energy security angle to the agreement, this thesis seeks to explain how the agreement can be interpreted as the logical outcome of historical path dependences that have been developing since the British mandate over Transjordan and Palestine. I explore these dynamics by focusing on two main themes: first, the various forms Israeli-Jordanian economic cooperation throughout the years; and secondly, the development of Jordan's energy sector, and more specifically the relation between energy security, public finances, and the peculiar role that energy provision (both electricity and subsidized fuel) plays within the rentier state.

When Noble Energy discovered two major gas fields – the 11tcf Tamar field in 2009 and the 21tcf Leviathan field in 2010<sup>9</sup> - it would need buyers to develop the deal. Noble managed to develop Tamar relying almost entirely on Israeli domestic demand; production commenced in 2013. But the firm struggled to bring Leviathan online.<sup>10</sup>

---

<sup>8</sup> “Israel's Leviathan Eyes 1bn cfd on more Egypt Sales: Realistic?”, *Middle East Economic Survey* 63, no. 7, February 14, 2020, <https://www.mees.com/2020/2/14/corporate/israels-leviathan-eyes-1bn-cfd-on-more-egypt-sales-realistic/c755b2a0-4f42-11ea-9231-33d4b9cdf496>

<sup>9</sup> Hakim Darbouche, Laura el-Katiri, and Bassam Fattouh, “East Mediterranean Gas: What kind of Game-changer?”, *The Oxford Institute for Energy Studies*, NG 71, December 2012, 3-4, <https://www.oxfordenergy.org/wpcms/wp-content/uploads/2012/12/NG-71.pdf>

<sup>10</sup> It is worth pointing out here the peculiarities of natural gas, especially compared to oil. Crude oil is a highly fungible commodity, meaning once extracted from underground, it can easily be loaded on tankers or trucks and sold on the domestic (or the international) market. Natural gas, on the other hand, must either be piped to an end-user or liquified in an expensive liquified natural gas (LNG) plant.

Therefore, after a gas field is discovered, operators tend to require gas sales agreements (GSAs) before taking final investment decision (FID) to develop the asset. Otherwise the operator risks not recovering costs. In the case of Israel, the Tamar gas field produces 1 billion cubic feet per day (cfd) of gas, which

Israel’s reticence to pursue a liquefied natural gas (LNG) facility meant the only option for developing Leviathan was gas sales agreements (GSAs) in the already sated domestic market and with countries that could be supplied via pipeline (i.e. Jordan and Egypt). Thus to date, 72% of Leviathan sales commitments are tied to Jordan and Egypt, with 28% destined for the local market (see figure 1.2).

Buyer	Country	Signed	bcm	tcf	years	\$bn
Dolphinus	Egypt	Feb18	60	2.12	15	14
Jordan National Electric Co.	Jordan	Sep16	45	1.59	15	10
IPM Be'er Tuvia	Israel	May16	13	0.46	18	3
Dalia Energy	Israel	Dec16	8.8	0.31	20	2
Israel Chemicals	Israel	Feb18	6	0.21	6	1.1
Edeltech	Israel	Jan16	6	0.21	18	1.3
Paz	Israel	Nov16	3.12	0.11	15	0.7
IEC	Israel	Jun16	4	0.14	2	0.35
<b>TOTAL</b>			146	5.15		32

Fig. 1.2: Leviathan Gas Sales Deals.  
Source: Company reports, MEES.

In its bid to develop Leviathan relying on exports to Jordan, Noble (and its partner, Israel’s Energy Ministry) essentially inherited almost a century of economic relations (or lack thereof) between Israel and Jordan on key issues like electricity, water rights, and other *functional* matters. It also inherited the state of Jordan’s energy sector, its economic woes and dependence on foreign rents to prop up the ailing economy. As this thesis will show, all of these factors played a central role in essentially coercing Jordan into partnership with Noble, and thus with Israel.

The case of Jordan not only demonstrates the role that historical developments played in the agreement, but also the role that energy security plays in contemporary

---

covers the entire Israeli domestic market. But with the bigger Leviathan field, the Israeli market was already saturated, so field development was either contingent upon construction of a \$5+ billion LNG plant (which made Israel nervous for security reasons), *or through GSAs with neighboring countries who could take Israeli gas via pipeline.*



policy making. Protests, albeit manageable, were extremely probable as Jordanian officials were weighing the value of discounted Israeli gas versus its alternatives at the time. So clearly, the Jordanian monarchy and its advisers weighed the costs and benefits carefully and determined that the economic benefits of the agreement outweighed the political blowback that would ensue – which itself provides useful insight into how authoritarian governments factor energy security into policy making. Walking this balance between path dependence and real politik is a key theme throughout this work.

To maximize the value of this thesis, I have sought a proper balance between theory, historical context, and energy/economic analysis. On the theoretical side, I have employed the concepts of *energy security* and the *authoritarian bargain* in order to explain how energy issues are situated within a non-democratic government. As already mentioned, *energy security* essentially refers to the availability of reasonably priced energy supply. The concepts of the authoritarian bargain and rentierism explain how authoritarian states seek to foster stability by providing economic (and energy) security.<sup>11</sup> On the energy/economic analysis side, I have made use of economic and energy data to explain how energy matters relate to broader economic stability in both countries, and in particular the archive of Middle East Economic Survey (MEES). This requires an in-depth look at energy portfolios, public finances, domestic politics, and international factors to fully understand the decision-making process in the Jordanian monarchy.

Ultimately, then, the significance of this thesis is that it provides a case study that shows the role energy security plays within broader political decision-making in an

---

<sup>11</sup> Raj M. Desai, Anders Olofsgard, Tarik M. Yousef, “The Logic of Authoritarian Bargains”, *Brookings Institution*, Working Paper #3, 2016, [https://www.brookings.edu/wp-content/uploads/2016/06/01globaleconomics\\_desai.pdf](https://www.brookings.edu/wp-content/uploads/2016/06/01globaleconomics_desai.pdf)

authoritarian context – not just in one instance but over a historical period as well. Both in journalism and academia, energy illiteracy is rampant, leading all too often to analyses that either completely fail account for the role energy plays in policy making, or even worse presents energy as the all-important hidden variable behind everything. Instead, I intend to show that energy policy is a nuanced subject that requires policymakers to consider dozens of tradeoffs between security of supply, political values, economic competitiveness, the social good, and the environment – and all of these factors are subject to historical legacies and power dynamics. Jordan’s energy deal with Israel provide a key insight into how these factors play out in practice.

In order to accomplish these ambitions, the next chapter lays out the theoretical frameworks of energy security and authoritarianism, followed by an in-depth analysis of the history of Jordan-Israel ties since the British mandate. This helps explain how the energy agreement is path dependent and reflects a summation of nearly a century of historical forces. The following chapter outlines the development of Jordan’s power sector and the role it has historically played in Jordan’s budget and rentier economy. After this, a detailed analysis of the energy crises of the 2000s-2010s is carried out, weighing the various options Jordan had available and pursued. Finally, this chapter also looks at the details of the NEPCO-Noble agreement, the pressure the US played in it, and how it fits within broader regional power relations.

## CHAPTER II

### ENERGY SECURITY AND AUTHORITARIANISM

The purpose of this chapter is to build a theoretical framework using concepts chosen to better understand the role energy plays with policymaking in an authoritarian context. Only by understanding how states (or more precisely, the elites that government them) perceive and prioritize energy as part of their broader national security we can begin to unpack why the Jordanian regime pursued such a consequential agreement to import natural gas from Israel, in doing so sacrificing a degree of political legitimacy.

Therefore, the starting point in this chapter is the concept of energy security, which deals with how energy availability and supply (among other things) feature within broader state (and citizen) interests. Energy issues directly relate to electricity generation, state spending, the competitiveness of industry, and the availability of affordable cooking gas, diesel and gasoline for the populace, so a state's ability to provide consistent and affordable energy is thus a key barometer for government performance, and will help explain why a government might sacrifice symbolic legitimacy (on an issue like the Palestinian-Israeli conflict) in order to bolster its energy fortunes. Lastly, this chapter attempts to contextualize these topics within the authoritarian state. Energy regimes differ significantly from country to country: in a more free-market economy like the United States, energy is dominated by the private sector and costs are largely passed onto the consumer, whilst historically the authoritarian or rentier model tends to provide cheap (via subsidies) and consistent energy as a key element of the authoritarian bargain. Understanding the centralized

energy systems prevalent in most authoritarian systems will help explain the calculus these rules make when forming policy.

## **A. Energy Security**

### ***1. A Word on Security***

Before embarking on a detailed discussion of *energy security*, it is helpful to briefly mention the half of that phrase that is often overlooked – that is, the concept of security. The use of the term grew out of national security studies which flourished in western Realist circles post-World War II.<sup>12</sup> The term gradually moved away from its state-centric, militaristic origins in what Buzan & Ganssen have called the “deepening and widening of security studies”.<sup>13</sup> This led to a broader focus on how threats to food, water, healthcare, energy, etc. affect a whole array of actors – not just states but also individuals, groups, and so forth.

The problem with studies of security is that, if done irresponsibly, an author can make claims and arguments *ad nauseam* while avoiding two key questions: “security for whom” and “Security for which values”.<sup>14</sup> D.A. Baldwin argues that for any study of security to overcome the ambiguities inherent in the word, these two questions must be addressed and answered along the way. In terms of the first question, a given policy might bolster military or regime security, but expose the public to greater threats – and vice versa. Any discussion of security needs to explicitly state for whom

---

<sup>12</sup> Arnold Wolfers, “National Security’ as an Ambiguous Symbol,” *Political Science Quarterly* 67, no. 4 (1952): 481.

<sup>13</sup> See Barry Buzan and Lene Hansen, *The Evolution of International Security Studies* (Cambridge: Cambridge University Press, 2014), 187. See also, Stephen Walt, “The Renaissance of Security Studies”, *International Studies Quarterly* 35, no. 2 (1991): 211-239.

<sup>14</sup> David A. Baldwin, “The Concept of Security”, *Review of International Studies* 23 (1997): 5.

the security actually is. On the second question, Baldwin writes that “security” itself is not a single-dimensional concept: “Individuals, states, and other social actors have many values. These may include physical safety, economic welfare, autonomy, psychological well-being, and so on.”<sup>15</sup> So in this thesis, I have attempted to adopt Baldwin’s insistence on pinpointing the specific actors, values, and threats at play any time energy security is concerned.

## 2. Definitions & Conceptions

The textbook definition of energy security comes from the IEA – an institution that was born out of the oil embargo crisis in the early 1970s – and emphasizes availability and affordability of energy sources.<sup>16</sup> In addition to these components, scholars have sought expand and deepen the various components of energy security.

Adapting a framework initially developed for the healthcare industry, the Asia Pacific Energy Research Centre published an influential paper in 2010 expanding on the IEA definition, arguing that energy security can be broken down into “4 a’s of energy security”: availability, accessibility, acceptability, and affordability (figure 2.1).<sup>17</sup>

Concept	Definition/Barriers
Availability	Refers to physical availability to energy reserves. For non-renewables, availability is affected by declines in global reserves; for renewables, refers to uneven access to wind, sunlight, etc.
Accessibility	Refers to the ability to access available energy resources. Here, geopolitical and economic considerations are the main barriers. If Iran closes the Hormuz Strait, for instance, physical oil reserves do not decline, but market accessibility to them does.
Acceptability	Refers mainly to environmental concerns over certain energy sources (mainly coal, biofuel and oil sands). Different layers

<sup>15</sup> Ibid, 13.

<sup>16</sup> IEA, “Energy Security”.

<sup>17</sup> “A Quest for Energy Security in the 21<sup>st</sup> Century: Resources and Constraints”, *Asia Pacific Energy Research Center* (2010), [https://aperc.ieej.or.jp/file/2010/9/26/APERC\\_2007\\_A\\_Quest\\_for\\_Energy\\_Security.pdf](https://aperc.ieej.or.jp/file/2010/9/26/APERC_2007_A_Quest_for_Energy_Security.pdf)

	include: international climate change and pollution accords; national laws on emissions; local/citizen concerns over environmental quality.
Affordability	Specifically “investment cost affordability”, this factor takes conventional barriers into account like oil prices, but also investment costs for large projects like LNG terminals.

Fig. 2.1: 4 A’s of Energy Security.  
Source: APERC.

The APERC approach adds a couple important nuances to the IEA’s definition:

- It distinguishes between physical availability (domestic or importable resources) and actual accessibility.
- It introduces the concept of acceptability. The APERC’s definition is environment-focused – but it could be expanded to include political acceptability as well.
- It provides a nuanced approach to affordability that emphasizes project investment alongside more conventional price variance.

Another useful conceptual approach to energy security comes from Jewel, Cherp and Riahi who define energy security as “low vulnerability of vital energy systems”.<sup>18</sup> In their model (see figure 2.2), “low vulnerability” and “vital energy systems” are the two main concepts, and each have two variables. Vulnerability is defined by risk (shocks, stressors, etc.) and resilience (flexibility, diversification etc.) to those risks. In other words, how grave at the potential threats to energy supply, and how robust is one’s ability to overcome these threats. Vital energy systems are defined on a sectoral basis (energy sources, midstream infrastructure, end-user) and geographic basis (national, regional, global). The vital energy systems distinction is important because it

---

<sup>18</sup> Jessica Jewel, Aleh Cherp, and Keywan Riahi, “Energy Security under de-Carbonization Scenarios: An Assessment Framework and Evaluation under Different Technology and Policy Choices”, *Energy Policy* 65 (2014): 744.

lends a more actor-specific approach to energy security and thus makes comparison of different energy systems easier.

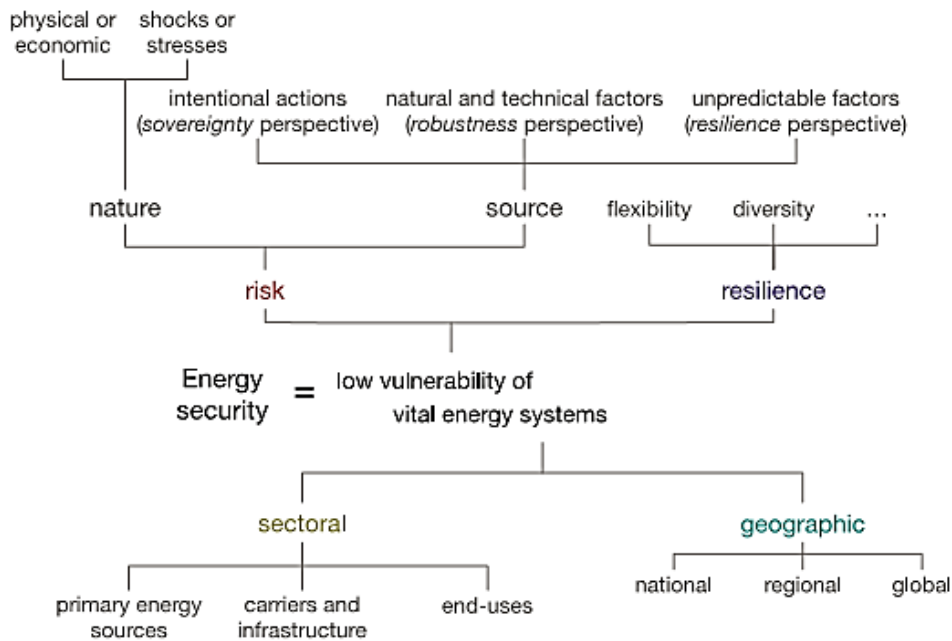


Fig. 2.2: Low Vulnerability of Vital Energy Systems Model  
Source: J. Jewel et al.

Whilst by no means perfect, this definition adds two very important points for the purpose this thesis. First, it illustrates the sectoral approach to energy security. The term “energy security” implies a very singular concept of energy, which the next section will show, is highly misleading. Shocks to the coal sector, for instance, may have a marginal effect on other aspects of the global energy market. The second crucial distinction here is the geographic conception of energy systems. The overwhelming literature on energy security takes a markets approach, which essentially looks at how shocks to the global energy market affects prices. This may be useful for oil traders or internationally-minded organizations like the IEA, but for individual countries and regions, energy security has to be understood on a localized basis. A war in Gaza, for instance, would

have little to no effect on global energy prices, but if it caused the Leviathan field to shut down, this could usher in an energy crisis in Jordan and Israel.

Taking a meta-study rather than definitional approach to the concept(s) of energy security, Ang, Choong and Ng overview 104 separate publications on the subject and highlight seven main themes that repeatedly appear in the literature (figure 2.2).<sup>19</sup>

Theme (by frequency)	Relation to energy security	Examples
Availability	“Diversification and geopolitical factors are key issues that determine energy availability. Through diversification of supply sources, energy importers can reduce and better mitigate the risks of import disruptions” (p. 1081)	Geopolitical threats, destabilized regimes, regional tensions, collapses in production.
Infrastructure	“infrastructure is integral in providing stable and uninterrupted energy supply” (p. 1081)	Oil refineries, powerplants, distribution and transmission facilities, e.g. pipelines, electricity transmission lines, substations and energy storage facilities
Price (affordability)	Energy prices determine the affordability of energy supplies and have a number of dimensions.	Absolute price level, price volatility, degree of competition within different energy markets. High upfront costs and low operating costs (ex. Nuclear) vs higher operating costs (fossil fuels)
Societal effects	Argument emphasizes right to energy. Goal of energy security is “to insure against the risks of harmful energy import disruptions in order to ensure adequate access to energy sources to sustain acceptable levels of social and economic welfare.”	Energy required for transportation, electricity, etc. Lebanese power cuts would be one example (poor cannot afford generators).

<sup>19</sup> B.W Ang, W.L. Choong, T.S. Ng, “Energy Security: Definitions, Dimensions and Indexes”, *Renewable and Sustainable Energy Reviews* 42 (2015): 1081-2.



The environment	Risks of pollution and climate change/threats to sustainability	Climate change, pollution, health risks, etc.
Governance	“Sound governance policies help hedge against and mitigate short-term energy disruptions.”	Planning of infrastructure, energy taxes/subsidies, corruption measures, emergency planning.
Energy efficiency	Efficiency by definition reduces (or slowly increase) in demand, which lowers energy needs. “Energy improving technologies, systems, and practices help to reduce energy needs and improve energy security.”	Electricity saving, recycling (lowering demand for petrochemicals and plastics) and other measures that drive down demand.

Fig. 2.3: Seven Themes of Energy Security

Source: Ang, Choong and Ng.

Again, this work suggests further considerations we must account for when examining energy security. The addition of energy efficiency, for instance, is proving to be an increasingly important mitigation factor in developed countries – particularly Europe. Managing to decrease consumption is a key mechanism for decreasing exposure to potential energy crises. Adding governance as a theme also helps account for the role that sound energy policy plays in mitigating energy risks. But arguably the more important aspect of Ang, Choong and Ng’s work is their contention that:

While “energy availability is without doubt the top consideration in energy security, [...] it is clear that there are close linkages between some of the several energy security themes [...] for instance trade-offs between energy supply and the environment dimension. This implies that the analysis of energy security increasingly necessitates a systems approach.”<sup>20</sup>

In other words, energy security is not merely a concept with several dimensions – rather, these dimensions contain overlapping themes and linkages that best lend themselves to a systematic model of energy security. The authors suggest adopting the

---

<sup>20</sup> Ibid, 1083.

dimensions within a framework based on the World Energy Council’s “energy trilemma model” (figure 2.4).<sup>21</sup>

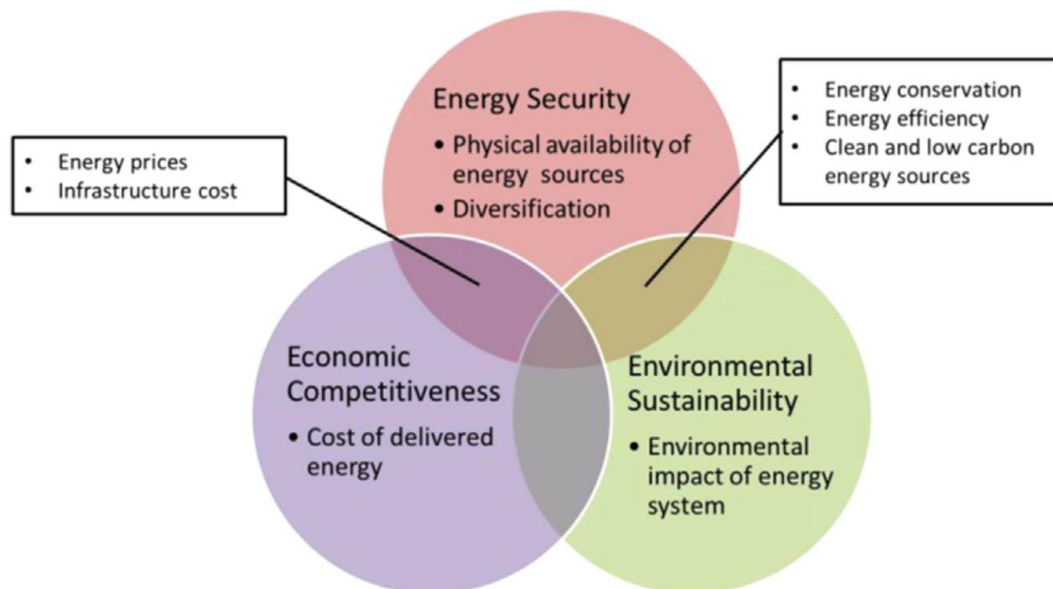


Fig. 2.4: Energy Trilemma  
Source: World Energy Council, Ang, Choong and Ng.

In this model, energy security is given a more scaled back definition that solely looks at availability/accessibility of physical energy sources and the diversification across the energy. Affordability is moved out of the realm of energy security and into the broader “economic competitiveness” category. This is useful because it demonstrates the tension between diversification of energy sources and cost: overreliance on a single energy source (as Jordan did from Egypt before 2012) can be very cost effective but also make one extremely vulnerable to supply disruptions. This has important implications for

---

<sup>21</sup> “World energy trilemma: Time to get real – the agenda for change”, World energy council (2012), <https://www.worldenergy.org/publications/entry/world-energy-trilemma-time-to-get-real-a-the-agenda-for-change>

Jordanian energy policy post-2015, and it also shows how environmental stability can come at the expense of economic competitiveness.

All of these definitions and conceptualizations are useful and provide different insights into energy security. No doubt, the physical availability of energy and the extent to which that energy is available at an affordable price are the two most important aspects of energy security. But as the literature showed, there are other elements that should be considered as we move forward with this thesis. Moving forward, I will use a definition of energy security that combines some of the main elements from the definitions here, but also emphasizes the role that different types of threats (local, regional, global) and different values (environmental, political, social) play in the broader energy security discourse. This approach is intended to explain how governments take particular non-strictly energy questions into account – that is “energy security for what values” as Baldwin would put it. Lastly, it is important to remain focused on the question of “energy security for whom”. Ultimately, the end-user (the consumer) is the one affected by fluctuations in energy security, but for the purposes of this thesis, the effect on the domestic government is the main focus of this security question.

### ***3. Energy Security and the Energy Mix***

Energy security, as the last section showed, is most often discussed in general terms with a focus on how supply and demand affect global markets. But as I have already noted, the components of energy security significantly change in meaning when the unit of focus shifts from the global market to the country level. Every country is affected differently by different market shocks, and one of the key elements to this (as

we will see in our discussion of Jordan) is the energy mix, which can be defined as the various energy sources of any unit of analysis (region, country, town, family, etc.) consumes. By sources, we are referring to the type of energy (oil, gas, coal, renewables, etc.) rather than the sector (electricity generation, industry, oil field reinjection, etc.). To illustrate, figure 2.5 shows the IEA’s total global energy consumption by source from 1990 to 2017.

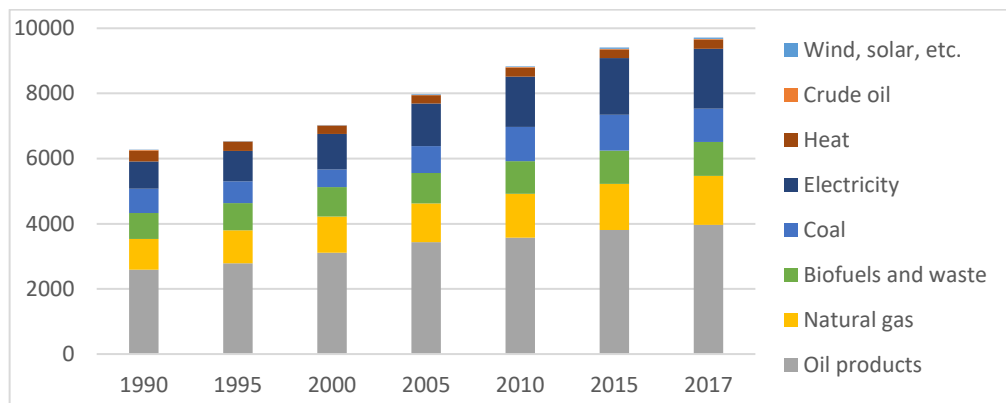


Fig. 2.5: IEA’s Global Total Final Consumption (million tons of oil equivalent a year)  
Source: IEA.

A country energy mix looks slightly different: figure 2.6 shows the Jordanian energy mix over time.

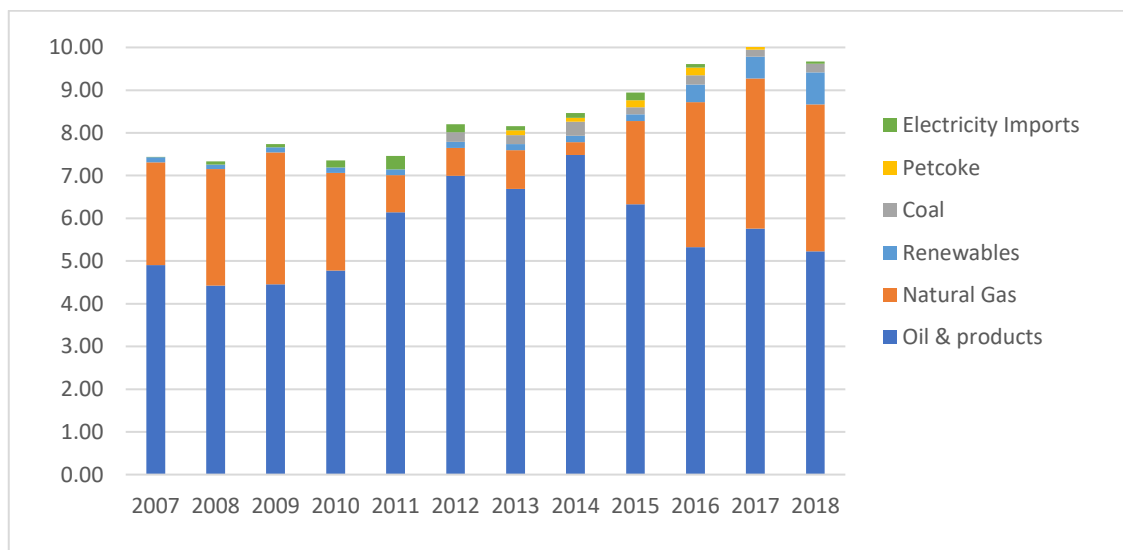


Fig. 2.6: Jordan Energy Mix (million tons of oil equivalent a year)  
Source: Ministry of Energy, MEES.

The implications of a country's energy mix are very important to energy security for at least five reasons:

- 1) Different sources are exposed to different types and levels of risk (figure 2.7)
- 2) The extent of diversification mitigates overreliance one/few sources
- 3) Healthy import/domestic production balance can offset risk
- 4) Growth trends indicate exposure to future risk
- 5) Different sources of energy can have vastly different costs

Examining the energy mix is an extremely important tool we will use as we proceed with our analysis because each type of energy source has different advantages and disadvantages in energy security terms.

Resource Type	Use	Security Risk
Coal	Electricity (92%), industrial (7%)	Increasingly subject to international emissions regulation; low disruptions/high availability
Oil (and products)	Power generation, transport fuels, petrochem feedstock, etc.	Significant price fluctuations (\$40-120/B in last 6 years); expensive for power generation; subject to chokepoints (Suez, Hormuz, etc.)
Natural Gas	Power generation, industrial, gas-to-liquids	Low price, but subject to disruptions due to pipeline transport; medium fluctuations in price, high regional disparities
Nuclear	Power generation	High upfront costs, low operational costs; potential risk of attack/meltdown.
Renewables	Power generation	Low security risks, but inconsistent generation; seasonal.

Figure 2.7 Energy security by energy type  
Source: Author.

Different types of energy entail different risk factors, but of course these vary significantly from country to country, as will be clear in subsequent chapters. But suffice it to say, a country's energy mix is critical to its energy security, and the

resources it uses can have a large effect on the affordability of its energy bill. These factors and themes will prove critical in our analysis of Jordan.

## **B. The Authoritarian Bargain and Energy**

Because this thesis attempts to explain on the role Jordan's energy security played in the decision to import gas from Israel, it is necessary to understand how states approach energy policy more broadly – and to do that, one must take into account how different regime types utilize different strategies. In the case of Jordan, we have an authoritarian monarchy with a semi-rentier economic model. These are all factors that will become prescient in the later analysis of Jordanian energy policy.

The persistence of monarchies in the Middle East raises important questions as to how they govern. Samuel Huntington famously argued as part of modernization theory that monarchies would face heightened pressure as the antiquated political system faced modern political demands – a phenomenon he called the “king’s dilemma”.<sup>22</sup> But as Lisa Anderson points out, the essentialist ‘traditionalism vs. modernity’ argument did not pan out, and fails to explain many of the modern aspects of monarchy in the Middle East.<sup>23</sup> A substantial literature has subsequently emerged consisting of typologies of the various types of Arab monarchy, theorizing why certain monarchies persist whilst others are deposed.<sup>24</sup> Bruce Maddy-Weizman argues that certain monarchies – such as Egypt and Iraq – fell due to essentially unavoidable internal and external structural threats, whilst other monarchs inherited more favorable

---

<sup>22</sup> Samuel Huntington, *Political Order in Changing Societies* (New Haven: Yale University Press, 1968).

<sup>23</sup> Lisa Anderson, “Absolutism and the Resilience of Monarchy in the Middle East”, *Political Science Quarterly* 116, no 1 (1991): 1-15.

<sup>24</sup> Russell E. Lucas, “Monarchical Authoritarianism: Survival and Political Liberalization in a Middle Eastern Regime Type”, *International Journal of Middle Eastern Studies* 36 (2004): 103-119.

conditions.<sup>25</sup> The monarchies that did manage to survive did so by making use of external support and various mechanisms of internal rent distribution or mechanisms of repression – aptly called by Erika Frantz and Andrea Kendall-Taylor the “dictator’s toolkit”.<sup>26</sup>

The repressive and violent elements of monarchical or authoritarian rule are notorious and well documented, but equally important (but less studied) are the mechanisms regimes use to build (and consolidate) support and coopt the public. As Desai, Olofsgard and Yousef argue in their paper on *authoritarian bargains*, repression is simply not a strong enough tool to explain the persistence of authoritarianism – especially in times of peace. In their words, “some form of redistribution to citizens is necessary to secure and maintain their loyalty. Dictatorial regimes are therefore said to rely on an ‘authoritarian bargain,’ or an implicit arrangement between ruling elites and citizens whereby citizens relinquish political freedom in exchange for public goods.”<sup>27</sup>

Arguably the most extreme example of this social argument is the rentier economic model, which Beblawi characterizes as an arrangement in which the “government is the principal recipient of the external rent” that characterizes the majority of economic activity. This can be any source of externally derived revenues, but the most famous examples are the oil and gas royalties that enriched the Persian Gulf monarchies in the second half of the 20<sup>th</sup> century. Bablawi argues that this generates a *rentier pattern*: that is, an allocative state where “reward becomes a windfall

---

<sup>25</sup> Bruce Maddy-Weitzman, “Why did Arab Monarchies Fall? An Analysis of Old and New Explanations”, in Joseph Kostiner ed. *Middle East Monarchies: The Challenge of Modernity* (Boulder: Lynne Rienner Publishers, 2000), 68.

<sup>26</sup> Erika Franz & Andrea Kendall-Taylor, “A Dictator’s Toolkit: Understanding how Cooptation Affects Repression in Autocracies”, *Journal of Peace Research* 51, no. 3 (2014): 332-346.

<sup>27</sup> Desai et al. “Authoritarian Bargains”, p. 19.

gain”.<sup>28</sup> The rentier state essentially flips the “no taxation without representation” on its head –requiring subjects to cede demands for political representation in return for rents being distributed to provide a standard of living conditions (including energy supply). The extent of these rents amongst the Arab monarchies vary widely – from hyper rich Qatar down to the poorer monarchies like Bahrain, Jordan, and to a lesser extent Oman.

The rentier model is no doubt a simplification and cannot comprehensively explain the political-economic dynamics of any of the Gulf monarchies. As Matthew Gray points out in his critique of the rentier model, the theory is “no longer sufficiently detailed, sophisticated, or adaptable enough for the task of understanding rentier bargains that have underpinned state power [...] too many variables – population change, globalization, business pressure new international imperatives – complicate the state at its role.”<sup>29</sup> Dubai is one such example of these limitations: whilst external rents (petrodollars and revenues from Abu Dhabi) certainly helped facilitate development, the creation of a commercial and touristic entrepôt certainly saw the small emirate move away from a purely rentier model. Jordan too somewhat tests simplicity of the rentier model – particularly following the 1988-1989 economic crisis and the subsequent ‘democratization’ and economic reforms.<sup>30</sup> Jordan nonetheless exhibits many of the features of the prototypical rentier state – particularly when it comes to the state’s

---

<sup>28</sup> Hazem Bablawi, “The Rentier State in the Arab World”, *Arab Studies Quarterly* 9, no. 4 (1987): 393-398.

<sup>29</sup> Matthew Gray, “A Theory of ‘Late Rentierism’ in the Arab States of the Gulf”, *Center for International and Regional Studies*, 2011, <https://repository.library.georgetown.edu/bitstream/handle/10822/558291/CIRSOccasionalPaper7MatthewGray2011.pdf>

<sup>30</sup> Rex Brynen, “Economic Crisis and Post-Rentier Democratization in the Arab World: The Case of Jordan”, *Canadian Journal of Political Science* 25, no. 1 (1992): 69-97.



allocative role in redistributing external rents, and public spending as the key economic driver.

For a variety of reasons, energy policy is closely tied to rentierism and the authoritarian state in the Middle East. This is due in part to the crucial role that the nationalization of energy assets played in Arab state formation in the mid-20<sup>th</sup> century.<sup>31</sup> When the Middle Eastern oil producing states gradually ended the foreign concession system and took over energy operations (and the billions of dollars in revenues) via national oil companies (NOCs), the governments had to appear to be acting in the national interest and using the booming oil wealth for economic development and social welfare. There are a variety of ways that the rentierism manifests in energy policy. One would be workforce nationalization schemes that “Saudization” and “Omanisation” that seek increased local labor participation in key industries – particularly oil and gas.<sup>32</sup>

But by far the most important and economically impactful tool of energy policy in the rentier state’s “tool box” is the subsidy. The IEA defines energy subsidies as:

Any government action that concerns primarily the energy sector that lowers the cost of energy production, raises the price received by energy producers or lowers the price paid by energy consumers.<sup>33</sup>

In plain English, an energy subsidy occurs when a government sets the prices of a given energy commodity lower than the cost paid to obtain (either through domestic production or import) and use that commodity. In practice, the two main types of energy subsidy would be the electricity subsidy (when the government sells electricity at a

---

<sup>31</sup> See Daniel Yergin, *The Prize: The Epic Quest for Oil, Money, & Power* (New York: Free Press, 1992), 431-450.

<sup>32</sup> Kasim Randeree, “Workforce Nationalization in the Gulf Cooperation Council States”, *Center for International and Regional Studies* (Qatar: Georgetown University, 2012).

<sup>33</sup> *Carrots and sticks: Taxing and subsidizing energy* (Paris: IEA, 2006).

lower tariff than the generation/transmission cost) and the fuel subsidy (when the government prices cooking fuel, gasoline, diesel, etc. as a lower price than the production cost). Energy subsidies are highly controversial. From a purely economic point of view – and one often espoused by the International Monetary Fund<sup>34</sup> - energy subsidies are wasteful and counterproductive because they encourage “irrational consumption”, or unnecessary waste. The argument essentially goes that, for example, how when electricity is highly subsidized, the cost for a family to leave air conditioning units on when leaving the house is lower, whereas if consumers were paying full prices they would be more cognizant of wasteful consumption. The IMF instead recommends removing subsidies and using the savings (which in theory would be even larger due to low consumption) to enact “measures to protect the poor through targeted cash or near-cash transfers.”<sup>35</sup>

In practice, energy subsidies are politically difficult to remove and prove a sticking point, for instance, when the IMF is pressuring a government to liberalize. Articulating the difficulty of subsidy reform and its particularity to the Middle East, Laura el-Katiri and Bassam Fattouh write:

Energy subsidies are among the most pervasive and controversial fiscal policy tools in the Middle East and North Africa. Their reform continues to be difficult, from a political, economic and social perspective, due to the original objectives of these measures—such as the need to protect the interests of low-income households and to foster domestic industrial growth. In a region with few functioning social welfare systems, subsidised energy prices continue to form an important social safety net, albeit a highly costly and inefficient one. In the MENA region’s oil and gas producing countries, low domestic energy prices have also historically formed an important element of an unwritten social contract, where governments extract their countries’ hydrocarbon riches, in return compensating their citizens through a variety of direct and indirect channels, including subsidies and other welfare benefits Energy subsidies hence

---

<sup>34</sup> “Energy Subsidies”, *International Monetary Fund*, no date, <https://www.imf.org/en/Topics/Environment/energy-subsidies>

<sup>35</sup> *ibid.*

play a pivotal role in a complex state–citizen relationship, a relationship that has come under increasing scrutiny in many Arab countries since the onset of the Arab uprisings in 2010.<sup>36</sup>

The IEA recently estimated that the Middle East’s subsidy bill for residential electricity generation alone was \$26 billion in 2017 and could grow to \$42 billion in 2025.<sup>37</sup>

Crucially to the purpose of this thesis, the total cost to the subsidizer (i.e. the government) can vary widely. For an efficient oil producer like Saudi Aramco, a barrel of crude oil can currently (as of end-2019) be produced for just \$2.6/barrel – versus a \$64/barrel average oil price (Brent) in 2019. Add on refining and transportation costs, Saudi Arabia can easily manage to offer petroleum products at a \$5-10/barrel price. And whilst the opportunity cost of subsidizing are the lost export revenues, the political benefits are high. It is little wonder that Iran and Saudi Arabia were the two largest subsidizers of oil globally in 2018 – with Algeria, the UAE, Iraq and Kuwait also in the top 12.<sup>38</sup>

For a net importer of oil or energy commodities, maintaining subsidies means essentially paying full market price. And because the government sets the prices, adjusting prices in response to high or lower oil prices is often a political rather than economic decision. In Lebanon and Jordan, for instance, subsidized energy is a key driver of government deficits. Transfers to state power provider Electricité du Liban account for 10-20% of the annual budget deficit, and electricity spending is said to have

---

<sup>36</sup> Laura El-Katiri and Bassam Fattouh, “Brief Political Economy of Energy Subsidies in the Middle East and North Africa”, *International Development Policy* 7 (2017): 1.

<sup>37</sup> Wataru Matsumura and Zakia Adam, “Hard-Earned Reforms to Fossil Fuel Subsidies are Coming under Threat”, *International Energy Agency*, October 29, 2018, <https://www.iea.org/commentaries/hard-earned-reforms-to-fossil-fuel-subsidies-are-coming-under-threat>

<sup>38</sup> “Energy Subsidies”, *International Energy Agency*, 2019, <https://www.iea.org/topics/energy-subsidies>

contributed to 40% of the country's debt.<sup>39</sup> Under IMF guidance, Jordan attempted to reform its subsidies in 2012, which "was painful, and faced considerable opposition both in parliament and on Amman's streets. Street chants denouncing the Jordanian king led to a series of confrontations between protesters and the police."<sup>40</sup>

Having looked at energy subsidies and how they fit into the rentier economic model, it is important to finally note how authoritarianism fits in to the equation. The autonomy afforded to the authoritarian state can give it more flexibility over energy policy but also make it more susceptible to government protests. A government can choose to either pass price fluctuations onto the consumer or keep prices fixed and incur larger deficits, and this is especially true in an authoritarian model with few fiscal checks on power. At the same time, the consolidation of the energy sector into government hands also makes energy policy more geopolitical. As we will see, crude oil imports from Saudi Arabia (and later Iraq) were a key source of cheap crude that reflected Jordan's political ties. One study from the European Parliament study finds that:

Energy resources wielded by authoritarian states can act as a shield or a sword. A dependency relationship exists between an energy supplier and its consumers. When the energy supplier is a (quasi)monopolist in a market, this dependency translates into political leverage. This political leverage can be used either to prevent outside interference and ensure regime survival, or as a tool for an assertive foreign policy. By doing so, the authoritarian state can use energy supplies as a means to condition neighboring countries to behave in a certain way, or to punish them when they do not.<sup>41</sup>

---

<sup>39</sup> "Lebanon's Ailing Economy: Will the Music Stop in 2019?", *Middle East Economic Survey* 61, no. 51. December 21, 2018,

<https://www.mees.com/2018/12/21/geopolitical-risk/lebanons-ailing-economy-will-the-music-stop-in-2019/750785b0-052a-11e9-8296-0bbdcbbcdc0b>

<sup>40</sup> El-Katiri & Fattouh, "Political Economy of Energy Subsidies", 29.

<sup>41</sup> Rem Korteweg, "Energy as a Tool of Foreign Policy of Authoritarian States, in Particular Russia", *European Parliament*, April 27, 2018,

[http://www.europarl.europa.eu/RegData/etudes/STUD/2018/603868/EXPO\\_STU\(2018\)603868\\_EN.pdf](http://www.europarl.europa.eu/RegData/etudes/STUD/2018/603868/EXPO_STU(2018)603868_EN.pdf)

This clearly works both ways, as the case of Israeli gas imports can show. More broadly the authoritarian monopoly on large aspects of energy policy gives the government a strong basis for what Ang, Choong and Ng term “energy diplomacy.” They note that that “increasingly, countries are engaging in energy diplomacy with foreign policies geared towards ensuring energy supplies from exporting regions from exporting nations”.<sup>42</sup> As I shall show, the political consequences of energy deals are of increasing importance in the Eastern Mediterranean, and potentially have the capacity to rewrite ties in the region.

---

<sup>42</sup> Ang, Choong and Ng, “Energy Diplomacy”, 1082.

## CHAPTER III

### BRIEF HISTORY OF JORDAN-ISRAEL ECONOMIC TIES

Compared with the other Arab states of the Levant, Jordan has historically maintained a relatively high degree of interaction with its western neighbor – first with Palestine under the British mandate and later with the state of Israel. This reluctant cooperation is born of necessity often resulting from systemic Jordanian economic problems and the dearth of natural resources (both water and energy). For the Hashemite monarchy, the Israel issue is highly problematic. On the one hand, cooperation with its better developed neighbor offers clear economic opportunities – the largest of which being the 2016 gas import deal. On the other hand, both Jordan’s East Jordanian and Palestinian-origin populace are overwhelmingly opposed to normalizing relations with Israel. The monarchy has thus been walking this tightrope for decades, utilizing what Adam Garfinkle terms “functional ties” with Israel – with practical and protective benefits in mind.<sup>43</sup> This practice of maximizing the gains of cooperation whilst minimizing the optics of it will be a reoccurring theme throughout this chapter and help us better understand the gas import deal when we come to it.

#### **A. Electrification and the Mandate**

The issues of electrification and water during the British mandate in Transjordan and Palestine pushed the Jordanians and early Zionists into areas of economic cooperation and tension beginning in the 1920s. Unlike the coastal areas of the region, Transjordan was initially neglected by the British which stunted economic investment.

---

<sup>43</sup> Adam Garfinkle, *Israel and Jordan in the Shadow of War* (London: Macmillan, 1992), 11-12.

The Emirate of Transjordan was the slowest mandate to electrify. Renate Dieterich argues that British neglect, a lack of local funding, and Transjordan's "political climate during these years [the 1920s and 1930s]" were the key reasons why Amman and nearby villages took so long to receive electricity – the consequence being long-term stunted commercial and industrial growth.<sup>44</sup> In the first years of the 25 year mandate (1921-1946), Transjordan had no electricity supply and the streets of the new capital Amman were lit by 70 oil lamps.<sup>45</sup>

In neighboring Palestine, a Russian-born Zionist named Pinhas Rutenberg received the Palestine Electric Company (PEC) concession from the British High Commissioner in 1921 and set off constructing a hydroelectric powerplant in the Jordan and Yarmouk basin. The PEC concession covered both Palestine and Transjordan, but throughout the 1920s and 1930s, the PEC had little success in its repeated attempts to enter Transjordan under the guise of an "Amman Electricity Company." Despite the opposition to Zionist control over the electrification of Transjordan, the actual logistics are interesting and help explain the birth of a historical theme that continues in Israel-Jordan relations until this day. Rutenberg's plan to electrify the Jordan valley was to utilize the Zarqa and Jordan rivers to build a hydroelectric powerplant at Jisr al-Majami, just south of Lake Tiberias/Sea of Galilee.<sup>46</sup> Both Arab and Jewish laborers worked on the project, which was finished in 1932, and despite the fact that Amir Abdullah had sold 6000 *dunums* of land for the project, the PEC was never able to set up a sales agreement with Transjordan. In many ways, the Jisr al-Majami project is the beginning

---

<sup>44</sup> Renate Dieterich, "Electrical Current and Nationalist Trends in Transjordan: Pinhas Rutenberg and the Electrification of Amman", *Die Welt des Islams* 41, no. 1 (2003): 100.

<sup>46</sup> *Ibid*, 92.

of the path dependent trend of the Zionists/Israel essentially holding the keys to energy/water agreements, and political opposition within Jordan having to react.

As tensions in Palestine between Arabs and Jews mounted, elements of Amman's elite became even more opposed to the Zionist PEC than it had been in the 1920s and instead tried to form a local alternative to generate electricity— initially failing to do so.<sup>47</sup> The British showed little interest in such a project, particularly because it would have meant a substantial increase to the meager budget allocation toward Transjordan. But by 1938, collection of local businessmen and notables managed to form the Amman Electricity Company (AEC) and began the long road to electrifying Jordan via a small power house outside Amman; other villages broadly adopted this model and followed suit (see chapter 4). The appearance throughout the 1920s and 1930s the Zionist normalization issue as an important and contentious amongst Jordan's notables and Amir Abdallah also marks the seed of this tension among Jordan's ruling elite that runs until this day.

## **B. Economic Cooperation between 1948 and 1994**

As Arab-Zionist relations further deteriorated in the 1930s, the prospects of cooperation between Transjordan and Zionists became further frayed – as our brief look at the origins of electricity in Transjordan shows. Avi Shlaim's work has elucidated the tacit cooperation between Jordan's King Abdullah and the Zionist movement on the Palestine question<sup>48</sup>, but any significant economic cooperation was essentially out the window following the Arab Revolt of 1936-39. The 1948 Arab-Israeli War saw a mass

---

<sup>47</sup> Ibid, 96.

<sup>48</sup> Avi Shlaim, *Collusion Across the Jordan* (Oxford: Oxford University Press, 1988).



influx of Palestinian refugees into Transjordan along with the establishment of Jordanian control of the better developed West Bank, which had major consequences for the Jordanian economy.

Gradually, geographical realities forced Israel and Jordan to develop loose, ‘functional ties’ born out of the necessity for coordination in certain spheres. In the early 1950s, the issue of water security came to the fore. Jordan, Syria and the fledgling Israeli state all relied on the Jordan River for agriculture, and the latter two states fought skirmishes over water use. The Jordan River is particularly important to Jordan as it is one of the few water supplies to the kingdom. In 1953 Israel began construction on the National Water Carrier which would divert volumes from the Jordan at the Sea of Galilee to supply Israel’s main population centers – much to the chagrin of Syria and Jordan. The US sought to intervene to resolve the riparian dispute, releasing the so-called “Johnston Plan” in 1955. The plan failed because Syria would not sign on, but both Jordan and Israel agreed to its terms – a rare and early instance of functional cooperation between the two sides.<sup>49</sup> The lack of an agreement led to clashes (the so-called “War over Water”) in 1964 when the project was completed. Jordan, however, was not a main participant.

Similar to the dispute with the PEC, the Jordan River conflict carries important implications for the subsequent development of bi-lateral ties. As Mark Zeitoun and Jeroen Warner elucidate in their influential paper on *hydro-hegemony*, despite an inferior riparian position to both Jordan, and especially both Syria and Lebanon vis-à-vis control over the Jordan River basin, Israel’s superior coercive power and its superior

---

<sup>49</sup> See Miriam R. Lowi, *Water and Power: The Politics of a Scarce Resource in the Jordan River Basin* (Cambridge: Cambridge University Press, 1993), 79-105.

exploitation potential rendered dominant in the water conflict since the 1950s.<sup>50</sup> As a water poor country, Jordan's 'hegemonized' position in the Jordan water conflict has provided Israel with significant negotiating power from the 1950s until today, with water concessions playing a key role in the 1994/Wadi Araba peace agreement as Israel granted 50 million cubic meter of water annually to Jordan in exchange for potentially cooperation on other aspects. In many ways, as we shall see, the symbolically 'upstream' leverage Israel maintains in water terms in many ways parallels its 'upstream' position it had in energy supply terms post-2009.

The 1967 War, during which Jordan fought Israel as part of the Arab coalition, saw East Jerusalem and the West Bank fall into Israeli hands which once again entailed the inheritance of economic ties. Jordan and Israel failed to reach a comprehensive settlement when talks broke down in September 1968, but the proximity of the two countries combined with the transfer of control of the West Bank issue meant that a functional relationship began to emerge on a host of issues, including electricity gridding. The 1970-71 crisis in Jordan led to significant political and security cooperation (aided by the US) and devastated the Jordan valley. When talks in 1970 and 1971 resumed, "much of the conversation centered on water, agriculture and economic development."<sup>51</sup> Gradually, Gaefinkle argues, the two sides established "functional ties" in the domains of air traffic control (particularly at Aqaba/Eilat), and began talks over the Red Sea – Dead Sea pipeline (more on that later). Throughout the 1980s, these ties continued to build and there were also extensive diplomatic talks regarding the PLO and normalization up until the first Intifada, which forced Jordan to cease some of its ties to

---

<sup>50</sup> Mark Zeitoun & Jeroen Warner, "Hydro-Hegemony – A Framework for Analysis of Trans-boundary Water Conflicts", *Water Policy* 8 (2006): 460.

<sup>51</sup> Garfinkle, *Israel and Jordan*, 74.

PLO-affiliated organizations in the West Bank. In practical terms, this strained some of the functional cooperation that had gradually grown between Israel and Jordan.

### **C. Peace and ‘Prosperity’ after 1994**

Whilst proximity and occasional mutually aligned interests (vis-à-vis the PLO for instance) Jordan and Israel to cooperate on security<sup>52</sup> and on small matters of practical necessity, the real beginning of deliberate economic relations between the two parties begins with the signing of the peace treaty in 1994. Article 7 of the treaty dealt with economic relations and expressed the “mutual desire to promote economic co-operation between [the Parties]” by removing “all discriminatory barriers to normal economic relations, to terminate economic boycotts directed at the other Party”, to recognize the “free and unimpeded flow of goods and services [...] through the establishment of a free trade area or areas, investment, banking, industrial co-operation and labor, for the purpose of promoting mutual economic relations.”<sup>53</sup> The most important short-term effect of the peace deal on the Jordanian economy was the aid commitment that King Hussein managed to coax out of the Americans in return for his signature. US aid to the Kingdom averaged about \$70 million per year in the five years before the 1994 treaty, but jumped to \$230 million in 1996 and has steadily risen in subsequent years, reaching \$1.6 billion in 2018 (see figure 3.2).

---

<sup>52</sup> Ronen Yizhak, “From Cooperation to Normalization? Jordan-Israel Relations since 1967”, *British Journal of Middle Eastern Studies* 44, no. 4 (2017): 559-575.

<sup>53</sup> “Treaty of Peace between the State of Israel and the Hashemite Kingdom of Jordan”, *United Nations*, vol. 2042, 1994, [https://peacemaker.un.org/sites/peacemaker.un.org/files/IL%20JO\\_941026\\_PeaceTreatyIsraelJordan.pdf](https://peacemaker.un.org/sites/peacemaker.un.org/files/IL%20JO_941026_PeaceTreatyIsraelJordan.pdf)

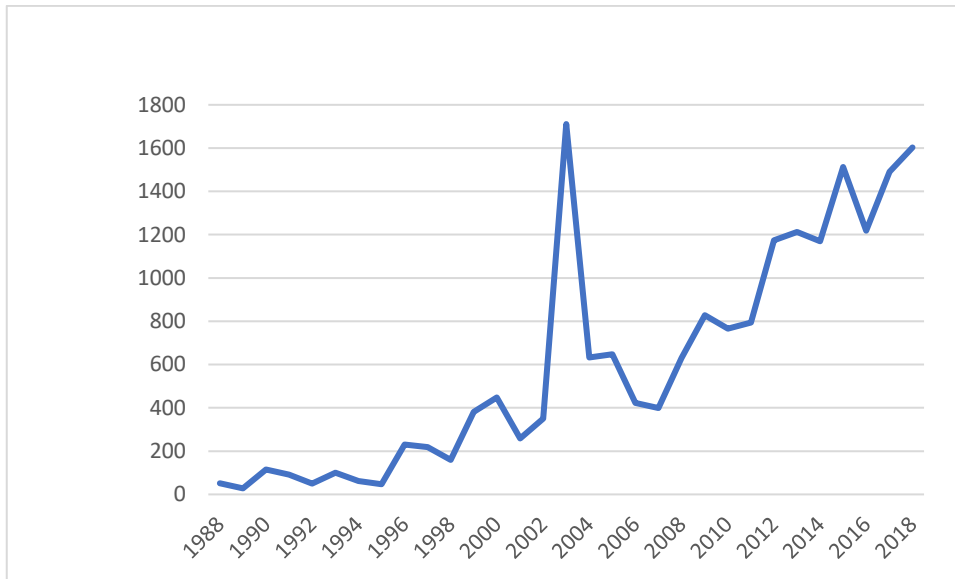


Fig. 3.1: US Foreign Assistance to Jordan (\$ million)  
Source: USAID

In terms of economic integration, things were slow to take off. Avi Shlaim

notes that

“In the first year after the treaty, progress was achieved on a number of fronts. [...] A trade agreement was also concluded, but Jordanian manufacturers found it difficult to sell their products across the border because of the power of existing business interests. Jordanian businessmen were at a disadvantage because Israel’s Gross Nation Product was ten times that of Jordan’s. Israeli businessmen wanted all the benefits for themselves without having to wait. This attitude did not allow the Jordanians to feel that they could achieve their aspirations in terms of economic development and growth through the peace process. The economic benefits of the peace for Jordan remained marginal”.<sup>54</sup>

Generating revenues from tourism was another key initiative of the peace deal.

In April 1994, Israel and Jordan signed a tourism agreement to “integrate their marketing of the Holy Land abroad.”<sup>55</sup> A boom in tourism from Israel to Jordan incurred, particularly to Jordan, but as Philip Robins notes, “[e]ven here, however,

<sup>54</sup> Avi Shlaim, *Lion of Jordan: The Life of King Hussein in War and Peace* (London: Penguin Books, 2007), 548.

<sup>55</sup> Philip Robins, *A History of Jordan* (Cambridge: Cambridge University Press, 2004), 191.

increased interaction proved far from happy. Businessmen in the Jordanian tourist sector complained that visiting Israelis came only on very short visits, spent little money, and conducted themselves in a rude and arrogant way.”<sup>56</sup>

Within three years of the treaty, trade volumes remained modest. World Bank data shows that Jordan exported only \$22.7 million worth of goods to Israel in 1997, whilst Israeli exports to Jordan totaled \$32 million (figure 3.2).

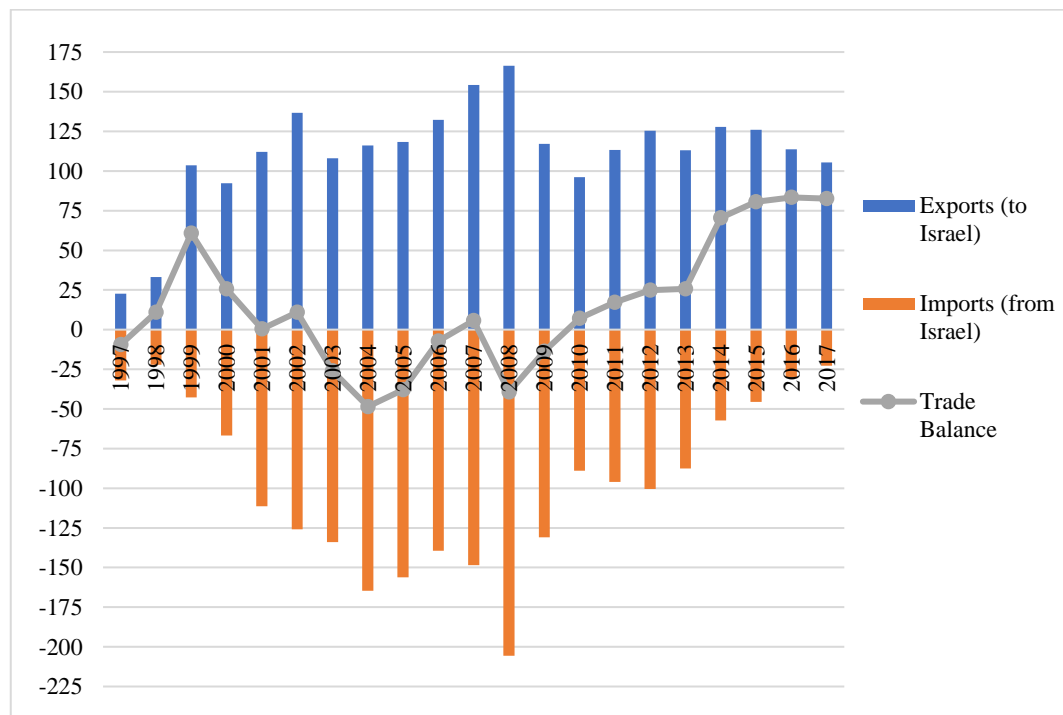


Fig. 3.2: Jordan-Israel Trade Balance (\$ million/year)  
Source: World Bank

The minimal initial trade volumes were in part to be expected. As Arnon, Spivak and Weinblatt point out, Jordan’s economy at that point had few opportunities for exports and the traditional Israeli export items were not particularly sought after in Jordan.<sup>57</sup>

Attempts to integrate the economies grew to take a neoliberal approach, for two

<sup>56</sup> Ibid.

<sup>57</sup> Arie Arnon, Avia Spivak and J. Weinblatt, “The Potential for Trade Between Israel, the Palestinians and Jordan”, *The World Economy* 19, no 1 (1996): 113–134.

reasons: first, the United States was the key sponsor of these efforts; and secondly, Jordan was in the midst of an International Monetary Fund (IMF) backed structural adjustment designed to “cut the budget deficit; decrease public expenditure; cut private consumption; increase the domestic revenue component of government income; reduce inflation; reduce the need for foreign and domestic borrowing; and build up foreign currency reserves.”<sup>58</sup> Reducing the current account deficit through increasing exports was also seen as a means to avoid another foreign currency shortage which hurt Jordan’s economy in the late 1980s.

The American solution was to establish the Qualifying Industrial Zone (QIZ) system, which is a network of free-trade zones that “enable Jordan to take advantage of the free-trade agreements between Israel and the US.”<sup>59</sup> The QIZ system was established in 1997 and by 2000 several joint-venture companies were established to take advantage of cheaper Jordanian land and labor, particularly in the textile sector around Irbid. The program is generally thought of as successful and accounted for the large boost in Jordanian exports to Israel beginning in 2000. The value of Jordanian textiles exports grew from \$50 million in the mid-1990s to \$1 billion a year in 2004.<sup>60</sup> It also saw the trade balance shift to where Jordan was a net exporter to Israel. The QIZ exports and re-exports accounted for over 90% of Jordanian exports to Israel by the mid-2000s and accounted for some 60,000 jobs (mostly for southeast Asians) – though reports exposed horrendous labor conditions in the Jordanian sweatshops.

---

<sup>58</sup> Robins, *History of Jordan*, p. 182.

<sup>59</sup> Yitzhak Gal and Bader Rock, “Israeli-Jordanian Trade: In-Depth Analysis”, *Tony Blair Institute for Global Change*, 17 October 2018, <https://institute.global/insight/middle-east/israeli-jordanian-trade-depth-analysis>

<sup>60</sup> Ibid, p. 13.

In the 2000s, Jordan’s economy was booming with the IMF estimating GDP annual growth at 6.2% facilitating a boost in overseas trade.<sup>61</sup> But Jordan-Israel trade fell sharply in the late 2000s due to the decline of Israeli involvement in QIZ manufacturing; an updated free trade agreement with the US changed the QIZ agreement to allow for direct exports to the US. Since 2010, and in spite of low growth in the 2010s (2.4%, covered in a subsequent chapter), Jordanian exports to Israel have remained consistent at around \$115 million per year. Israeli exports to Jordan have declined on the other hand – mostly due to the decline of the QIZ model – from \$131 million in 2009 to just \$21 million in 2017. Jordan mostly exports textiles, plastics, chemicals, and consumer goods to Israel (figure 3.3), whilst Israeli exports are mainly intermediate goods – some of which are consumed and then reexported to the Gulf countries.

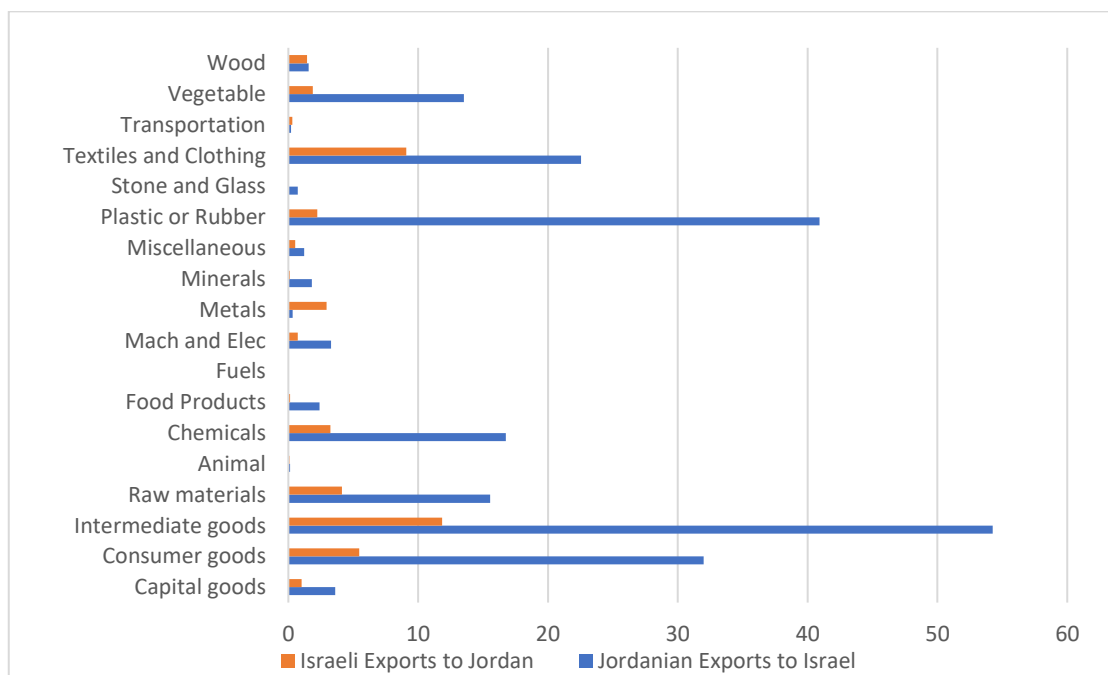


Fig. 3.3: 2017 Jordan-Israel Trade Flows by Type  
Source: World Bank

<sup>61</sup> Per the IMF *World Economic Outlook* database.

Despite the decline in overall trade since the 2000s, a couple notable projects involving Israel-Jordan cooperation have started up in recent years (or tellingly failed to start up) – with interesting implications for this thesis. The first involves Israel’s only current producing natural gas field, the 11tcf Tamar offshore gas field. In February 2014, the Jordanian firm Arab Potash Company signed an agreement with Noble Energy to buy 1.9bcm of natural gas over 15 years at an estimated price of \$771 million (figure 3.4).

Buyer	Country	Deal date	total (bcm)	bcm/yr	Years
Domestic					
Israel Electric Corporation	Israel	Mar-12	76	5.07	15
Two private power plants	Israel	Mar-14	4.5	0.30	15
Sorek power plant (Delek)	Israel	Mar-14	3.3	0.22	15
Export					
Arab Potash	Jordan	Feb-14	1.9	0.13	15
Arab Potash	Jordan	Nov-18	1	0.07	15
Dolphinus Holdings	Egypt	Feb-18	25.3	1.74	14.5

Figure 3.4: Tamar Sales Agreements  
Source: MEES

Arab Potash is the world’s eighth largest potash producer worldwide and operates on the southeast coast of the Dead Sea where it uses solar ponds to extract potash from the mineral water with exclusive extraction rights through 2058. The firm is listed on the Amman Stock Exchange. Arab Potash began importing Israeli gas in Q1 2017, and in November 2018 signed a second contract with the Tamar operators to import an additional 1bcm. The Arab Potash deal is interesting because of its potential implications for Jordanian gas imports from Leviathan, and as a chapter VI will show, was a testing ground for the NEPCO-Noble agreement. First off, the volumes are extremely small (1/15<sup>th</sup> of potential Leviathan imports). Second, the end user is a private industrial firm that operates in relative isolation from Jordan’s major population zones. The plant needs feedstock to fuel operations, and the proximity to the Israeli gas



pipeline grid makes buying gas from Israel the easiest option. In the case of the NEPCO deal, Israeli gas is being bought by a government entity and the end-user is the entire Jordanian population (via power generation). Third, Arab Potash conspicuously makes no mention of Israel on its website, nor in its investor reports. The firm is clearly conscious of the bad optics of buying cheap gas from Israel, and therefore refers solely to purchases of gas from an American firm in its literature. These themes will be useful as we look at the optics of the Leviathan deal in a subsequent chapter.

No discussion of Jordanian-Israeli economic cooperation is complete without mentioning the highest profile project in the history of their ties, the so-called ‘Red Sea-Dead Sea’ water conveyance project. The project itself was conceived in the 1960s and raised further post-1994 but only since 2009 has the project gathered momentum. In 2015, Jordan and Israel signed \$10 billion deal for a massive integrated project that would essentially tackle two problems: first, the precipitous dropping of the Dead Sea surface level, which has fallen 30 meters since 1980s and is currently falling 1.2 meters per year; and second, increasingly perilous potable water shortages in southern Jordan.<sup>62</sup>

The logic behind the project is simple: an intake pumping station at Aqaba would take 200 million cubic meters a year of sea water from the Red Sea, which a desalination plant would use to create around 80 million cubic meters of potable drinking water; Aqaba would take 30 million cubic meters, while the rest would go to the adjacent Israeli town of Eilat (and its environs), and Israel would then sell 20-30 million cubic meters to the water-deprived Palestinian Authority as part of a swap

---

<sup>62</sup> Waylon Fairbanks. “Israel-Jordan Spat Threatens Already Precarious Cooperation”, *Middle East Economic Survey* 61, no 3, January 19, 2018, <https://www.mees.com/2018/1/19/power-water/israel-jordan-spat-threatens-already-precocious-cooperation/7e180660-fd37-11e7-85c3-bb1136667dc8>

agreement; the remaining saline water would then be pumped via pipeline to the Dead Sea thus offsetting the drop in the surface level, which is falling due to higher agriculture use in the Jordan valley, evaporation and extraction for industry (like Arab Potash; see figure 3.4).



Fig. 3.5: Map of Red Sea-Dead Sea project  
Source: MEES.

The Red Sea-Dead Sea project, despite its obvious importance to preserve the Dead Sea and address major water shortages on the Red Sea, has yet to make any progress – particularly due to fighting between the Israelis and Jordanians over “commercial and technical terms”.<sup>63</sup> Recent souring of relations due to a shooting at the

<sup>63</sup> Ibid.

Israeli embassy in Amman, the US recognition of Jerusalem as the capital of Israel, and a dispute over imprisoned Jordanians in Israel, has hardly helped matters. Rumors suggest the Jordanians are contemplating ways to advance the project without Israeli support, but that would also cost international project financing that supports it as a 'peace making' project. The project provides some useful lessons about Jordan-Israel economic cooperation. Unlike energy sales agreements, like the Arab Potash deal or the Leviathan-NEPCO agreement, the Red Sea-Dead Sea project actually requires coordination and cooperation on both sides rather than just a commercial transaction through an intermediary. The failures of the project, which is undoubtedly in both countries' interest to pursue, demonstrate the actual difficulties of meaningful cooperation between Israel and Jordan on anything more than functional utility.

## CHAPTER IV

### THE DEVELOPMENT OF JORDAN'S ENERGY SECTOR AND THE CRISIS

This chapter begins with an historical overview of Jordan's energy sector – focusing specifically on the electrification of Jordan, energy security concerns, and the subsidy-related debt problems that emerged in the 1980s and 1990s that ultimately led to the restructuring of key public institutions. This is followed by an assessment of the energy security crisis that emerged in the late 2000s and early 2010s that ultimately pushed the Jordanian government toward a deal to import Israeli gas.

#### **A. Jordan's Emergence from the Dark**

As mentioned previously, the electrification of Jordan was a key element of early Zionist-Jordanian interaction, but the Ammani elite ultimately won the concession – initially on a three year license, supplying the capital with electricity from a “powerhouse” at Ras al-Ayn.<sup>64</sup> The fact that elements of the local population facilitated Jordan's electrification is notable, and the only such case in the Near East where work was typically carried out by colonial powers. But this particular approach also carried long-term consequences for Jordan. Because electricity provision was initiated as a private (and for-profit) enterprise, businessmen in the sector had little incentive to electrify the periphery – and thus exacerbated the inequalities between the urban centers

---

<sup>64</sup> Fredrik Meiton, “Throwing Transjordan into Palestine: Electrification and State Formation, 1921-1954”, in *The Routledge Handbook of the History of Middle East Mandates*, ed. Cyrus Schayegh & Andrew Arsan (London: Routledge, 2015), 302.

and more rural areas well into the 1970s. This proved the beginning of a key theme in Jordan's energy sector – the role of government versus the private sector.

In 1945, the Amman Electricity Company (AEC) was reformed as a quasi-national electricity company and granted a 60 year concession – but even in subsequent years electrification remained largely confined to Amman, Irbid, and other mid-sized northern villages.<sup>65</sup> Throughout the 1950s the power provision concession area expanded – adding Wadi al-Seer, Russeifa, Zarqa, Sweileh, Madaba and other municipalities to the national grid.<sup>66</sup> But overall provision remained low: in 1961 when the Jordanian Electricity Company merged with the smaller Central Jordan Electricity Company, its combined coverage was just 17,000 end users – out of an estimated population of 900,000 at the time.<sup>67</sup> And these were not the only companies: there were dozens of smaller providers working in various areas of the sector (distribution, generation, transmission, etc.).

In terms of fuels for transport and heating – the other main element of energy consumption – Transjordan was equally undeveloped throughout the early years. As Vartan Amadouny shows in his essay on infrastructure development during the British mandate, Transjordan's road network was highly undeveloped; in 1935 just 477 vehicles existed in the territory (versus 12,000 in Palestine), which grew to 615 by 1945.<sup>68</sup> These figures imply low enough consumption levels that transportation fuels (diesel and gasoline) were likely imported and trucked in small volumes. Jordan

---

<sup>65</sup> Ibid.

<sup>66</sup> Taken from the National Electric Power Company (NEPCO) website, [http://www.nepco.com.jo/electricity\\_improve\\_ar.aspx](http://www.nepco.com.jo/electricity_improve_ar.aspx)

<sup>67</sup> Ibid.

<sup>68</sup> Vartan Amadouny, "Infrastructural Development under the British Mandate", in *Village, Steppe and State: The Social Origins of Modern Jordan*, eds. Eugene L. Rogan & Tariq Tell (London: British Academic Press, 1994), 145, 149.

managed to secure a steady supply of oil products in 1961 when the Jordan Petroleum Refinery Company's Zarqa refinery began operations. The refinery was supplied by the Trans-Arabian Pipeline (Tapline) from Saudi Arabia to Sidon, which built in 1950, ran across Jordanian territory.<sup>69</sup> This kept the 1000 metric/ton per day (expanded to 8,100 t/d in 1982) well-supplied until Saudi Arabia suspended shipments following the fallout over the first Gulf War (and back payments).<sup>70</sup>

Entering the 1960s, Jordan's energy sector was far from satisfactory in terms of electricity coverage. Paul Kingston notes that in 1957 Amman was forced to ration consumption, prohibiting industrial use of electricity between 5pm and 10pm to reduce chronic power cuts.<sup>71</sup> The same problems resurfaced in 1964. Three major companies (including Jordanian Electricity Authority) and 25 local companies had their own small-scale generation capacity, Kingston writes, concluding that "not only was the present structure of Jordan's electricity industry unable to meet the growing demands of Jordan's modern sector for electrical power, it was also clear that the private sector dominated industry has little interest in investing in the provision of services for the more marginal and peripheral areas of the country."<sup>72</sup> At the behest Prime Minister Wasfi al-Tall (1962-63; 1965-67; 1970-71), whose mandate sought to advance ambitious reforms, the overhaul of electricity sector became a key government

---

<sup>69</sup> Douglas Little, "Pipeline Politics: America, TAPLINE, and the Arabs", *The Business History Review* 64, no. 2 (1990): 255-285.

<sup>70</sup> "Saudi Arabia Suspends Crude Deliveries to Jordan", *Middle East Economic Survey* 33, no. 51, September 24, 1990,

<http://archives.mees.com/issues/1147/articles/40808>

<sup>71</sup> Paul Kingston, "Rationalizing Patrimonialism: Wasfi al-Tall and Economic Reform in Jordan, 1962-67", in *The Resilience of the Hashemite Rule: Politics and the State in Jordan, 1956-67*, ed. Tariq Tell, no. 25 (Beirut: Les Cahiers du Cermoc, 2001): 133.

<sup>72</sup> Ibid.

initiative.<sup>73</sup> Anne Mariel Zimmermann goes so far as to call Al-Tall's goal of a nationwide electric grid his "pet project".<sup>74</sup>

The solution to the problem was relatively simple: the power sector needed to be unified under one authority (or at least a single regulatory authority), using a single national grid that supplied both industrial and peripheral areas, with greater coordination in terms of actual generation. The Seven Year Plan (1964-1971) set forth this strategy, and the Jordanian Electricity Authority Draft Law was introduced in 1965 upon these terms:

- Unification of all electricity generation (public and private) under one authority
- Electrification of southern governorates and periphery
- 24 hour electricity with high peak load-capacity
- Centralization of transmission and distribution system
- Construction of large new steam turbine power plants

Al-Tall, despite receiving a £700,000 loan from the British, initially failed to secure the cooperation of the private electricity providers and his masterplan stalled. Kingston argues that the failure of Al-Tall's government to negotiate with the various private sector parties is emblematic of "weak impulses within the Jordanian establishment toward modernizing and rationalizing Jordan's patrimonial system"<sup>75</sup> Eventually, the Electricity Law no.21 was passed in 1967 which implemented many of these terms, and the three year 1973-1975 development plan, advanced significant

---

<sup>73</sup> Robins, *History of Jordan*, 112.

<sup>74</sup> Anne Mariel Zimmermann, *US Assistance, Development, and Hierarchy in the Middle East* (New York: Palgrave Macmillan, 2017), 111.

<sup>75</sup> Kingston, "Wasfi al-Tall", 137.

investment in the power sector.<sup>76</sup> In 1975, Jordan added its first gas turbine to the electrical grid, a small 14.7MW unit, and in 1977 added a 33MW steam plant bringing its total generation capacity to 132MW.<sup>77</sup>

## **B. Sectoral Growth**

The significant economic growth in Jordan during the late 1970s and early 1980s (10%+ per year GDP growth) between 1975 and 1982 – due largely to the trickle down of oil rents from the Persian Gulf – leading to unprecedented government spending and development.<sup>78</sup> Key infrastructure projects were launched and the expansion of certain industrial activities (such as potash production) skyrocketed electricity demand. According to the country’s central bank, annual electricity production was just 120 GWh in 1970. By 1975, this figure had climbed to 256.7 GWh; by 1980 to 1050 GWh ; and by 1988, to 2,887 GWh – a 2300% increase over just 18 years.<sup>79</sup> Several large steam turbine plants were added to the national electricity grid including the 363MW Hussein thermal power station in 1985 and the 260MW Aqaba thermal power station in 1986 – both ran on imported heavy fuel oil. The Zarqa refinery was able to meet some of the domestic products demand, refining around 60,000 b/d of Saudi crude and other 10,000 b/d from Iraq and/or Kuwait.<sup>80</sup> Jordan was also importing cooking/heating fuel (liquefied petroleum gas) and heavy fuel oil from Iraq. In 1989

---

<sup>76</sup> Mohammad Qasem Ahmad, “The Three Year Development Plan in Jordan, 1973-1975: A Critical Examination”, master’s thesis (Beirut: American University of Beirut, 1975), 60.

<sup>77</sup> Figures from the Central Electricity Generation Co. website, <https://www.cegco.com.jo/Overview>

<sup>78</sup> Robins, *History of Jordan*, 143.

<sup>79</sup> “Quarterly Statistical Series, 1964-1989”, *Central Bank of Jordan* (Amman: Department of Research and Statistics, 1989), table 30.

<sup>80</sup> “Jordan: Cabinet Reshuffle in Jordan: Minister of Energy Appointed”, *Middle East Economic Survey* 28, no. 5, November 12 1984, <http://archives.mees.com/issues/1357/articles/46733>



Jordan even managed to become a small gas producer, with the Risha gas field supplying a nearby power plant with modest volumes (15mn cfd) of gas per day – 15% of the country’s then-electricity needs.<sup>81</sup>

But all the technical success posed significant drawbacks. When Jordan effectively nationalized electricity provisions in the 1960s and 1970s, it also meant that electricity supply changed from a luxury available at a premium to a government service – and in line with the developing rentier model of the time<sup>82</sup>, this meant significant subsidies. Oil products and crude imports were also subsidized – and unprecedented public sector spending in the 1980s meant little pressure to “rationalize” or limit consumption. By 1984 Jordan’s crude import bill stood at \$600mn (\$1.48bn in 2019 dollars); government fuel subsidies since 1976 had amounted to JD223mn (\$567mn; \$1.4bn in 2019 dollars).<sup>83</sup> Electricity and fuel subsidies were a key contributor to the looming debt crisis. In 1989, the kingdom defaulted on its foreign debt as a result of a currency crisis, the decline of external rents, and recording government spending which, financed by foreign borrowing, rendered Jordan unable to service its debt by 1989.<sup>84</sup> King Hussein reluctantly had to approach the International Monetary Fund (IMF) and World Bank to restructure, ushering a decade of economic reforms and pressure on the rentier model. An assessment of the merits of privatization

---

<sup>81</sup> “Jordan: Jordan Inaugurates New Power Plant at Risha”, *Middle East Economic Survey* 32, no. 34, 29 May 1989,

<http://archives.mees.com/issues/1181/articles/41831>

<sup>82</sup> For discussion of Jordan’s growing rentierism during this period, see Warwick Knowles, *Jordan since 1989: A Study in Political Economy* (London: IB Tauris, 2005), 47-71.

<sup>83</sup> “Jordan Reduces Fuel Subsidy in 1985 Budget and Raises Energy Prices”, *Middle East Economic Survey* 28, no 10, December 17, 1984,

<http://archives.mees.com/issues/1362/articles/46882>

<sup>84</sup> Robins, *History of Jordan*, 166-68.

in Jordan is well-beyond the scope of this thesis<sup>85</sup>, but given the role that electricity and fuel subsidies played in growing this debt, the subsequent IMF liberalization program has had a substantial impact on the energy sector.

### **C. Liberalization**

Immediately following the first IMF agreement in April 1989, Jordan cut several subsidies, which increased the price of gasoline from JDO.18/liter to JDO.22/liter, jet fuel from JDO.65/liter to JDO.80/liter, and of LPG from JD1.80 to JD2.00 per 12.5kg bottle.<sup>86</sup> The IMF would continually put pressure on the kingdom to raise fuel prices (with the aim of ultimately removing subsidies), a practice that it continues until today. More importantly, the IMF began placing immense pressure on the government to privatize several public sector entities; among them was the Jordan Electricity Authority (JEA) – the state power company that grew out of the 1967 electricity law. On 1 September, 1996, the JEA was dissolved and replaced by the National Electric Power Company (NEPCO). The new firm was to remain a monopoly, but was commercialized (i.e. listed on the Amman Stock Exchange with the government holding the majority of the shares) and capitalized with \$160mn US in addition to the \$190mn in assets it inherited from the JEA.<sup>87</sup> In 1999, NEPCO was divided into three separate firms “largely due to conditionality imposed by the IMF”<sup>88</sup>, reducing NEPCO’s

---

<sup>85</sup> For an good overview, see: Jane Harrigan, Hamed el-Said & Chengang Wang, “The IMF and World Bank in Jordan: A Case of over Optimism and Elusive Growth”, *Review of International Organization* 1 (2006): 263-292.

<sup>86</sup> “Jordan Bites the IMF Bullet as Riots Break Out”, *Middle East Economic Survey* 32, no. 29, April 24, 1989,

<http://archives.mees.com/issues/1176/articles/41705>

<sup>87</sup> Knowles, *Jordan since 1989*, 149.

<sup>88</sup> “Jordan Plans New Privatizations Following Divestment Of JTC And National Airline”, *Middle East Economic Survey* 42, no. 44, November 1, 1999,

<http://archives.mees.com/issues/662/articles/26553>

role, creating the Electricity Distribution Company (EDCO) and the main generation company the Central Electricity Generating Company (CEGCO). EDCO, CEGCO and the Irbid District Electricity Company were privatized in 2007 with the revenues helping pay down some of the firms' outstanding debt.<sup>89</sup>

One aspect of privatization, however, would prove especially crucial to Jordan's energy crisis and the decision to import Israeli gas – and hold long-lasting implications for Jordan's *energy security*. In the 1990s Jordan booming population saw per capita electricity demand increase substantially 67% over just 8 years implying 8.4% annual growth.<sup>90</sup> In 1997 total power generation capacity<sup>91</sup> stood at 1170MW, and government estimates indicated that \$846mn would need to be invested by 2005 to ensure 24/7 electricity was met for the Jordanian population.<sup>92</sup> By 1999, Jordan's peak system load was 1060MW whilst total installed capacity stood at just 1232MW.<sup>93</sup> This meant during annual peak demand (either during summer heat or the coldest periods of winter; it varies in Jordan) the power grid was operating at 86% of capacity. Such high loads are dangerous, and if a fuel shortage or technical problem were to occur, it would risk blackout. In short, Jordan desperately needed to add generation capacity to bolster energy security.

In line with ongoing privatization efforts, the IMF pressured Jordan's government to pursue *independent power producer* (IPP) agreements. The Energy

---

<sup>89</sup> "Further Privatization of Jordan's Electricity Sector", *Middle East Economic Survey* 50, no. 48, November 26, 2007, <http://archives.mees.com/issues/210/articles/8097>

<sup>90</sup> Mamdouh G. Salameh, *Jordan's Energy Prospects & Needs to the Year 2010: The Economic Viability of Extracting Oil from Shale* (London: Manara, 1998), 31.

<sup>91</sup> This is a measurement of potential capacity at peak load.

<sup>92</sup> Salameh, *Jordan's Energy Prospects*, 31.

<sup>93</sup> See NEPCO's 2003 annual report, [http://www.nepco.com.jo/store/docs/web/2003\\_en.pdf](http://www.nepco.com.jo/store/docs/web/2003_en.pdf)

Information Administration (EIA) defines an IPP as: “A corporation, person, agency, authority, or other legal entity or instrumentality that owns or operates facilities for the generation of electricity for use primarily by the public, and that is not an electric utility.”<sup>94</sup> In practice, a government tenders a power generation project, pre-qualifies companies based on various criteria, and then awards the contract to the firm offering the lowest electricity price. The advantage here, especially for a country like Jordan with a strained public budget, is that the IPP approach avoids costly upfront capital expenditure and instead allows the government to buy electricity *on a take-or-pay* basis. In the midst of the 1999 power sector restructuring, Jordan offered its first IPP project: a 450MW steam powerplant at Kharbat al-Samra valued at a \$300mn construction cost.<sup>95</sup> The project was offered on a 25-year build-own-operate (BOO) model, meaning the private company would incur all costs in return for NEPCO’s guarantee of fuel availability and guarantee to either buy the electricity or pay a fee if not taken.

Though launched in 1999, NEPCO did not manage to award the IPP contract until 2004, and the terms had to be renegotiated away from the pure IPP model toward a hybrid<sup>96</sup>, but this did not stop Jordan from awarding three other IPPs subsequently with ‘encouragement’ from the IMF. After all, as figure 4.1 shows, from 2002 to 2009, peak capacity was dangerously high reaching record 99.2% in 2007.

---

<sup>94</sup> “Independent Power Producer”, *Energy Information Administration*, n.d., <https://www.eia.gov/tools/glossary/index.php?id=I>

<sup>95</sup> “Energy Companies Shy Away From Jordan IPP As Government Delays Decision On Gas”, *Middle East Economic Survey* 42, no. 31, August 1 1999, <http://archives.mees.com/issues/649/articles/26131>

<sup>96</sup> “US/Turkish Consortium Wins Jordan Al-Samra IPP Contract”, *Middle East Economic Survey* 47, no. 29, July 19, 2004, <http://archives.mees.com/issues/389/articles/16293>

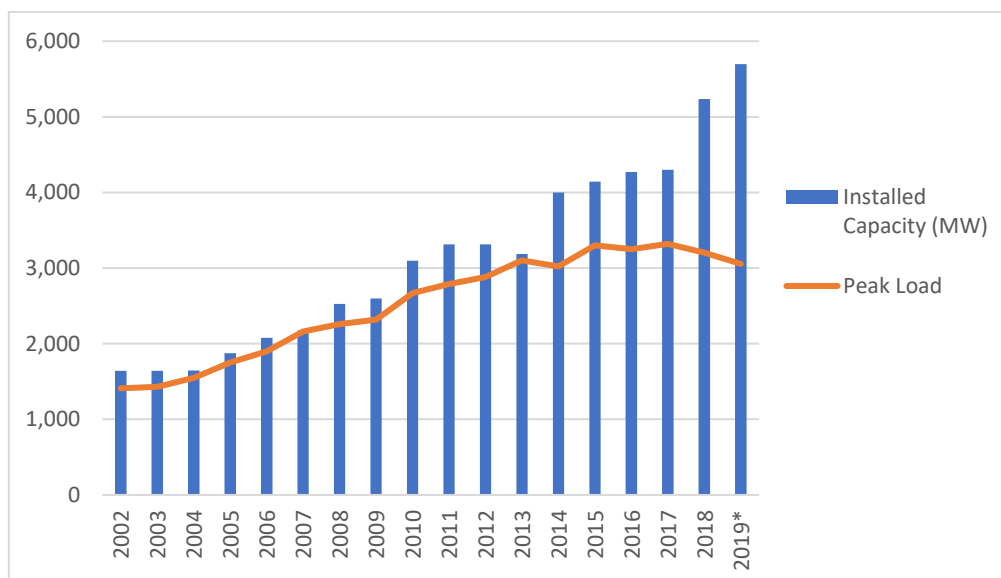


Figure 4.1: Jordan's Peak Energy Demand vs. Total Capacity  
Source: NEPCO.

Even as Jordan was experiencing booming robust economic growth, it still lacked the finances to carry out major capex projects alone, and therefore turned again to the IPP model to boost its power sector:

Name	Operator	Size/type	Year started	Online	Fuel
IPP-1 (Amman East)	AES Jordan (USA)	CCGT/400M W	2007	2009	Gas/diesel
IPP-2 (Al Qatraneh)	Kepeco (Korea)	CCGT/373M W	2009	2012	Gas/fuel oil
IPP-3 (Amman Diesel)	Kepeco/Mitsubishi (Korea/Japan)	Internal combustion/543MW	2013	2015	Gas/diesel/fuel oil
IPP-4 (Al Manakher)	AES Levant/Mitsui (US/Japan)	Internal combustion/240MW	2012	2013	Gas/diesel/fuel oil

Figure 4.2: Jordan's four IPPs  
Source: Company reports.

Returning back to figure 4.1, it is clear that despite robust growth in electricity consumption, the startup of IPP-1 in 2009 allowed Jordan to narrowly escape its power supply crunch and restore a comfortable buffer. The startup of IPP-2 and IPP-4 in 2013

allowed this buffer to fall expand to 20% - that is, peak load never exceeded 80% of total available capacity. But as the next section shows, the reliance on IPPs was far from perfect and facilitated a massive energy security crisis of its own.

#### **D. The Energy Crisis**

As explored in Chapter 2, *energy security* is a multifaceted concept that consists of several different variables. These not only include infrastructure constraints but also security of supply and price. This section will show how Jordan, despite shoring up its capacity crisis through IPP projects, exposed itself to other security threats that ushered in a major crisis in the 2010s – a crisis that forced it into an agreement to import gas from Israel’s Leviathan field in spite of public rage.

Throughout most of its history, Jordan’s primary energy mix (i.e. its total energy consumption) was almost exclusively crude oil (to be refined at Zarqa) and oil products (used for power generation, transport, heating, etc.). Only with the 1989 start-up of the Risha gas field in 1989 did natural gas enter the mix, and Risha’s modest output was burned at the small, 58MW Risha powerplant on the Iraqi frontier. This carries several important implications. First, Jordan’s near total reliance on oil heavily exposed it to price fluctuations – and because the Jordanian government sets prices and subsidizes consumption, during periods of high oil prices the government tends to not raise prices in line with commensurate changes. Indeed, the spike in oil prices in the 1980s was a key driver of Jordan’s debt on which it ultimately in 1989. The second implication of Jordan’s reliance on oil was that it remained heavily reliant on regional producers to provide a steady stream of crude, and therefore was exposed disruptions. Saudi Arabia traditionally supplied Jordan via the Tapline, but shipments were

indefinitely suspended in 1990 over both back payments and King Hussein's controversial decision to denounce the US-led coalition in the first Gulf War.<sup>97</sup> This led Jordan to turn to Iraq for heavily discounted (and controversial) crude imports in the 1990s,<sup>98</sup> reverting back to imports via cargoes received at Aqaba) from Saudi Arabia and elsewhere post-2003.<sup>99</sup> Only in 2019 Jordan restarted crude imports from Iraq. Current volumes lie around 10,000 b/d.

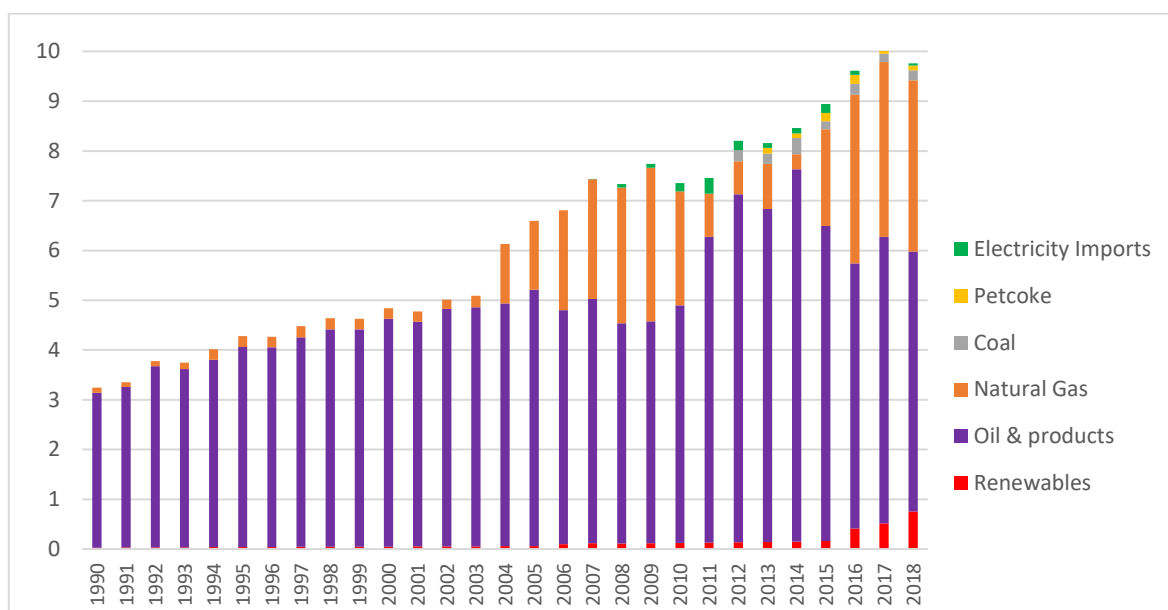


Fig. 4.3: Jordan Primary Energy Mix (million tons of oil equivalent per year)  
Source: IEA, Ministry of Energy and Natural Resources.

The third (and most important for our purposes) implication of Jordan's near total reliance on oil imports was the uncompetitive price of electricity generation, which

<sup>97</sup> Alan Cowell, "War in the Gulf: Jordan; Jordanian Ends Neutrality, Assailing Allied War Effort", *New York Times*, February 7, 1991, <https://www.nytimes.com/1991/02/07/world/war-in-the-gulf-jordan-jordanian-ends-neutrality-assailing-allied-war-effort.html>

<sup>98</sup> Walid Khadduri, "Iraq: Jury Still out on Iraqi Smart Sanctions", *Middle East Economic Survey* 44, no. 26, June 25, 2001, <http://archives.mees.com/issues/540/articles/22511>

<sup>99</sup> "Jordan Receives First Cargoes of Saudi Crude", *Middle East Economic Survey* 46, no. 16, April 21, 2003, <http://archives.mees.com/issues/428/articles/17953>

was a key reason why Jordan initially struggled to attract private investment for its IPPs. Thus in the 1990s, Jordan began eyeing a gas import agreement with neighboring (and gas producing) Egypt that would enable Jordan's power sector to transition to far cheaper natural gas for power generation. Talks began in 1995, but it took until 2001 for Jordan and Egypt to agree to a framework for cooperation.<sup>100</sup> The deal envisaged an "Arab Gas Pipeline" that would run from Egypt's Shaikh Zoueid near al-Arish down the Sinai and across the Red Sea to Aqaba where it would then run to Amman and northward into Homs, Syria where a spur pipeline would run to Beddawi in North Lebanon (figure 4.4). Eventually, such was the plan, it would run to Turkey.

#### *Arab Gas Pipeline*

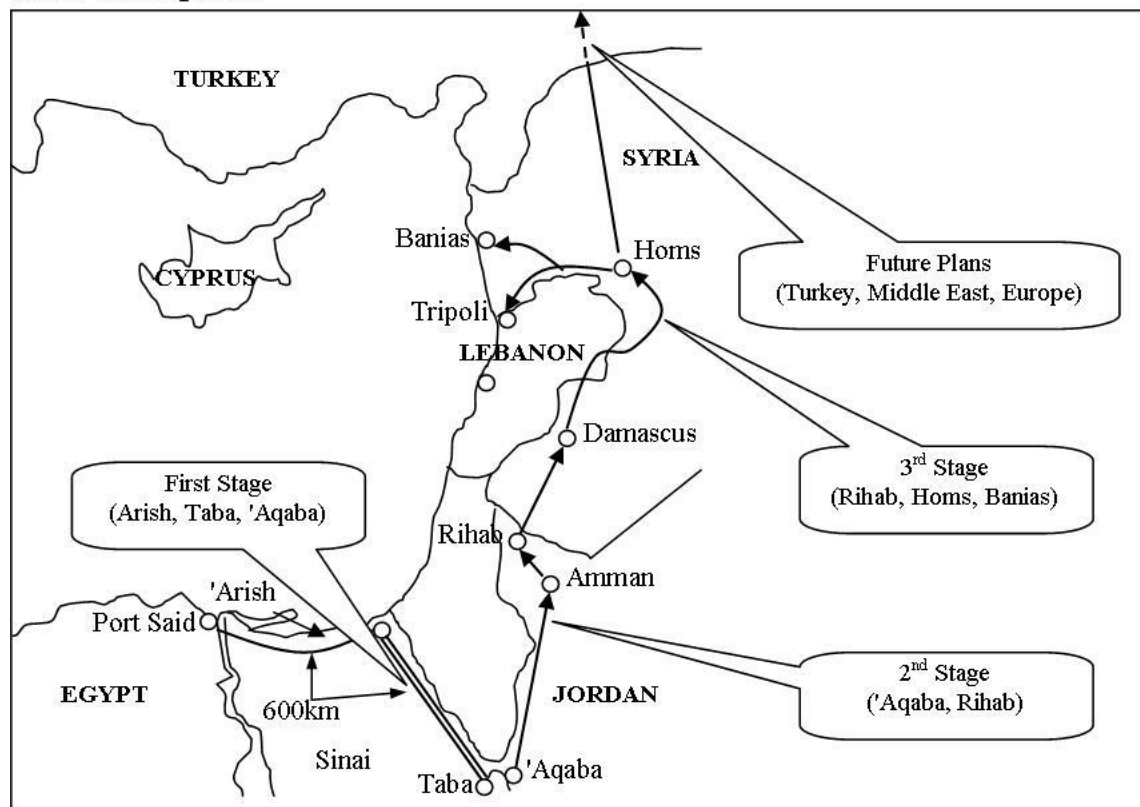


Figure 4.4: Map of Arab Gas Pipeline  
Source: MEES.

<sup>100</sup> "Jordan, Egypt Sign Gas Pipeline Agreement As First Stage Of Regional Distribution Network", *Middle East Economic Survey* 44, no. 25, June 18, 2001, <http://archives.mees.com/issues/539/articles/22484>



Jordan inaugurated phase-1 in 2003 receiving Egyptian gas volumes to its steam powerplant at Aqaba; by 2005, Jordan was planning to expand phase-2 to its power fleet in the country’s north – and in doing so cut the country’s electricity bill by 50%, enabling it to completely remove domestic energy subsidies by 2008.<sup>101</sup> With phase-2 complete and gas flowing in January 2006, Jordan had cut its energy import bill by \$500mn a year – an impressive feat given Jordan’s entire budget deficit in 2005 was \$780mn. The new gas imports system also drove down power generation costs, which enticed foreign companies to push ahead with the aforementioned IPP plants. By 2009 – which one could call a ‘golden year’ for Jordan’s energy sector – NEPCO was burning low cost gas for 91% of its conventional power generation (figure 4.4) which brought Jordan’s fuel imports bill to just \$2.3bn (figure 4.5).

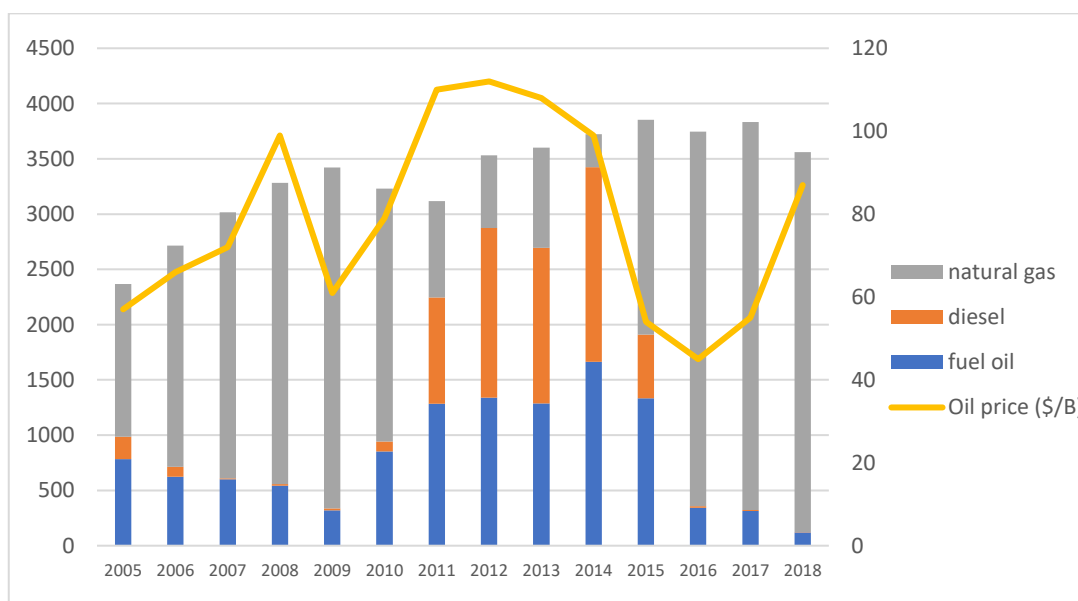


Fig. 4.5: Jordan Fossil Fuel Consumption ('000 Tons a year)  
Source: Ministry of Energy and Natural Resources

<sup>101</sup> “Jordan’s Petroleum Products Subsidies To End By 2008”, *Middle East Economic Survey* 48, no. 28, July 11 2005, <http://archives.mees.com/issues/335/articles/13825>

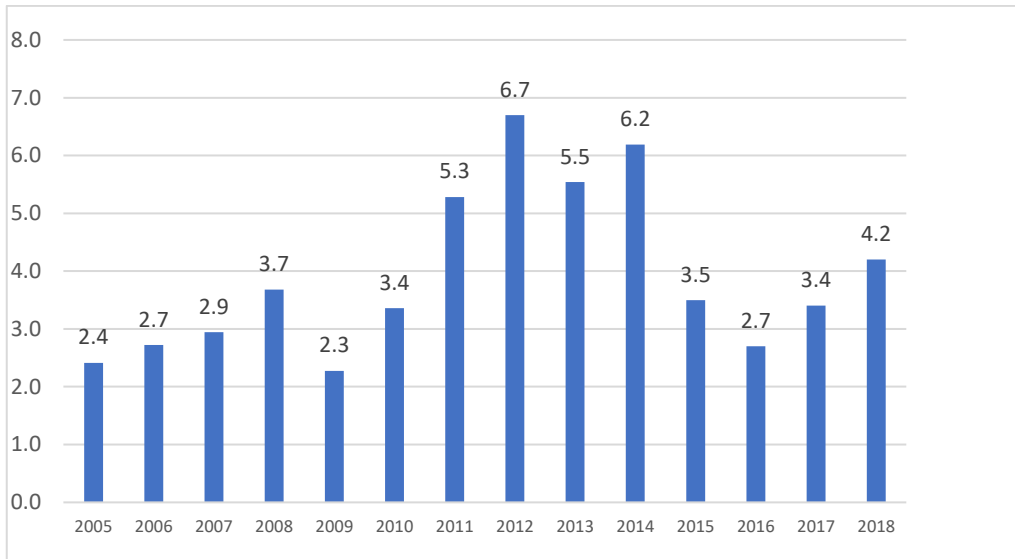


Figure 4.6: Jordan Annual Fuel Import Bill (\$bn)  
Source: World Bank

Unfortunately for Jordan’s energy sector, 2009 was to be the highpoint for natural gas imports from Egypt, which peaked at 305mn cfd (figure 4.7).

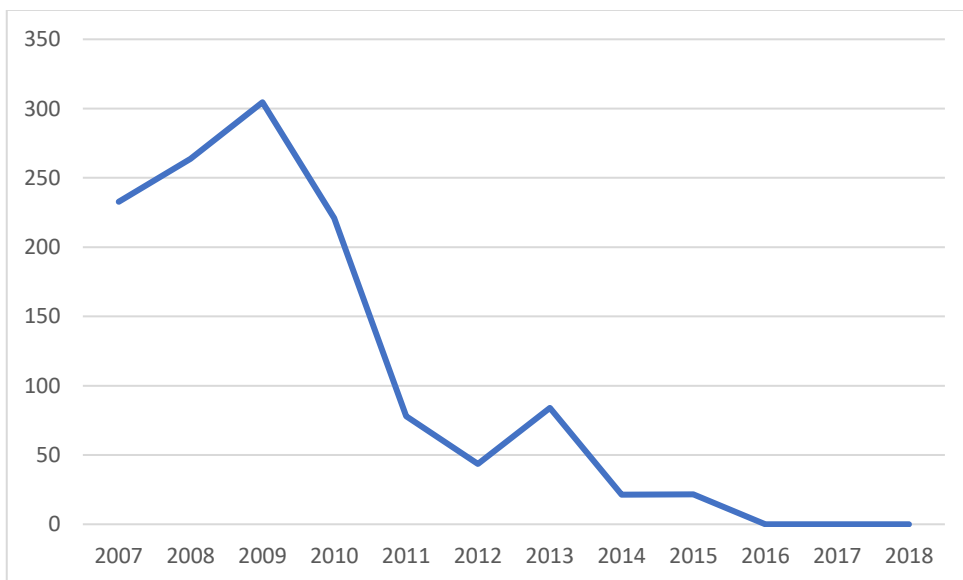


Figure 4.7: Egyptian Gas Exports to Jordan (million cu ft per day)  
Source: Ministry of Energy and Natural Resources

In 2010, natural gas flows declined to 221mn cfd because Egypt’s domestic gas surplus had begun to slip leaving insufficient gas volumes to meet its contractual gas export

commitments. Jordan's overreliance on one energy source was suddenly causing an energy security crisis.

The situation grew significantly worse in 2011 following the beginning of the Arab Spring and the overthrow of Egyptian President Hosni Mubarak in February 2011. Egypt's security situation – particularly in the Sinai Peninsula – escalated precipitously leading to routine attacks on Egypt's pipeline infrastructure; four had occurred by July.<sup>102</sup> The militants claimed that the attacks were due to Egypt's controversial gas exports to Israel, but since the feeder pipeline across the Sinai to Arish fed exports to both Israel and the Arab Gas Pipeline, exports to Jordan were halted in the process. Egypt continued to make repairs and attempt to restart exports, but between Egypt's declining gas surplus (which had all but disappeared by 2014-15) and routine pipeline attacks, volumes from Egypt declined to 78mn cfd in 2011, 43mn cfd in 2013, before halting altogether in late 2015. From 2009 to 2012, the percentage of natural gas used for power generation fell from 90%+ to just 19% - before in 2014 hitting the lowest since gas imports began, just 8%.

The effect on Jordan's finances were catastrophic, and in many ways, the combination of gas imports halting along with other factors (record oil prices, the need for post-Arab Spring spending, etc.) created a perfect storm. To make matters worse, between 2009 and 2011 oil prices jumped from \$61/B to \$110/B – this meant all of Jordan's oil imports (not just for electricity, which accounts for about 1/3<sup>rd</sup> of Jordan's total oil use) nearly doubled in price. And because the Egyptian gas imports were on a long-term fix-rate contract (i.e. not linked to the oil price) Jordan would have been

---

<sup>102</sup> Jack Shenker, "Egyptian pipeline hit by fourth explosive attack since January", *The Guardian*, July 12 2011, <https://www.theguardian.com/world/2011/jul/12/egypt-pipeline-explosion-fourth-attack>

shielded had volumes continued. Fuel imports cost \$2.3bn in 2009 but jumped to a record \$6.7bn in 2012, which accounted for a crippling 22% of GDP. As figure 4.9 shows, government subsidies ballooned from \$500mn in 2010 to \$1.7bn in 2012, or 18% of government spending. Fuel subsidies accounted for the overwhelming majority of this figure.

	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018E
<b>Revenue</b>	<b>6.4</b>	<b>6.6</b>	<b>7.6</b>	<b>7.1</b>	<b>8.1</b>	<b>10.2</b>	<b>9.6</b>	<b>10.0</b>	<b>10.5</b>	<b>11.1</b>
tax revenues	4.1	4.2	4.3	4.7	5.1	5.7	5.8	6.0	6.1	6.4
non-tax revenues	1.8	1.8	1.6	1.9	2.1	2.8	2.6	2.8	3.3	3.4
foreign grants	0.5	0.6	1.7	0.5	0.9	1.7	1.3	1.2	1.0	1.3
<i>% total</i>	7%	9%	22%	6%	11%	17%	13%	12%	10%	12%
<b>Spending</b>	<b>8.5</b>	<b>8.0</b>	<b>9.6</b>	<b>9.7</b>	<b>10.0</b>	<b>11.1</b>	<b>10.9</b>	<b>11.2</b>	<b>11.5</b>	<b>12.3</b>
current	6.5	6.7	8.1	8.7	8.5	9.5	9.3	9.8	10.0	10.8
civil services	1.5	1.6	1.8	2.1	2.2	2.7	2.7	2.8	2.8	2.8
military/security	2.3	2.4	2.5	2.5	2.5	2.7	2.8	3.1	3.3	3.6
subsidies	0.5	0.5	1.4	1.7	1.0	0.9	0.6	0.5	0.4	0.5
<i>% total</i>	6%	6%	14%	18%	10%	8%	6%	4%	4%	4%
Other	2.1	2.1	2.4	2.5	2.8	3.1	3.1	3.3	3.5	3.9
capital	2.0	1.4	1.5	1.0	1.4	1.6	1.6	1.5	1.5	1.4
<b>Surplus/Deficit</b>	<b>-2.1</b>	<b>-1.5</b>	<b>-1.9</b>	<b>-2.6</b>	<b>-1.9</b>	<b>-0.8</b>	<b>-1.3</b>	<b>-1.2</b>	<b>-1.1</b>	<b>-1.1</b>

Figure 4.9: Jordan's Public Finances (\$ billion)  
Source: Ministry of Finance.

Even in the IPP contracts Jordan bore the costs rather than the power producers because the agreements had stipulated that NEPCO pay for the fuel. So consequently, NEPCO's debt burden grew out of control. As figure 4.10 shows, between 2011 and 2014 NEPCO ran \$1bn consecutive operating losses, topping \$1.5bn in 2014.

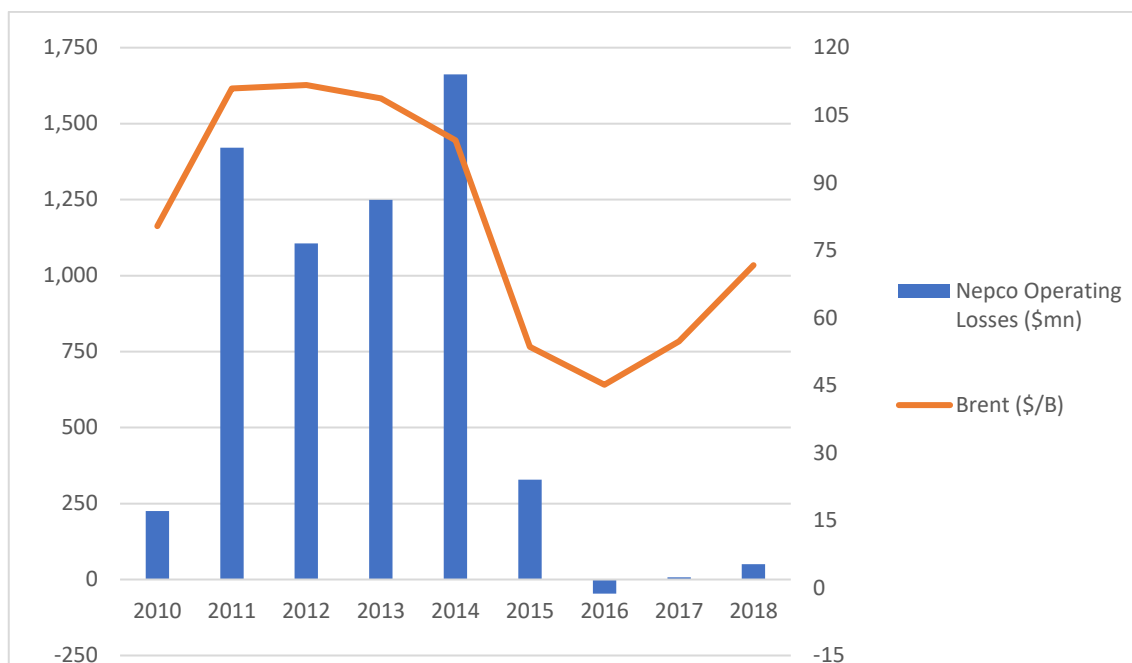


Figure 4.10: NEPCO Operating Losses (\$ million)

Source: IMF.

And although NEPCO is a publicly listed company, the government remains the majority shareholder and is therefore on the hook for the debt. All told, NEPCO's debt accounts for 18% of Jordan's total debt and has required extensive financing to cover.<sup>103</sup> This in turn was a key reason why Jordan's government debt ballooned from 2011 onward.

<sup>103</sup> International Monetary Fund, *Jordan Country Report*, no 19/127, May 2019, <https://www.imf.org/en/Publications/CR/Issues/2019/05/08/Jordan-Second-Review-Under-the-Extended-Arrangement-Under-the-Extended-Fund-Facility-46879>

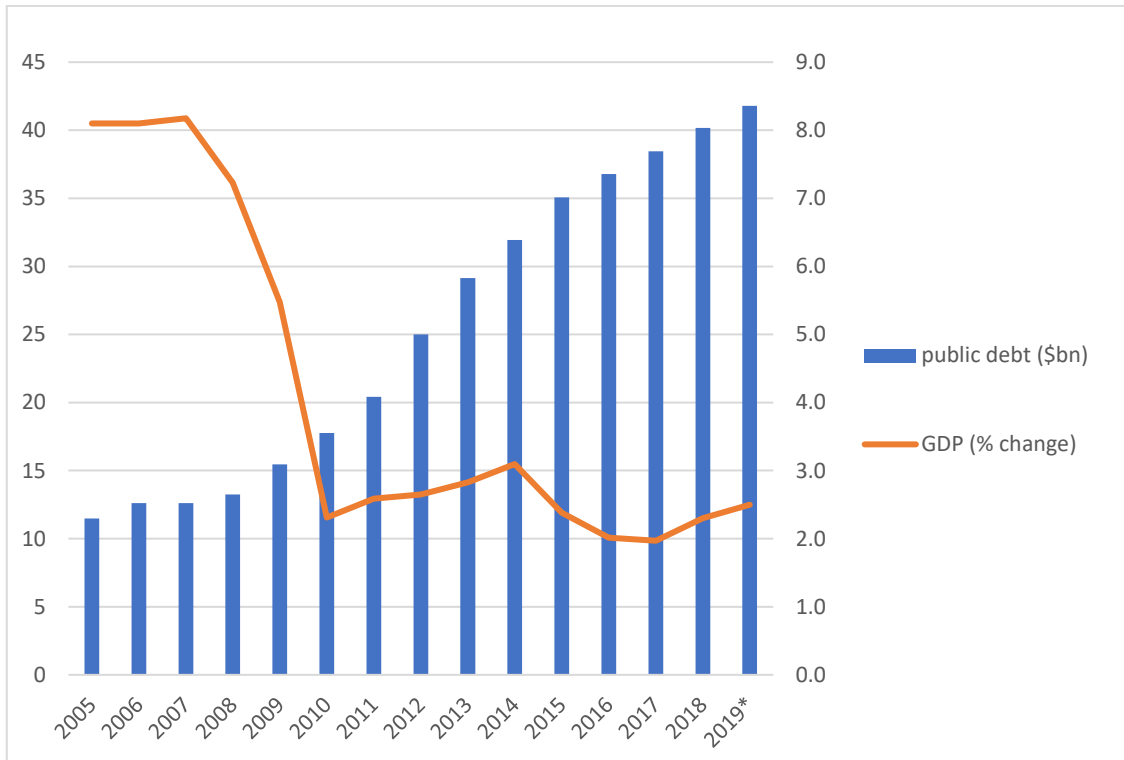


Figure 4.11: Jordan's Debt (\$ billion) and Growth (% GDP)  
Source: IMF.

## E. Political Crisis

These previous sections have shown the energy crisis that Jordan faced from around 2006 to 2015 was something of a perfect storm: low spare generation capacity led to overreliance on IPPs; the loss of Egyptian gas resulted in a switch to oil products; and to make matters worse, the oil price soared to \$100/B+. But the loss of Egyptian gas was not the only crisis to hit Jordan in 2011 – it also faced mounting political pressure due to long-standing protest movements which fed into the Arab Spring, resulting in some of the largest anti-government demonstrations in decades. Thus, in order to understand how this mountain of debt and energy sector spending fits into the core of this thesis, we must look at how these developments and threats to Jordan's energy security fit into the broader political realities Amman was facing post-2011. This brief

section gives a summary of the political pressure the Hashemite monarchy experienced during the Arab Spring protests and the measures it took to counter them.

As Tamer Khorma notes, socio-economic grievances along with factional tensions were present in Jordanian politics even before the Arab Spring.<sup>104</sup> Protests had emerged out of the 1988-89 crisis targeting ongoing efforts to remove subsidies and privatize key state institutions that had traditionally employed the monarchy's East Jordanian support base. Ministry of Agriculture workers staged a protest movement in 2004; workers at the al-Aqaba port organized major opposition in 2009; and a teacher's strike in 2010 attracted considerable support from other aggrieved parties. In all of these cases, the ongoing liberalization efforts were to some extent at the center of the protests. Most troublingly for the monarchy, discontent in the 2000s was increasingly emerging from East Bankers. The emergence of the National Committee of Retired Servicemen (NCRS) in the last 2000s, emerged as a vocal critic to King Abdullah's military reforms and was emblematic of the brewing coalition of opposition factions. Tariq Tell writes that the NCRS "collaborated with a widening social movement that took on a distinctly East Bank nationalist coloring, playing a crucial role in precipitating Jordan's version of the Arab Spring uprisings that begin in 2010."<sup>105</sup> The resulting protest movement, known as the *Hirak*, combined the NCRS, elements of the Palestinian-Jordanian business establishment, the Islamic Action Front, opposition parliamentarians, and left-wing activists to form an "ad hoc alliance" brimming with discontent that would confront the neo-liberal/monarchical alliance that had emerged over King Abdullah's

---

<sup>104</sup> Tamer Khorma, "The Myth of the Jordanian Monarch's Resilience to the Arab Spring", *SWP Comment* 33, (2014): 1-8.

<sup>105</sup> Tariq Tell, "Early Spring in Jordan: The Revolt of the Military Veterans", *Carnegie Middle East Center*, November 4, 2015, <https://carnegie-mec.org/2015/11/04/early-spring-in-jordan-revolt-of-military-veterans-pub-61448>

first ten years in power.<sup>106</sup> On the eve of the Arab Spring, the November 2010 elections saw further activism in the form of boycotts by the Muslim Brotherhood and NCRS, which caused the incumbent government to collapse.

From 2011 until 2013, Jordan experienced hundreds of protests and strikes. Various issues emerged – from democratization to anti-normalization of relations with Israel – reflective of the wide variety of different groups involved. Notably for our purposes, in late 2012 the government (under IMF-urging) attempted to eliminate fuel subsidies causing mass protests across the country.<sup>107</sup> These were amongst the most substantial of the period and included demands that Abdullah to abdicate the throne. The proposed cut – which occurred at the peak in global oil prices – would have helped Jordan cut its \$2.3 billion subsidies tab and transferred these costs to the public; the total budget deficit for 2012 was \$5bn. This episode is a key example of how threats to energy security can directly lead to pressure on the monarchy itself.

The protests were substantial for Jordanian standards but remarkably peaceful when compared to those in neighboring Syria and Egypt. King Abdullah sacked several governments between 2011-2012 and promised democratization reforms a la 1989, but the general consensus amongst scholars is that Abdullah failed to deliver on these promises and instead managed to essentially bribe his way out of genuine reforms by easing austerity cuts and increasing government spending. Lars Berger notes the impact grants and soft loans from the GCC, European Union and United States played in bolstering Jordan's spending power, writing that Jordan benefitted from the strong

---

<sup>106</sup> Ibid, 7.

<sup>107</sup> “Jordan Lifts Fuel Subsidies, Sparks Protests”, *Reuters*, November 13, 2012, <https://www.reuters.com/article/jordan-gasoline-prices/update-2-jordan-lifts-fuel-subsidies-sparks-protests-idUSL5E8MDCKK20121113>



relationships it had with the GCC and Saudi Arabia in particular, which allowed these fellow Arab monarchies to come to the rescue and offer Jordan crucial aid.<sup>108</sup> Ronen Yitzhak makes the point that whilst foreign rents allowed Abdullah to offer economic concessions, it was also Abdullah's ability to play divide-and-conquer with the opposition that helped diffuse its unity by 2013.<sup>109</sup>

At the end of the day, the promise of reform and democratization largely fell flat in Jordan, and the pre-Arab Spring protester demands have remained unanswered until the present day. At the same time, the pressure put both on parliament and the palace left a lasting effect and no doubt changed the calculus on the regime's approach to long-term energy security.

---

<sup>108</sup> Lars Berger, "Democratic Contagion versus Authoritarian Resilience: Jordan's Prospect for Change", in Fahed al-Sumait et al eds., *The Arab Uprisings* (Lanham: Rowman & Littlefield, 2015), 241-260.

<sup>109</sup> Ronen Yitzhak, "Between Reform and Islam: The Arab Spring in Jordan 2011-2014", *Democracy and Security* 14, no. 1, 37-8.

## CHAPTER V

### ENERGY SECURITY & THE JORDAN-ISRAEL DEAL

The purpose of this chapter is to tie together the themes hitherto laid out in this thesis and explain why the Jordanian regime was compelled to sign a controversial deal to import natural gas from Israel – even in spite of deteriorating relations and political pressure. I will argue in this chapter that despite efforts at domestic energy production and LNG imports as a solution, the Jordanian monarchy calculated that the energy security and financial benefits of the deal outweighed the costs and provided Jordan with a significant boost to long-term security in its struggling energy sector. Having already overviewed the pre-2015 energy crisis and the political pressure emanating from the 2009-2013 protests, I will first summarize the various solutions the government pursued to solve the energy crisis, followed by a thorough analysis as why and how it pursued the import deal with Israel. I will then look at the political reactions and implications of the deal, followed by a summary of how the project came to completion and began delivering Jordan gas on January 1, 2020.

#### **A. Energy Solutions**

As chapter 4 outlined, Jordan tackled its perceived energy sector flaws in the 1990s and 2000s by privatizing key state assets, attempting to cut energy subsidies, and build four IPP powerplants. But these reforms could not shield Jordan from the key threats to its energy security – namely its overwhelming reliance on foreign imports and consequently its exposure to fluctuations in oil prices. Consequently, in the early late

2000s and 2010s amid the height of Jordan's energy crisis, the kingdom drew up several plans to reduce its reliance on foreign energy and minimize its exposure to oil.

In 2007, Jordan enacted its National Energy Strategy Plan (2007-2020) with the aim of revitalizing its energy sector. The goals of the plan were to: 1) diversify energy resources; 2) increase share of local energy in the energy mix; 3) reduce dependency on imported oil; and 4) enhance environmental protections. Crucially, the three means to achieve these goals were: 1) maximizing the utilization of domestic resources (oil shale, natural gas); 2) expand renewable energy development; 3) pursue nuclear energy generation.<sup>110</sup> Each one of these steps needs to be analyzed in depth, and how each of these goals failed to live up to expectations, which necessitated the gas imports from Israel.

The first key element of Jordan's plan was to increase domestic fossil fuel resources. In 2009, Jordan brought supermajor BP onboard to develop the Risha natural gas field which has been producing 20-40mn cfd (about 10-20% of domestic electricity generation demand) since 1989. The plan was for BP to invest \$8-10bn to bring output to between 330mn cfd (incidentally current Jordanian demand) and 1bn cfd (enough to be a sizeable exporter).<sup>111</sup> Unfortunately for Jordan, BP walked away from the field in 2014 before output could be sizably increased, citing "poor quality" of the reserves.<sup>112</sup> This meant Jordan's "gas lifeline"<sup>113</sup> was unlikely to be developed by a proficient

---

<sup>110</sup> Julia Sahawneh, "Energy Policy Country Report: Jordan", *Ministry of Energy and Natural Resources*, June 2, 2015,

<https://eneken.ieej.or.jp/data/6206.pdf>

<sup>111</sup> "Jordan and BP Sign Risha Gas Development Agreements", *Middle East Economic Survey* 52, no. 44m November 2, 2009,

<http://archives.mees.com/issues/111/articles/4282>

<sup>112</sup> "Jordan Left With Few Gas Options After BP Abandons Risha", *Middle East Economic Survey* 57, no. 4, January 24, 2014,

<http://archives.mees.com/issues/1514/articles/51038>

<sup>113</sup> *ibid.*

company and therefore remain marginal, which it has until this day. Jordan's other key potential fossil fuel resource is its vast oil shale reserves (not to be confused shale oil, the light oil/gas resource produced by fracking to great effect in the United States). Oil shale, of which Jordan boasts some of the largest global reserves, is essentially a kerogen rock from which liquid hydrocarbons can be extracted through a costly and energy intensive process. One can do one of two things with oil shale – it can either be approached underground using enhanced oil recovery (EOR) techniques to produce crude oil, or it can be strip-mined and burned in a power plant similar to coal. According to oil expert Morgan Downey, “the cost of mining, transport, crushing, heating and adding hydrogen, which requires huge quantities of water and energy, along with the disposal of the large quantities of waste material, make shale oil production prohibitively expensive and logistically a waste of time.”<sup>114</sup> Nonetheless, Jordan has pursued its oil shale reserves with great vigor through two projects. The first is called Josco – a 50:50 Joint Venture between Royal Dutch Shell and the Jordanian government – and is attempting to produce crude oil from Jordan's shale deposits. This has not yet proven anywhere near commercially viable. A second project at Attarat will start production in mid-2020, and will supply 15-20% of Jordan's local power needs through a 470MW shale-to-power project operated by a Malaysian-Chinese-Estonian consortium. This will provide a substantial boost to Jordan's domestic energy production, but is also costly and environmentally dirty.

The second element of Jordan's implementation plan was to substantially increase the share of renewable energy in Jordan's energy mix. The goal was a 10%

---

<sup>114</sup> Morgan Downey, *Oil 101* (New York: Wooden Table Press, 2009), 50.

energy contribution by 2020 per the Renewable Energy and Energy Efficiency Law passed in 2012. Jordan's south – particularly in the Ma'an governorate– is excellent for both solar and wind energy, which the kingdom began pushing forward in with the first renewables bid round in 2015. Jordan overshot its 10% goals and booked huge success in its renewables push, closing in on 15-20% installed renewables capacity in 2019 (figure 5.1).

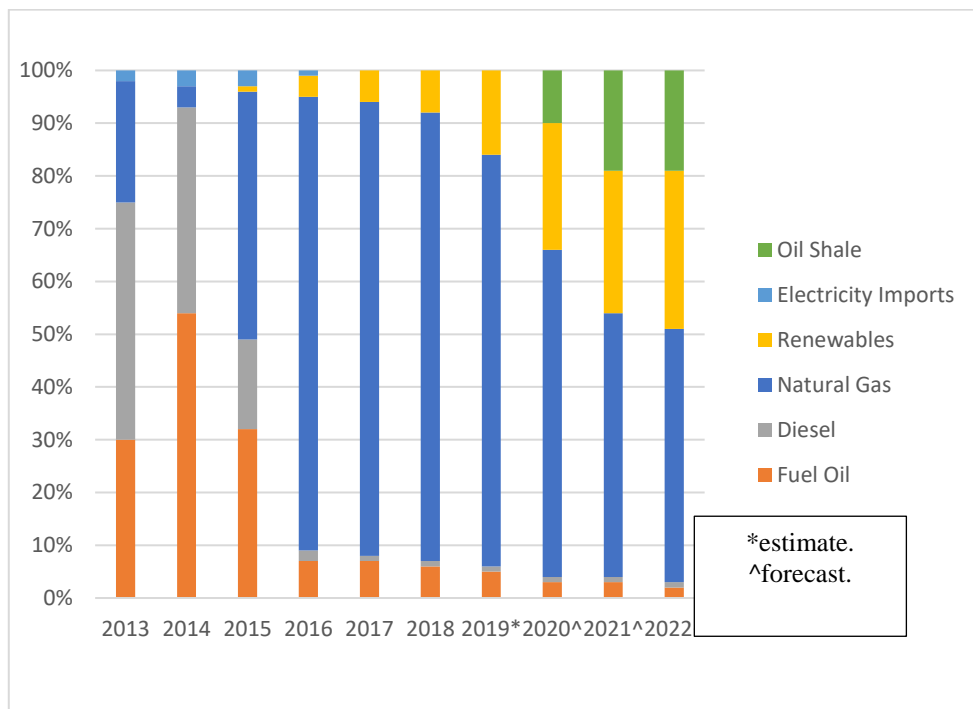


Fig. 5.1: Electricity fuel by source %  
Source: NEPCO, MEES.

The story of renewable energy in Jordan truly is a remarkable story. Behind Morocco, Jordan is the largest producer (by a percentage of total production) of electricity from renewables in the region. This was in no small part due to the increased financing made available for renewables projects in the 2010s from development banks like the World

Bank's International Finance Corporation (IFC) and the European Bank for Reconstruction and Development (EBRD).<sup>115</sup>

At the same time, renewables cannot solely replace conventional power sources due to their inconsistent generation and the high load on the transmission grid. For this reason, Jordan's energy implementation plan also included a push for domestic nuclear energy. Jordan established its Committee for Nuclear Strategy in 2007 followed by the Jordan Atomic Energy Commission (JAEC) in 2008. Jordan signed several Memorandums of Understanding (MoUs) with different countries but settled on a intergovernmental agreement in 2015 with Russia under which Jordan would hold 50.1% and Russia's Rosatom 49.9% in a 2GW (2 1GW units) project at Qusayr Amra north east of Amman.<sup>116</sup> The total cost was \$10bn with a 2024 first unit startup. Unfortunately, the lack of water supply and project costs saw the JAEC pull out in 2018, instead opting for a plan that would utilize small module reactors (SMRs). A separate plan with the Chinese suggested a turn toward high temperature gas-cooled reactors (HTRs) in 2018, but these plans also look excessively costly – particularly when compared to renewables.<sup>117</sup>

By the early 2010s, and in the midst of Jordan's energy crisis, it became clear that progress on domestic gas, shale, renewables and nuclear were not moving fast

---

<sup>115</sup> "Jordan: Bye-Bye Conventional Powergen?" *Middle East Economic Survey* 61, no 5, December 14, 2018, <https://www.mees.com/2018/12/14/power-water/jordan-bye-bye-conventional-powergen/eee8bda0-ffbb-11e8-af70-3fd7fcd7bb20e>

<sup>116</sup> "Jordan Gets Russian Backing For Nuclear Plans", *Middle East Economic Survey* 58, no 14, April 3, 2015, <http://archives.mees.com/issues/1576/articles/52595>

<sup>117</sup> Ali Ahmad & M.V. Ramana, "HTRs will not help establish nuclear power in Jordan", *Jordan Times*, May 10, 2018, <https://www.jordantimes.com/opinion/ali-ahmad-and-m-v-ramana/htrs-will-not-help-establish-nuclear-power-jordan>

enough. And if NEPCO's power fleet did not transition away from diesel and fuel oil back toward gas immediately, it would bankrupt the kingdom. The only option Jordan had was to pursue a floating storage regassification unit (FSRU) at Aqaba. An FSRU is essentially a floating offshore vessel that receives liquified natural gas (LNG) from a LNG tanker, regassifies it, pumps it onshore via a subsea pipeline where it then enters either a natural gas pipeline system or is delivered directly to a powerplant.<sup>118</sup> By 2013, LNG imports and Israeli gas from the recently brought online Tamar offshore gas field emerged as the only realistic alternatives to liquids imports.<sup>119</sup> That spring, Jordan signed two grant agreements with Kuwait – one for a permanent regassification facility at Aqaba and the second to study FSRU. By August, Jordan had signed a contract with Golar LNG, a Bermuda-registered FSRU construction company for a 10-year, \$445m FSRU deal that would have a regasification capacity of around 500mn cfd<sup>120</sup> – well above total demand.

In early 2015, Jordan signed a gas supply contract worth about \$500mn a year for 150mn cfd of gas, and the first cargo arrived in May.<sup>121</sup> The initial Shell quantities were insufficient, so Jordan signed an additional deal with Shell to import 78 cargoes from 2016-2019. Additional agreements were signed for other volumes; Jordan's final imports from the FSRU are scheduled to take place this year (2020).

---

<sup>118</sup> For further details see Michael D. Tusiani & Gordon Shearer, *LNG: A Non-Technical Guide* (Tulsa: Penwell, 2007), 165-194.

<sup>119</sup> "Jordan: Gas Needed, No Good Options", *Middle East Economic Survey* 56, no. 25, June 21, 2013, <http://archives.mees.com/issues/1483/articles/50295>

<sup>120</sup> "Golar LNG to Supply FSRU Units to Jordan, Kuwait", *Middle East Economic Survey* 56, no. 32, August 9, 2013, <http://archives.mees.com/issues/1490/articles/50468>

<sup>121</sup> "Jordan To Receive First LNG Cargo On 25 May," *Middle East Economic Survey* 58, no 21, May 22, 2015, <http://archives.mees.com/issues/1583/articles/52765>

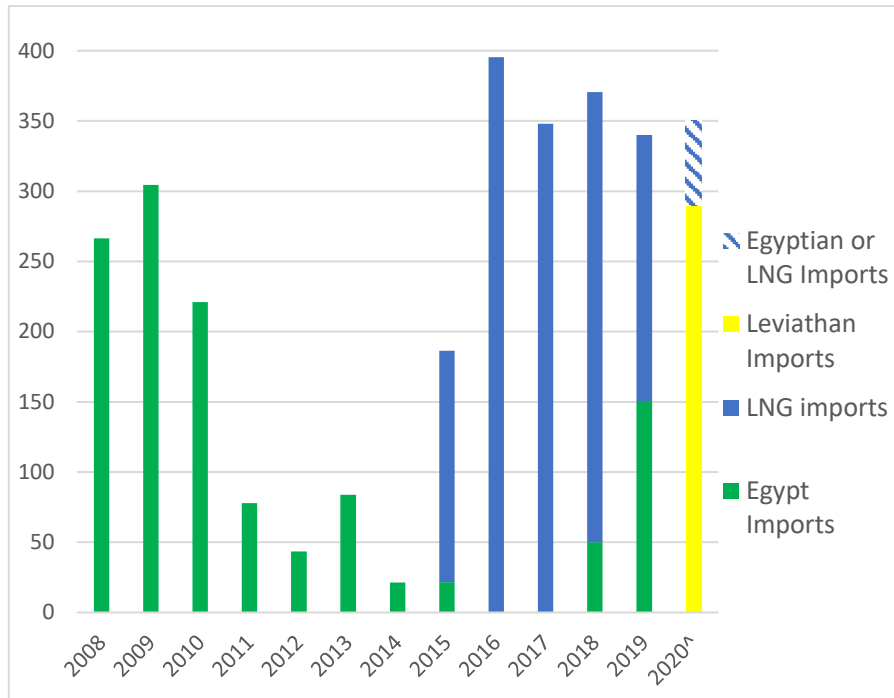


Figure 5.2: Jordan Gas Imports (mn cfd)  
 Source: NEPCO, Ministry of Energy, MEES.

The attentive reader may be asking an obvious question here. If Jordan signed a ten-year deal with Golar effective 2015 (technically 5 years with a no-penalty 5-year options clause), and managed to run its power fleet on natural gas almost entirely from 2016 onward, why did Jordan still opt to import Israel gas? The answer is twofold and fits closely with the two main component of energy security: security of supply and price.

### B. The Initial Jordan-Israel Agreement and Blowback

After the discovery of Tamar in 2009 and Leviathan in 2011 in Israeli waters, followed by the interruptions in Egyptian volumes in 2011, it started to become a self-evident possibility to industry experts that Jordan might turn to Israel to replace Egyptian imports. Speaking to MEES in October 2011, Israeli energy consultant Dr Amit Mor said the following:



“Jordan is thinking to either build an LNG regasification plant south of Aqaba or contract a 2-4 bcm/y FSRU that could be in place within two years’ time and which I think is logical. Economically, I think it makes a lot of sense for Jordan to import gas from Tamar, but this will depend upon political considerations from the Jordanian government.”<sup>122</sup>

A report from the *New York Times* confirms that by 2011, the Obama Administration was pressuring King Abdullah to import from Israel.<sup>123</sup> As Secretary of State, Hillary Clinton reportedly broached the topic with King Abdullah in 2011, and top State Department energy diplomat Amos Hochstein approached Noble Energy in early 2012 to facilitate a meeting. Talks quietly dragged on for two years at the Royal Court in Amman involving Noble executives, Israeli, Jordanian and American officials.<sup>124</sup> King Abdullah, the report notes, was hesitant to agree citing the potential domestic backlash – particularly given ongoing protests. Interestingly, the US Secretary of State John Kerry was found to own \$1 million in Noble Energy stock when he assumed the position in 2013.<sup>125</sup> Noble was also a significant donor to the Clinton Foundation, giving \$250,000.<sup>126</sup>

As mentioned in a previous chapter, a small gas import deal between Arab Potash Company (and Arab Bromine Company) and the consortium operating Israel’s first major gas field, the 11 tcf Tamar offshore field, was signed in February 2014. This

---

<sup>122</sup> “Israel Facing Electricity Challenge Prior To Tamar Field Coming On Stream”, *Middle East Economic Survey* 54, no 43, October 24, 2011, <http://archives.mees.com/issues/10/articles/318>

<sup>123</sup> Stanley Reed & Clifford Krauss, “Israel’s Gas Offers Lifeline for Peace”, *New York Times*, December 14, 2014, <https://www.nytimes.com/2014/12/15/business/energy-environment/israels-natural-gas-supply-offers-lifeline-for-peace.html>

<sup>124</sup> *Ibid.*

<sup>125</sup> Avi Bar-Eli, “John Kerry Held Up to \$1m in Noble Energy Stock”, *Haaretz*, June 25, 2015, <https://www.haaretz.com/israel-news/business/.premium-kerry-held-up-to-1m-in-noble-energy-stock-1.5374054>

<sup>126</sup> Johnathan Allen, “181 Clinton Foundation donors who lobbied Hillary’s State Department”, *Vox*, April 28, 2015, <https://www.vox.com/2015/4/28/8501643/Clinton-foundation-donors-State>

deal, while certainly making business sense for Arab Potash, can also be seen as a political litmus test for how the Jordanian public would react to a potential bigger deal with Israel. The contracted volumes were modest: 1.9bcm over 15 years, which works out to around \$500-600mn over the life of the contract.<sup>127</sup> At the time, there were some apprehensions over the deal; but because it was signed between a listed company and involved minimal infrastructure investment, it did not raise major headlines.

Given the smooth signing of the Arab Potash – Noble Energy agreement, a larger contract appeared less threatening. Moreover, by 2014, Jordanian’s energy crisis had continued to fester as oil prices peaked. So on September 3, 2014 NEPCO and Noble signed a non-binding letter of intent (LOI) that would see 1.6 tcf of gas delivered over 15 years starting in early-2018. Even from this early development, some key themes were already emerging. Israeli Energy Minister at the time Silvan Shalom called the deal “historic” and said it would “strengthen political and economic relations between the two countries.”<sup>128</sup> Noble Energy openly admitted that the US state department was taking an “active” role in the process. And the Jordanian government was silent on the issue.

It is important here to briefly mention the key architects on the Jordanian side in order to clarify what we mean when we talk about “Jordan” and the “Jordanians”. Clear from the reported negotiations is the fact that the decision to import Israeli gas came from the highest offices of the Jordanian government – the monarchy itself.

---

<sup>127</sup> “Jordan Takes Plunge With Israel Gas Deal”, *Middle East Economic Survey* 57, no 8, February 21, 2014,

<http://archives.mees.com/issues/1518/articles/51151>

<sup>128</sup> “Leviathan Development Gathers Pace As Partners Sign Third Sales Deal”, *Middle East Economic Survey* 57, no. 36, September 5, 2014,

<http://archives.mees.com/issues/1546/articles/51873>

Secretary of State Clinton was meeting directly with Abdullah as early as 2011, and NEPCO role in agreeing to the deal was essentially a rubber stamp procedure:

NEPCO's Director General is appointed by the Cabinet, which in turn is appointed by the king. The Minister of Energy is also an instrumental player, essentially carrying out the orders from above. The state energy institutions key to the agreement were thus under King Abdullah's control, and this helps explain why the decision-making process was straightforward and kept under wraps with little input from parliament or the public. It also gets at broader political divisions within Jordan. As Tariq Tell notes,

“The expanded elite that emerged [in the 20<sup>th</sup> century] has been invested in the Hashemites' Zionist connections since the early 1930s, and today forms the main prop of the otherwise unpopular peace treaty signed by King Hussein in Wadi `Arabah in 1994. Beyond the elite, the mass of the population (whether Palestinian or Trans-Jordanian in origin) remains deeply hostile to Israel.<sup>129</sup>

The implication here is that the same neoliberal reformists close to the king are the same faction pushing hard for the Israel gas deal, whereas the population (both ‘West and East Banker’) more broadly accounts for the widespread opposition to the agreement.

The announcement of the LOI was almost immediately met with consternation in Amman. On December 10, lawmakers in Jordan's (by design toothless) parliament passed a non-binding motion rejecting the deal, 107-13. 15 deputies threatened to resign if it went through and another 20 said they would start a motion of no confidence against the government should it go ahead with the agreement.<sup>130</sup> A spokesman for the Ministry of State, Mohammad Monami, issued a statement to quash rumors that the deal

---

<sup>129</sup> Tariq Tell, “On the Nature of the Hashemite Regime and Jordanian Politics: An Interview with Tariq Tell (Part 1)”, interview in *Jadaliyya*, August 22, 2012, <https://www.jadaliyya.com/Details/26928>

<sup>130</sup> “Jordan Politicians Slam Israel Gas Deal”, *Middle East Economic Survey* 57, no. 51/52, December 19, 2014, <http://archives.mees.com/issues/1562/articles/52234>

had already been ratified. “We respect lawmakers’ recommendations when discussing the issue, but the government, in the end, will take the decision that reflects positively on citizens and the country’s economy,” he said – a clear indication that the government was leaning toward overriding parliament’s concerns.<sup>131</sup> The incident came just a month after Jordan recalled its ambassador to Israel citing a brush up at the Al-Aqsa mosque in Jerusalem – which Jordan argued was a violation of the 1994 peace treaty.<sup>132</sup> And more importantly, just weeks after the July-August 2014 Israel-Gaza conflict that saw some 2,000 Palestinians killed.

Almost immediately after the LOI, activists began to work on strategies to oppose the agreement. Curtis R. Ryan notes that the opposition to the deal was not exactly spontaneous and emerged out of coordinated political action in late 2014:

“[t]he movement was well organized and drew together liberals, leftists, nationalists, and Islamists. It wasn’t a movement that immediately hit the streets, however. Instead, grassroots activists gathered for a meeting to plan a response. Rather than protests, they focused first on research. The government hadn’t been particularly forthcoming with information, so data and details were needed. A coordination committee worked with Platform, a London-based think tank, to get the details of the deal itself, including how Jordanian taxes would effectively go to Israel via the gas purchases. The coordination presented its findings at a press conference, setting the stage for the committee to become a movement.”<sup>133</sup>

He adds that “what was striking was the depth of resistance to the deal itself, and the reemergence of a broad and democratic opposition coalition for the first time since the early days of the Arab Spring.”<sup>134</sup> The campaign held its first of several conferences against the deal in late December 2014 – and was attended by trade unions, Pan-Arab

---

<sup>131</sup> *ibid.*

<sup>132</sup> John Reed, “Jordan recalls ambassador to Israel after violence at Jerusalem mosque”, *Financial Times*, November, 2014,

<https://www.ft.com/content/e8b9cf1e-64c0-11e4-ab2d-00144feabdc0>

<sup>133</sup> Curtis R. Ryan, *Jordan and the Arab Uprisings* (New York: Columbia University Press, 2018), 83.

<sup>134</sup> *Ibid.*

nationalist parties, *hirak* activists, NCRS members, and the Jordanian chapter of the Boycott, Divest and Sanction (BDS) movement. On March 6, 2015, a protest of at least 1000 protesters marched against it – a sizeable showing for Jordan – using the slogan “the gas of the enemy is occupation.” As Ryan notes, the activists chose the slogan for its double meaning: by buying Israeli gas, Jordanians were contributing to the ongoing occupation in Palestine; likewise, by converting almost all of its gas-fired power generation to Israeli gas, Jordan was essentially allowing itself to be submissive to sole reliance on Israel. Ryan quotes an activist Hisham Bustani, saying that “[t]his is the first ‘unified’ campaign since the Arab Spring on major issues like normalization.”<sup>135</sup> Throughout 2015, the campaign staged several different protests and marches including even a “trial” against the agreement.

Between the peak of protests in 2015 and the September 2016 agreement, there was relative quiet. It seemed that the protesters had been victorious despite no official word on the government cancelling the deal. In hindsight too it seems there would be good reasons for Jordan from an energy perspective to abandon the LOI. By 2015, it had successfully transitioned to gas burning via its FSRU; the collapse in oil prices in late 2014 also meant that Jordan’s oil bill fell by some 70%. Italian oil firm in 2015 ENI also discovered the Zohr offshore gas field in the Mediterranean – a ‘supergiant’ roughly the same size as Leviathan – which within three years would once again make Egypt a net gas exporter (and begin delivering gas to Jordan once again in 2018).

But here it is important to remember that energy security is essentially an art in risk mitigation. Had NEPCO and the monarchy’s inner circle known that oil (and gas)

---

<sup>135</sup> Ibid, 84.

prices would stay relatively depressed from 2015 until 2020, it may have made political sense to abandon the agreement. But after four years of crippling high oil prices and struggles to juggle fuel supplies, a few months of low crude prices were nowhere near enough to convince Jordan to pass on Israel's offer of relatively cheap gas over a long period. And no doubt, the monarchy calculated that if the initial firestorm of protests could be managed, that opposition would slowly die down.

### **C. The 2016 Contract and Reactions**

Between 2014 and 2016, the main hang-ups behind carrying the deal forward occurred on the Israeli side. Environmental protests, accusations of price fixing, and other 'red tape' delays hindered Leviathan's development altogether. Jordanian officials were maintaining just days before 2016 signing that the Israeli terms were insufficient and that concessions (like allowing greater trade with the West Bank) were necessary if an agreement was to ever be made.<sup>136</sup> For these reasons, it came as a surprise when on 26 September 2016 Israeli firm Delek Drilling (a partner at Leviathan) announced to the Tel Aviv Stock Exchange that Leviathan's partners had signed the 15 year, \$10bn deal to sell 45bcm – by far the biggest contract Israel had ever signed with an Arab country.

On the Israeli side, the narrative slipped into the typical parlance of mutual economic benefit and signs of warming relations between Israel and the Arab world – essentially an agreement between two countries rather than two companies. Energy Minister Yuval Steinitz praised the agreement as “an important milestone in strengthening relations and in strategic cooperation between Israel and Jordan and the

---

<sup>136</sup> John Reed, “Jordan Presses Israel for Concessions”, *Financial Times*, September 25, 2016, <https://www.ft.com/content/74a84b80-80c2-11e6-bc52-0c7211ef3198>

entire region.”<sup>137</sup> Amit Mor, the aforementioned consultant, added that “the agreement demonstrates that despite ongoing unrest in the West Bank and Gaza, the Jordanian government is willing to sign a strategic agreement with Israel, which in the past five decades has been serving as a security ally of Jordan.”<sup>138</sup>

In Jordan, the announcement came as a shock. As Ryan notes, it happened just days after the 2016 general elections and before a parliament (which would have invariably renounced the deal), was able to convene.<sup>139</sup> Unlike when the 2014 LOI was signed, this time around the elements of the government in favor of the deal immediately came out for damage control. NEPCO said in a statement that “signing the deal is in line with the government’s policy to diversify energy resources and increase the competitiveness of the major national industries” – essentially justifying it as a means to guarantee long-term gas availability at an affordable price. NEPCO claimed the deal would save Jordan around \$600mn a year.<sup>140</sup> This, of course is an impossible assessment as it would require knowing the future spread between LNG imports and Israeli gas (which is linked to oil prices) – but nonetheless shows the key players were willing to defend the agreement on the basis of cost savings. Government spokesman Mohammed Momani responded that it was “too simplistic to say that sealing such a deal means the kingdom is supporting Israeli occupation.”<sup>141</sup> Responding to the protests, he said that “we in our role, defend our decision... our responsibility is to make

---

<sup>137</sup> Sharon Udasin, “Israel to supply gas to Jordan in \$10 billion deal”, *The Jerusalem Post*, September 26, 2016, <https://www.jpost.com/Business-and-Innovation/Environment/Israels-Leviathan-reservoir-to-supply-gas-to-Jordan-468742>

<sup>138</sup> *Ibid.*

<sup>139</sup> Ryan, *Jordan and the Arab Uprisings*, 85.

<sup>140</sup> Ghazal, “NEPCO says gas deal with Israel saves Jordan \$600m a year.”

<sup>141</sup> “Jordan defends Israel natural gas deal”, *Times of Israel*, October 3, 2016, <https://www.timesofisrael.com/jordan-defends-israel-natural-gas-deal/>

decisions for the national economy.” Regarding parliament’s opposition, Momani said, “parliamentarians have our respect, and they are the *oversight branch* of government and we will explain the reasons for our decision, this is democracy.”<sup>142</sup>

As for the protest movement’s reaction, the announcement of a binding gas import agreement immediately revived the movement. Jordan BDS issued a statement stating that “[s]igning this agreement blatantly ignores the will of the Jordanian people who principally and unequivocally rejected the agreement through two years of demonstrations across the country, national petitions signed by Jordanians and their political parties, trade unions and civil society organizations.”<sup>143</sup> Sizeable protests occurred in Amman and other towns, organized by students, the Islamic Action Front, and other traditionally anti-normalization camps. On September 30, thousands, perhaps even tens of thousands, protested across Jordan. And of note, the opponents of the agreement developed increasingly sophisticated arguments. They pointed to the fact that Jordan has recently secured gas imports from the FSRU and finally renewables investments from the first bid round were beginning to pay dividends. They also turned to a legal argument, citing Article 33(b) of the Jordanian constitution which states that “Treaties and agreements which involve any burden on the state treasury in regard to spending or impact the public or private rights of Jordanians are not valid unless approved by parliament.”<sup>144</sup> The government’s primary counter-argument, which was upheld by the Constitutional Count as recently as September 2019, is that even if a

---

<sup>142</sup> “Jordan: Opposition To Israel Gas Deal Strong But Ineffectual”, *Middle East Economic Survey* 59, no. 43, October 28, 2016,

<http://archives.mees.com/issues/1667/articles/54339>

<sup>143</sup> Ali Abunimah, “Jordanians demand scrapping of \$10 billion gas deal with Israel”, *Electric Intifada*, September 29, 2016,

<https://electronicintifada.net/blogs/ali-abunimah/jordanians-demand-scrapping-10-billion-gas-deal-israel>

<sup>144</sup> “Jordan Opposition”, *MEES*.



company is fully owned by the government, it is not considered an official public institution and therefore is not subject to parliamentary oversight for a treaty.<sup>145</sup>

#### D. Project Completion and Implications

After the robust protests that followed the September 2016 announcement, the movement once again entered a state of dormancy. In February 2017 the partners at the Levathan field (operator Noble 39.66%, and its Israeli partners Delek [45.34%] and Ratio [15%]) took final investment decision (FID) which meant full steam ahead on development, with first gas set for end-2019.<sup>146</sup> It is fair to say that, without Jordan's gas import commitment, the project may have not been developed. As figure 5.3 shows, before Egypt's Dolphinus agreed to buy gas in February 2018, Jordan's 45bcm commitment accounted for 56% of total sales commitments. There is no way field development would have been cost effective without NEPCO's agreement.

Buyer	Country	Signed	bcm	tcf	mn cfd	years	\$bn
Dolphinus	Egypt	Feb18	60	2.12	387	15	14
NEPCO	Jordan	Sep16	45	1.59	290	15	10
IPM Be'er Tuvia	Israel	May16	13	0.46	70	18	3
Dalia Energy	Israel	Dec16	8.8	0.31	43	20	2
Israel Chemicals	Israel	Feb18	6	0.21	97	6	1.1
Edeltech	Israel	Jan16	6	0.21	32	18	1.3
Paz	Israel	Nov16	3.12	0.11	20	15	0.7
IEC	Israel	Jun16	4	0.14	193	2	^0.35
<b>TOTAL</b>			146	5.15	1132		32

Figure 5.3: Leviathan Sales Deals  
Source: MEES.

<sup>145</sup> "Jordan Court Nixes Opposition to Israel Gas Deal", *Middle East Economic Survey* 62, no. 39, September 27, 2019, <https://www.mees.com/2019/9/27/news-in-brief/jordan-court-nixes-opposition-to-israel-gas-deal/7b648f30-e145-11e9-a15e-bdcbab38532a>

<sup>146</sup> "Leviathan Advances", *Middle East Economic Survey* 60, no 8, February 24, 2017, <http://archives.mees.com/issues/1683/articles/54645>

Following the FID, technical work carried forward and there was a lull on the energy front. Politically, however, Jordan-Israel ties descended arguably to their lowest point since the 1994 treaty. In July 2017 two Jordanians died after being shot by an Israeli guard at apartments at the Israeli embassy in Amman. Jordan refused to allow the embassy personnel to evacuate; Israel refused attempts at an investigation, and a diplomatic row ensued including the closure of Israel's Amman embassy for several months. In response, Israel then threatened to shelve its involvement in the Red Sea – Dead Sea water conveyance project until the embassy was reopened<sup>147</sup>; of note, no mention was made of canning the gas export deal. Later in 2017 when the Trump Administration recognized Jerusalem as the capital of Israel, political relations between Jordan and Israel were further strained.

On the energy front, the opposition to the Israel-Jordan gas deal reemerged in early 2018 when work began on the Jordanian side of the border to link a pipeline from Israel's natural gas pipeline network to the main Arab Gas Pipeline extension north of Amman (figure 5.4).

---

<sup>147</sup> "Israel reportedly threatens to shelve Jordan water deal until embassy reopened", *Times of Israel*, November 13, 2017, <https://www.timesofisrael.com/israel-reportedly-threatens-to-shelve-jordan-water-deal-until-embassy-reopened/>

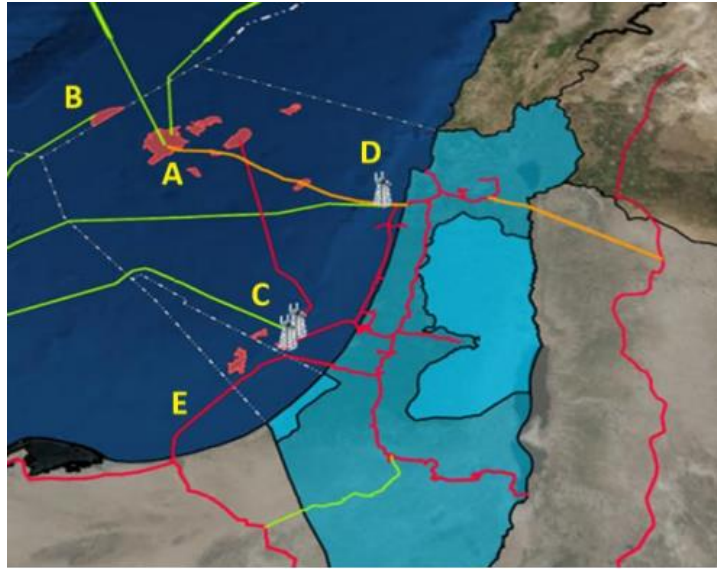


Figure 5.4: Map of Leviathan tie-in to Jordanian gas grid  
Source: Delek

As per the Expropriation Law no. 12, the Jordan’s Ministry of Energy was required to announce in January its request that the Council of Ministers expropriate land for the pipeline.<sup>148</sup> Mohammad Ersan explains that the 55km pipeline required 344 dunams to be expropriated along with 611 dunams to be rented in the Irbid and Mafraq governorates; the government allocated \$2.1 million in its 2018 budget to cover the costs.<sup>149</sup> Both the engineers and physicians syndicates protested against the expropriations, and the participation of former briefly raised concerns that construction on the pipeline would be unable to be completed. The land expropriation request did not even include an explanation as to why the policy was being carried out. Again in July 2018, there was another round of protests – this time at the University of Science and Technology in Irbid – carried out by the Professional Associations Council.<sup>150</sup>

<sup>148</sup> <https://www.sarayanews.com/article/474065>

<sup>149</sup> Mohammad Ersan, “Landowners waiting for next step in Jordan-Israel gas pipeline”, *Al-Monitor*, March 29, 2018, <https://www.al-monitor.com/pulse/originals/2018/03/jordan-israel-gas-deal-import-pipeline-expropriation-lands.html#ixzz6DzG8tcjF>

<sup>150</sup> “Jordan Unions Protest against Israel Gas Deal”, *Middle East Monitor*, July 25, 2018,

In late 2018, intermittent flows of Egyptian gas through the now repaired Arab Gas Pipeline resumed to Jordan for the first time since 2013. Egypt's Zohr discovery rendered it once again a gas exporter – thought nobody knows for exactly how long this will remain the case, given high production decline rates from certain fields and Egypt's booming population. For their part, Jordanian officials managed to stay on point regarding the primacy of Israeli gas, referring to developments of “Noble gas” and rarely using the word “Israel”. Meanwhile, with every investor report from Noble, Delek and Ratio, it became clearer that the developers were on target with Leviathan and the field would hit its end-2019 goal.

The one exception to the general silence from Jordanian officials was the launching of the Eastern Mediterranean Gas Forum in 2019. This collection of Egypt, Jordan, Palestine, Israel, Cyprus, Greece and Italy met first in January 2019 in Cairo and also in July with the aim of “promote regional cooperation in the field of energy.”<sup>151</sup> In a joint statement, the ministers “affirmed their commitment to elevate the forum to the level of an international organization that fully respects the rights of members in their natural resources in accordance with international law and to work hard to discuss and formulate general concepts for their finalization in accordance with the agreed framework.” That Jordan's Energy Minister Hala Adel Zawati was sitting on a panel with her Israeli counterpart did provide optics that the Egypt-Israel-Jordan energy alliance was alive and well, but the implications of this nascent cooperation remain to be seen.

---

<https://www.middleeastmonitor.com/20180725-jordan-unions-protest-against-israel-gas-deal/>

<sup>151</sup> “East Med Gas Forum Launched”, *Middle East Economic Survey* 62, no. 30, July 26, 2019, <https://www.mees.com/2019/7/26/news-in-brief/east-med-gas-forum-launched/63d1c170-afa7-11e9-82fc-87de454dda2c>

In mid-2019, some interesting details emerged that further explained why Jordanian officials locked into agreement and refused to entertain alternatives post-2016. Reports in the Israeli press in addition to leaked documents (some of which I have seen) indicate that Noble was initially skeptical about the Jordanian side's ability to hold up the deal, so the US State Department told Jordan that it would "transfer to Israel some of the assistance money that the US provides Jordan" in the case that NEPCO "fails to pay or to implement the gas purchasing agreement."<sup>152</sup> As already mentioned, Jordan is reliant on foreign aid for at least 10-15% of its annual revenues, and a large portion of this comes from the US. Losing the aid and the budget security it provides<sup>153</sup> would send Jordan into financial ruin. Furthermore, per the terms of the agreement, Jordan would need to pay \$1.5bn if it ends the agreement within the first five years; \$800 million in the fifth to tenth year; and \$400 million after that.

In terms of price, details also leaked out that indicated that NEPCO would pay just over \$6 per mn BTU with the price of Brent oil (a common benchmark for the global oil price) at \$60/barrel – the approximate oil price in recent years. Gas, and particularly LNG, is priced in two different ways: 1) long-term sales contracts; 2) spot cargo contracts (i.e. what it would cost to purchase a cargo 'on the spot' at any given time). Gas sales contracts in recent years have priced higher than spot, but also provide more stability. So short of oil prices (and thus Brent-linked gas contracts) soaring, the Leviathan deal is essentially a steal for Jordan. In fact, the gas sales agreements that

---

<sup>152</sup> "Israel-Jordan Gas Details See Light", *Middle East Economic Survey* 62, no. 35, August 30, 2019, <https://www.mees.com/2019/8/30/geopolitical-risk/israel-jordan-gas-deal-details-see-light/4c84fd10-cb20-11e9-97c4-c5f82ed5d848>

<sup>153</sup> For a discussion of how 'budget security' informs Jordanian policy, see Laurie Brand, *Jordan's Inter-Arab Relations: The Political Economy of Alliance Making* (New York: Columbia University Press, 1994), 277-302.

Jordan signed with Shell for LNG were nearly double the price of Israeli gas at \$10-12 mn per BTU – according to industry insiders.<sup>154</sup> These costly contracts are set to expire in 2020.

Little over five years after signing the initial LOI, NEPCO received its first test volumes of Israeli gas, like clockwork, on January 1, 2020. NEPCO released a terse comment stating that “Noble gas” imports had begun and “the experimental pumping will continue for three-months under the technical and contractual terms between the two sides.”<sup>155</sup> The Israelis trumpeted their usual optimism about shifting regional alliances. In Jordan, the opposition once again came to the fore. The Islamic Action Front issued a statement saying “it’s a black day in the history of Jordan and a crime against the nation and a national catastrophe that makes our sovereignty hostage and the energy sector in the hands of the Zionist occupation.”<sup>156</sup> Demonstration ensued almost immediately with hundreds marching on January 3 in Amman. Another mass demonstration occurred on January 17. On January 19, Jordan’s parliament once again passed a draft law banning gas imports from Israel – this time being approved 130-0. Several subsequent protests have taken place since, and quite strikingly, without resulting from official word from the monarchy’s spokesmen.

But, it is also understandable. From an energy security perspective, Jordan’s pursuance of the Israel gas imports provided a strong and lasting element of security of supply – especially if the political costs have already peaked. Jordan has managed to

---

<sup>154</sup> “Jordan: Gas Oversupply Threatens Key Startups”, *Middle East Economic Survey* 62, no 44, November 1, 2019, <https://www.mees.com/2019/11/1/power-water/jordan-gas-oversupply-threatens-key-startups/12010c70-fcc3-11e9-bc95-cb2a275ffa83>

<sup>155</sup> Al-Khalidi, “Jordan gets First Gas”.

<sup>156</sup> Ibid.

secure long-term gas imports for 15 years at a low price – something it never had in the past. And moreover, the startup of the Attarat oil shale plant and the slew of renewables projects now online mean natural gas will only be used for 50-60% of energy generation going forward, versus 90% in the past. Financial struggles will likely always hinder the kingdom, as will the tensions between privatization and the rentier model. At the same time, Jordan is essentially linked once again to dependence on Israel, which poses deep unease for the majority of the population and further drives through the rift between the neoliberal reforms and the stalwart base of the monarchy that opposes normalization.

## CHAPTER VII

### ASSESSMENT & CONCLUSIONS

#### A. Thesis Summary

This thesis has attempted to take the 2016 agreement between Israel and Jordan (via Noble Energy and NEPCO) and explore the historical origins, reactions, and implications of it from both energy security and path dependence perspectives. As laid bare throughout this work, the agreement is arguably the largest ever instance of economic integration between Israel and Jordan, and in terms of dollar value has the potential to be the largest deal ever made between Israel and an Arab state. For this to be possible, a whole host of developments needed to occur. In the shorter-term, a biting energy crisis from 2010-2014 drove the monarchy alongside broader political and economic crises toward a relieving deal, in addition to pressure from the IMF and US. From the *longue durée* perspective, the agreement fits within Israel-Jordan functional economic ties dating back to the British mandate, and also appears as a natural conclusion to Jordan's efforts to privatize its energy sphere and secure energy security through diversifying gas supplies. The thesis also shows how authoritarian governments make energy policy and the centrality of providing subsidized, efficient energy to the society forms an important aspect of the social contract. Finally, this thesis suggests a more complex picture of geopolitics in the Eastern Mediterranean in the 21<sup>st</sup> century, where US pressure to normalize ties with Israel coincides with remnants of anti-normalization resistance in a country – potentially ushering in a new chapter in the regional conflict as the Arab Gulf (led by the US and Israel) look to confront Iran and its proxies.



## **B. Geopolitical and Theoretical Implications**

Throughout this thesis, I opted to minimize the geopolitical and theoretical implications of my argument so as to focus more on the energy and political economy angles of the gas import agreement. Of course, on several different levels both the geopolitical and theoretical implications are quite profound and should be dealt with extensively elsewhere in a separate piece.

On the geopolitical side of the spectrum, the agreement between Israel and Jordan represents a coup for the United States, Israel and the pro-normalization liberals within the Jordanian government. For decades, the US has made strong use of economic incentives to essentially coerce Arab states in the Eastern Mediterranean into normalizing ties and accepting the State of Israel. The first major ‘victory’ occurred in 1979 when Jimmy Carter helped facilitate the Camp David accords helped establish ties between Egypt and Israel. The second ‘success’ occurred in 1994 with the Wadi Araba Treaty between Israel and Jordan. In both cases, the US rewarded the Arab states with increased aid money and economic programs like the aforementioned QIZ initiative. In line with Henry Kissinger’s dictum that in the Middle East one cannot make war without Egypt and peace without Syria, the US also attempted to pressure Syria (and by proxy Lebanon) into talks in the 1990s with little success.

Central to American efforts at normalizing Israel in the region, has been the ‘peace through prosperity’ argument – incidentally the name of Jared Kushner’s farcical plan to resolve the Israel-Palestine dispute. The logic essentially goes that through economic cooperation, Arab-Israeli ties will eventually warm into full diplomatic and economic relations. Israel has its own reasons for wanting to normalize ties with its

Arab neighbors: 1) it helps further alienate the Palestine issue from the broader Arab political discourse; 2) it normalizes the occupation and potential annexation of the West Bank; 3) it could lead to (likely marginal) economic gains. But perhaps of equal importance – especially in the context of our energy-related discussion – through normalizing relations and establishing economic ties, Israel can further its coercive power and solidify its hegemonic role in the region. The same argument made for Israel’s use of hydro-hegemony can aptly be made for its ambitions to become a lynch pin in the Eastern Mediterranean gas/energy sector. Through the acquisition of the EMG pipeline to Egypt, Israel now effectively controls not only gas flows to Egypt but also Egypt’s ability to export gas via the Arab Gas Pipeline that flows from Jordan to Syria and onward to Lebanon. The fact that its pipeline from Leviathan to Jordan enters north of Amman further cuts off the possibility of Egyptian gas to Syria and Lebanon – both countries that have gas shortages.

Israel’s gas exports to Egypt also give to leverage over the Egyptian market – albeit less than the case of Jordan. Egypt is currently a gas exporter which means the excess volumes flowing from Leviathan to Israel will be liquefied at one of Egypt’s two LNG export facilities. But if Egypt becomes a net importer in the next 3-5 years – which is entirely possible given its high field decline rates – it could give Israel further leverage in the Egyptian market. Israel’s relatively easy entry into the Egyptian market via Noble and its Israeli partners itself is indicative of the prevailing regional headwinds. President al-Sisi is heavily backed by Saudi Arabia and the United Arab Emirates who supported his coup against Muslim Brotherhood party member President Mohamed Morsi. In recent years, Saudi Arabia and the UAE – in their brazen

confrontation with Qatar and Iran – have quietly been sending out signals of intentions to improve relations with Israel with strong backing from Washington.

But regional geopolitics aside, the theoretical implications of the emerging energy scene in the Eastern Mediterranean are increasingly intriguing. The East Med Gas Forum aside, we are slowly seeing energy integration and interdependences emerge that could have important consequences for the future – especially as the recent startups of Israeli gas exports grow and calcify. These themes will need to be treated with theoretical and analytic precision as Israel bids to become an energy hegemon in the region.

## BIBLIOGRAPHY

- Abunimah, Ali. "Jordanians demand scrapping of \$10 billion gas deal with Israel". *Electric Intifada*. September 29, 2016. <https://electronicintifada.net/blogs/ali-abunimah/jordanians-demand-scrapping-10-billion-gas-deal-israel>
- Ahmad, Ali & M.V. Ramana. "HTRs will not help establish nuclear power in Jordan". *Jordan Times*. May 10, 2018. <https://www.jordantimes.com/opinion/ali-ahmad-and-m-v-ramana/htrs-will-not-help-establish-nuclear-power-jordan>
- Ahmad, Mohammad Qasem. "The Three Year Development Plan in Jordan, 1973-1975: A Critical Examination". Master's thesis. Beirut: American University of Beirut, 1975.
- Al-Khalidi, Suleiman. "Jordan Gets First Natural Gas Supplies from Israel". *Reuters*. January 1, 2020. <https://www.reuters.com/article/jordan-israel-gas/jordan-gets-first-natural-gas-supplies-from-israel-idUSL8N2960Q9>
- Allen, Johnathan. "181 Clinton Foundation donors who lobbied Hillary's State Department". *Vox*. April 28, 2015. <https://www.vox.com/2015/4/28/8501643/Clinton-foundation-donors-State>
- Amadouny, Vartan. "Infrastructural Development under the British Mandate" In *Village, Steppe and State: The Social Origins of Modern Jordan*, eds. Eugene L. Rogan & Tariq Tell. London: British Academic Press, 1994.
- Anderson, Lisa. "Absolutism and the Resilience of Monarchy in the Middle East". *Political Science Quarterly* 116, no 1 (1991): 1-15.
- Ang, B.W W.L. Choong, T.S. Ng, "Energy Security: Definitions, Dimensions and Indexes". *Renewable and Sustainable Energy Reviews* 42 (2015): 1077-1093.
- "A Quest for Energy Security in the 21<sup>st</sup> Century: Resources and Constraints". *Asia Pacific Energy Research Center* (2010). [https://aperc.iej.or.jp/file/2010/9/26/APERC\\_2007\\_A\\_Quest\\_for\\_Energy\\_Security.pdf](https://aperc.iej.or.jp/file/2010/9/26/APERC_2007_A_Quest_for_Energy_Security.pdf)
- Arnon, Arie, Avia Spivak and J. Weinblatt. "The Potential for Trade Between Israel, the Palestinians and Jordan". *The World Economy* 19, no 1 (1996): 113–134.
- Bablawi, Hazem. "The Rentier State in the Arab World". *Arab Studies Quarterly* 9 no. 4 (1987): 393-398.
- Bahgat, Hossam. "Who's buying Israeli gas? A company owned by the General Intelligence Service". *Masa Masr*. October 23, 2018. <https://madamasr.com/en/2018/10/23/feature/politics/whos-buying-israeli-gas-a-company-owned-by-the-general-intelligence-service/>

- Baldwin, David A. "The Concept of Security", *Review of International Studies* 23 (1997).
- Bar-Eli, Avi. "John Kerry Held Up to \$1m in Noble Energy Stock". *Haaretz*. June 25, 2015. <https://www.haaretz.com/israel-news/business/.premium-kerry-held-up-to-1m-in-noble-energy-stock-1.5374054>
- Berger, Lars. "Democratic Contagion versus Authoritarian Resilience: Jordan's Prospect for Change". In Fahed al-Sumait et al eds. *The Arab Uprisings*. Lanham: Rowman & Littlefield, 2015. 241-260.
- Brand, Laurie. *Jordan's Inter-Arab Relations: The Political Economy of Alliance Making*. New York: Columbia University Press, 1994.
- Brynen, Rex. "Economic Crisis and Post-Rentier Democratization in the Arab World: The Case of Jordan". *Canadian Journal of Political Science* 25, no. 1 (1992): 69-97.
- Buzan, Barry and Lene Hansen, *The Evolution of International Security Studies*. Cambridge: Cambridge University Press, 2014.
- "Carrots and sticks: Taxing and subsidizing energy". *International Energy Agency*. Paris: IEA, 2006.
- Cowell, Alan. "War in the Gulf: Jordan; Jordanian Ends Neutrality, Assailing Allied War Effort". *New York Times*. February 7, 1991. <https://www.nytimes.com/1991/02/07/world/war-in-the-gulf-jordan-jordanian-ends-neutrality-assailing-allied-war-effort.html>
- Darbouche, Hakim Laura el-Katiri, and Bassam Fattouh. "East Mediterranean Gas: What kind of Game-changer?". *The Oxford Institute for Energy Studies*. NG 71. December 2012, <https://www.oxfordenergy.org/wpcms/wp-content/uploads/2012/12/NG-71.pdf>
- Desai, Raj M. Anders Olofsgard, Tarik M. Yousef. "The Logic of Authoritarian Bargains", *Brookings Institution*. Working Paper #3. (2016). [https://www.brookings.edu/wp-content/uploads/2016/06/01globaleconomics\\_desai.pdf](https://www.brookings.edu/wp-content/uploads/2016/06/01globaleconomics_desai.pdf)
- Dieterich, Renate. "Electrical Current and Nationalist Trends in Transjordan: Pinhas Rutenberg and the Electrification of Amman". *Die Welt des Islams* 41, no. 1 (2003): 88-101.
- Downey, Morgan. *Oil 101*. New York: Wooden Table Press, 2009.
- "East Med Gas Forum Launched". *Middle East Economic Survey* 62, no. 30. July 26, 2019. <https://www.mees.com/2019/7/26/news-in-brief/east-med-gas-forum-launched/63d1c170-afa7-11e9-82fc-87de454dda2c>

- “Energy Companies Shy Away From Jordan IPP as Government Delays Decision On Gas”. *Middle East Economic Survey* 42, no. 31. August 1 1999. <http://archives.mees.com/issues/649/articles/26131>
- El-Katiri, Laura and Bassam Fattouh, “Brief Political Economy of Energy Subsidies in the Middle East and North Africa”. *International Development Policy* 7 (2017).
- “Energy Security”, *International Energy Agency*, n.d., <https://www.iea.org/topics/energy-security>
- “Energy Subsidies”. *International Monetary Fund*. no date, <https://www.imf.org/en/Topics/Environment/energy-subsidies>
- Ersan, Mohammad. “Landowners waiting for next step in Jordan-Israel gas pipeline”. *Al-Monitor*. March 29, 2018. <https://www.al-monitor.com/pulse/originals/2018/03/jordan-israel-gas-deal-import-pipeline-expropriation-lands.html#ixzz6DzG8tcjF>
- Fairbanks, Waylon. “Israel-Jordan Spat Threatens Already Precarious Cooperation”. *Middle East Economic Survey* 61, no 3. January 19, 2018. <https://www.mees.com/2018/1/19/power-water/israel-jordan-spat-threatens-already-precious-cooperation/7e180660-fd37-11e7-85c3-bb1136667dc8>
- Franz, Erika & Andrea Kendall-Taylor. “A Dictator’s Toolkit: Understanding how Cooptation Affects Repression in Autocracies”. *Journal of Peace Research* 51, no. 3 (2014): 332-346.
- “Further Privatization of Jordan’s Electricity Sector”. *Middle East Economic Survey* 50, no. 48. November 26, 2007. <http://archives.mees.com/issues/210/articles/8097>
- Gal, Yitzhak and Bader Rock. “Israeli-Jordanian Trade: In-Depth Analysis”. *Tony Blair Institute for Global Change*, 17 October 2018, <https://institute.global/insight/middle-east/israeli-jordanian-trade-depth-analysis>
- Garfinkle, Adam. *Israel and Jordan in the Shadow of War*. London: Macmillan, 1992.
- Ghazal, Mohammad. “NEPCO says gas deal with Israel saves Jordan \$600m a year”. *Jordan Times*. September 29, 2016. <https://www.jordantimes.com/news/local/nepco-says-gas-deal-israel-saves-jordan-600m-year>
- “Golar LNG to Supply FSRU Units to Jordan, Kuwait”. *Middle East Economic Survey* 56, no. 32. August 9, 2013. <http://archives.mees.com/issues/1490/articles/50468>
- Goussous, Suzanna. “Activists Reject Gas Deal with Israel”. *The Jordan Times*. September 28, 2016, <https://www.jordantimes.com/news/local/activists-reject-gas-deal-israel>

- Gray, Matthew. "A Theory of 'Late Rentierism' in the Arab States of the Gulf". *Center for International and Regional Studies*. 2011, <https://repository.library.georgetown.edu/bitstream/handle/10822/558291/CIRS OccasionalPaper7MatthewGray2011.pdf>
- Harrigan, Jane. Hamed el-Said & Chengang Wang. "The IMF and World Bank in Jordan: A Case of over Optimism and Elusive Growth". *Review of International Organization* 1 (2006): 263-292.
- Huntington, Samuel. *Political Order in Changing Societies*. New Haven: Yale University Press, 1968.
- "Independent Power Producer". *Energy Information Administration*. n.d., <https://www.eia.gov/tools/glossary/index.php?id=I>
- "Israel Facing Electricity Challenge Prior To Tamar Field Coming On Stream". *Middle East Economic Survey* 54, no 43. October 24, 2011. <http://archives.mees.com/issues/10/articles/318>
- "Israel-Jordan Gas Details See Light". *Middle East Economic Survey* 62, no. 35. August 30, 2019. <https://www.mees.com/2019/8/30/geopolitical-risk/israel-jordan-gas-deal-details-see-light/4c84fd10-cb20-11e9-97c4-c5f82ed5d848>
- "Israel Reportedly Threatens to Shelve Jordan Water Deal until Embassy Reopened". *Times of Israel*. November 13, 2017. <https://www.timesofisrael.com/israel-reportedly-threatens-to-shelve-jordan-water-deal-until-embassy-reopened/>
- Jewell, Jessica. Aleh Cherp, and Keywan Riahi, "Energy Security under de-Carbonization Scenarios: An Assessment Framework and Evaluation under Different Technology and Policy Choices". *Energy Policy* 65 (2014): 743-760.
- "Jordan Bites the IMF Bullet as Riots Break Out". *Middle East Economic Survey* 32, no. 29. April 24, 1989. <http://archives.mees.com/issues/1176/articles/41705>
- "Jordan and BP Sign Risha Gas Development Agreements". *Middle East Economic Survey* 52, no. 44. November 2, 2009. <http://archives.mees.com/issues/111/articles/4282>
- "Jordan: Bye-Bye Conventional Powergen?". *Middle East Economic Survey* 61, no 5. December 14, 2018. <https://www.mees.com/2018/12/14/power-water/jordan-bye-bye-conventional-powergen/eee8bda0-ffbb-11e8-af70-3fd7fcd8bb20e>
- "Jordan: Cabinet Reshuffle in Jordan: Minister of Energy Appointed". *Middle East Economic Survey* 28, no. 5. November 12 1984. <http://archives.mees.com/issues/1357/articles/46733>
- "Jordan Country Report, no 19/127". *International Monetary Fund*. May 2019. <https://www.imf.org/en/Publications/CR/Issues/2019/05/08/Jordan-Second->

Review-Under-the-Extended-Arrangement-Under-the-Extended-Fund-Facility-46879

- “Jordan Court Nixes Opposition to Israel Gas Deal”. *Middle East Economic Survey* 62, no. 39. September 27, 2019. <https://www.mees.com/2019/9/27/news-in-brief/jordan-court-nixes-opposition-to-israel-gas-deal/7b648f30-e145-11e9-a15e-bdcbab38532a>
- “Jordan Defends Israel Natural Gas Deal”. *Times of Israel*. October 3, 2016. <https://www.timesofisrael.com/jordan-defends-israel-natural-gas-deal/>
- “Jordan, Egypt Sign Gas Pipeline Agreement as First Stage Of Regional Distribution Network”. *Middle East Economic Survey* 44, no. 25. June 18, 2001. <http://archives.mees.com/issues/539/articles/22484>
- “Jordan: Gas Needed, No Good Options”. *Middle East Economic Survey* 56, no. 25. June 21, 2013. <http://archives.mees.com/issues/1483/articles/50295>
- “Jordan: Gas Oversupply Threatens Key Startups”. *Middle East Economic Survey* 62, no 44. November 1, 2019. <https://www.mees.com/2019/11/1/power-water/jordan-gas-oversupply-threatens-key-startups/12010c70-fcc3-11e9-bc95-cb2a275ffa83>
- “Jordan Gets Russian Backing For Nuclear Plans”. *Middle East Economic Survey* 58, no 14. April 3, 2015. <http://archives.mees.com/issues/1576/articles/52595>
- “Jordan: Jordan Inaugurates New Power Plant at Risha”. *Middle East Economic Survey* 32, no. 34. 29 May 1989. <http://archives.mees.com/issues/1181/articles/41831>
- “Jordan Left With Few Gas Options After BP Abandons Risha”. *Middle East Economic Survey* 57, no. 4. January 24, 2014. <http://archives.mees.com/issues/1514/articles/51038>
- “Jordan Lifts Fuel Subsidies, Sparks Protests”. *Reuters*. November 13, 2012. <https://www.reuters.com/article/jordan-gasoline-prices/update-2-jordan-lifts-fuel-subsidies-sparks-protests-idUSL5E8MDCKK20121113>
- “Jordan: Opposition To Israel Gas Deal Strong But Ineffectual”. *Middle East Economic Survey* 59, no. 43. October 28, 2016. <http://archives.mees.com/issues/1667/articles/54339>
- “Jordan’s Petroleum Products Subsidies to End By 2008”. *Middle East Economic Survey*. 48, no. 28. July 11 2005. <http://archives.mees.com/issues/335/articles/13825>
- “Jordan Plans New Privatizations Following Divestment of JTC And National Airline”. *Middle East Economic Survey* 42, no. 44. November 1, 1999. <http://archives.mees.com/issues/662/articles/26553>



- “Jordan Politicians Slam Israel Gas Deal”. *Middle East Economic Survey* 57, no. 51/52. December 19, 2014. <http://archives.mees.com/issues/1562/articles/52234>
- “Jordan Takes Plunge with Israel Gas Deal”. *Middle East Economic Survey* 57, no 8. February 21, 2014. <http://archives.mees.com/issues/1518/articles/51151>
- “Jordan To Receive First LNG Cargo On 25 May”. *Middle East Economic Survey* 58, no 21. May 22, 2015. <http://archives.mees.com/issues/1583/articles/52765>
- “Jordan Receives First Cargoes of Saudi Crude”. *Middle East Economic Survey* 46, no. 16. April 21, 2003. <http://archives.mees.com/issues/428/articles/17953>
- “Jordan Reduces Fuel Subsidy in 1985 Budget and Raises Energy Prices”. *Middle East Economic Survey* 28, no 10. December 17, 1984. <http://archives.mees.com/issues/1362/articles/46882>
- “Jordan Unions Protest against Israel Gas Deal”. *Middle East Monitor*. July 25, 2018. <https://www.middleeastmonitor.com/20180725-jordan-unions-protest-against-israel-gas-deal/>
- Khadduri, Walid. “Iraq: Jury Still out on Iraqi Smart Sanctions”. *Middle East Economic Survey* 44, no. 26. June 25, 2001. <http://archives.mees.com/issues/540/articles/22511>
- Khorma, Tamer “The Myth of the Jordanian Monarch’s Resilience to the Arab Spring”. *SWP Comment* 33. (2014): 1-8.
- Kingston, Paul. “Rationalizing Patrimonialism: Wasfi al-Tall and Economic Reform in Jordan, 1962-67”. In *The Resilience of the Hashemite Rule: Politics and the State in Jordan, 1956-67*. Ed. Tariq Tell, no. 25. Beirut: Les Cahiers du Cermoc, 2001.
- Knowles, Warwick. *Jordan since 1989: A Study in Political Economy*. London: IB Tauris, 2005.
- Korteweg, Rem. “Energy as a Tool of Foreign Policy of Authoritarian States, in Particular Russia”. *European Parliament*. April 27, 2018. [http://www.europarl.europa.eu/RegData/etudes/STUD/2018/603868/EXPO\\_STU\(2018\)603868\\_EN.pdf](http://www.europarl.europa.eu/RegData/etudes/STUD/2018/603868/EXPO_STU(2018)603868_EN.pdf)
- “Lebanon’s Ailing Economy: Will the Music Stop in 2019?”. *Middle East Economic Survey* 61, no. 51. December 21, 2018. <https://www.mees.com/2018/12/21/geopolitical-risk/lebanons-ailing-economy-will-the-music-stop-in-2019/750785b0-052a-11e9-8296-0bbdcbbcdc0b>
- “Leviathan Advances”. *Middle East Economic Survey* 60, no 8. February 24, 2017. <http://archives.mees.com/issues/1683/articles/54645>

- “Leviathan Development Gathers Pace As Partners Sign Third Sales Deal”. *Middle East Economic Survey* 57, no. 36. September 5, 2014.  
<http://archives.mees.com/issues/1546/articles/51873>
- Little, Douglas. “Pipeline Politics: America, TAPLINE, and the Arabs”. *The Business History Review* 64, no. 2 (1990): 255-285.
- Lowi, Miriam R. *Water and Power: The Politics of a Scarce Resource in the Jordan River Basin*. Cambridge: Cambridge University Press, 1993.
- Lucas, Russell E. “Monarchical Authoritarianism: Survival and Political Liberalization in a Middle Eastern Regime Type”. *International Journal of Middle Eastern Studies* 36 (2004): 103-119.
- Maddy-Weitzman, Bruce. “Why did Arab Monarchies Fall? An Analysis of Old and New Explanations”, in Joseph Kostiner ed. *Middle East Monarchies: The Challenge of Modernity*. Boulder: Lynne Rienner Publishers, 2000.
- Matsumura, Wataru and Zakia Adam, “Hard-Earned Reforms to Fossil Fuel Subsidies are Coming under Threat”. *International Energy Agency*. October 29, 2018.  
<https://www.iea.org/commentaries/hard-earned-reforms-to-fossil-fuel-subsidies-are-coming-under-threat>
- Meiton, Fredrik. “Throwing Transjordan into Palestine: Electrification and State Formation, 1921-1954”. In *The Routledge Handbook of the History of Middle East Mandates*, ed. Cyrus Schayegh & Andrew Arsan. London: Routledge, 2015.
- Omari, Raed. “Constitutional Court Says Parliament has no say over gas deal with Israel”. *The Jordan Times*. September 16, 2019.  
<https://www.jordantimes.com/news/local/constitutional-court-says-parliament-has-no-say-over-gas-deal-israel>
- “Quarterly Statistical Series, 1964-1989”. *Central Bank of Jordan*. Amman: Department of Research and Statistics, 1989.
- Randeree, Kasim. “Workforce Nationalization in the Gulf Cooperation Council States”, *Center for International and Regional Studies*. Qatar: Georgetown University, 2012.
- Reed, John. “Jordan recalls ambassador to Israel after violence at Jerusalem mosque”. *Financial Times*. November, 2014. <https://www.ft.com/content/e8b9cf1e-64c0-11e4-ab2d-00144feabdc0>
- Reed, John. “Jordan Presses Israel for Concessions”. *Financial Times*. September 25, 2016. <https://www.ft.com/content/74a84b80-80c2-11e6-bc52-0c7211ef3198>
- Reed, Stanley & Clifford Krauss. “Israel’s Gas Offers Lifeline for Peace”. *New York Times*. December 14, 2014.

<https://www.nytimes.com/2014/12/15/business/energy-environment/israels-natural-gas-supply-offers-lifeline-for-peace.html>

- Robins, Philip. *A History of Jordan*. Cambridge: Cambridge University Press, 2004.
- Ryan, Curtis R. *Jordan and the Arab Uprisings*. New York: Columbia University Press, 2018.
- Salameh, Mamdouh G. *Jordan's Energy Prospects & Needs to the Year 2010: The Economic Viability of Extracting Oil from Shale*. London: Manara, 1998.
- “Saudi Arabia Suspends Crude Deliveries to Jordan”. *Middle East Economic Survey* 33, no. 51. September 24, 1990.  
<http://archives.mees.com/issues/1147/articles/40808>
- Sahawneh, Julia. “Energy Policy Country Report: Jordan”. *Ministry of Energy and Natural Resources*. June 2, 2015. <https://eneken.ieej.or.jp/data/6206.pdf>
- Shenker, Jack. “Egyptian pipeline hit by fourth explosive attack since January”. *The Guardian*. July 12 2011. <https://www.theguardian.com/world/2011/jul/12/egypt-pipeline-explosion-fourth-attack>
- Shlaim, Avi. *Collusion Across the Jordan*. Oxford: Oxford University Press, 1988.
- Shlaim, Avi. *Lion of Jordan: The Life of King Hussein in War and Peace*. London: Penguin Books, 2007.
- Tell, Tariq. “Early Spring in Jordan: The Revolt of the Military Veterans”. *Carnegie Middle East Center*. November 4, 2015. <https://carnegie-mec.org/2015/11/04/early-spring-in-jordan-revolt-of-military-veterans-pub-61448>
- Tell, Tariq. “On the Nature of the Hashemite Regime and Jordanian Politics: An Interview with Tariq Tell (Part 1)”, interview in *Jadaliyya*, August 22, 2012,  
<https://www.jadaliyya.com/Details/26928>
- “Treaty of Peace between the State of Israel and the Hashemite Kingdom of Jordan”. *United Nations*, vol. 2042. 1994,  
[https://peacemaker.un.org/sites/peacemaker.un.org/files/IL%20JO\\_941026\\_PeaceTreatyIsraelJordan.pdf](https://peacemaker.un.org/sites/peacemaker.un.org/files/IL%20JO_941026_PeaceTreatyIsraelJordan.pdf)
- Tusiani, Michael D. & Gordon Shearer. *LNG: A Non-Technical Guide*. Tulsa: Penwell, 2007.
- Udasin, Sharon. “Israel to supply gas to Jordan in \$10 billion deal”. *The Jerusalem Post*. September 26, 2016, <https://www.jpost.com/Business-and-Innovation/Environment/Israels-Leviathan-reservoir-to-supply-gas-to-Jordan-468742>

- “US/Turkish Consortium Wins Jordan Al-Samra IPP Contract”. *Middle East Economic Survey* 47, no. 29. July 19, 2004.  
<http://archives.mees.com/issues/389/articles/16293>
- Walt, Stephen. “The Renaissance of Security Studies”. *International Studies Quarterly* 35, no. 2 (1991): 211-239.
- Wolfers, Arnold. “National Security’ as an Ambiguous Symbol.” *Political Science Quarterly* 67, no. 4 (1952): 481-502.
- World energy council*. “World energy trilemma: Time to get real – the agenda for change”. (2012). <https://www.worldenergy.org/publications/entry/world-energy-trilemma-time-to-get-real-a-the-agenda-for-change>
- Yergin, Daniel. *The Prize: The Epic Quest for Oil, Money, & Power*. New York: Free Press, 1992.
- Yitzhak, Ronen. “Between Reform and Islam: The Arab Spring in Jordan 2011-2014”. *Democracy and Security* 14, no. 1 (2017).
- Yizhak, Ronen. “From Cooperation to Normalization? Jordan-Israel Relations since 1967”. *British Journal of Middle Eastern Studies* 44, no. 4 (2017): 559-575.
- Zeitoun, Mark & Jeroen Warner. “Hydro-Hegemony – A Framework for Analysis of Trans-boundary Water Conflicts.” *Water Policy* 8 (2006): 435-460.
- Zimmermann, Anne Mariel. *US Assistance, Development, and Hierarchy in the Middle East*. New York: Palgrave Macmillan, 2017.