Arab American University

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Strategies to Maintain Fuel Security in Palestine

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This thesis was defended successfully on 25 Feb 2019 and approved by:

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Declaration

I hereby declare that this master thesis has been written only by myself without any assistance of any third party and describes my own work unless otherwise acknowledged in the text of the thesis.

All references, verbatim extracts and information source are quoted and cited properly. Thus, I confirm that no source has been used in this thesis other than those indicated in the thesis itself.

This master thesis has not been accepted in any other previous application, in whole or in part for any degree.

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Signature: 

Date: 25 Feb 2019

Dedication

I do not know the source of light in our house, but I believe that it is the spirit of my father.

I dedicate this thesis to my late father, the source of tranquility and love and the one who taught me that if we have similar resources we do not necessarily reach the same result. Here, we have to think differently.

And I dedicate it to my heavenly mum and to my charming sisters and brothers,who support and honor my efforts and help me realize my dreams.

And it is for my small family, my cheerful husband Mohammed and my delightful daughter Zeina. who make me reach for the stars although I am physically on the ground.

Acknowledgements

Home is belonging and belonging is work and production. Our dreams swing between hope, production and achievement.

After a year of working to bring this study into the light, I deeply appreciate the Arab American University of Palestine for its tremendous impact. I am grateful to my supervisor, Dr. Ahmad Sadaqa, for his inspiration, and for contributing to and supporting this study. Also, I would like to acknowledge all the respondents, from fuel company owners to the Palestinian Petroleum Authority, who helped me gain access to the information I needed.

Abstract

Fuel plays a key role in many aspects of life, but particularly in a country's national security. Energy insecurity leads to economic and political instability, and can cause wars to break out, or workers to strike.

In this study, the researcher is investigating the strategies used to maintain fuel security in Palestine. The aim is to define the challenges facing Palestine's fuel security, while exploring geopolitical variables and their impacts. Moreover, the researcher aims to identify the quantities of fuel needed to achieve energy security in Palestine, as well as investigate the territory's fuel storage policies and the potential to build fuel security infrastructure. Furthermore, this study attempts to determine the differences between private and government institutions working to achieve fuel security and to evaluate the effectiveness of the fuel security strategy in Palestine. After understanding the main obstacles curbing the development of the fuel security strategy in Palestine, the researcher will engage with interested parties working to develop achieve future fuel security.

A combination of descriptive and comparative approach has been used because the study requires the collection of clear and appropriate data on strategies to maintain fuel security in Palestine and compare the Palestinian circumstances with the circumstances of other countries in achieving fuel security in the short term. The time limits of the study were 1994-2019, and the temporal boundaries of the study were Palestine, including the West Bank and the Gaza Strip.

A nanostructured interview was used as a data collection tool from the interviewees where the researcher could obtain all the data needed to collect it.

The study consists of five chapters consisting of an introduction to the study, study literature, the concept of fuel security, strategies for fuel security in Palestine, findings and recommendations.

The added value of this study stems from it being one of the few scientific studies, within the researcher's knowledge, which looks at the subject of fuel reserves in Palestine. It will add to the Palestinian library in particular and the Arabic library in general by generating new scientific material on the importance of the fuel shortage crisis.

The main results of this study are a proposed fuel security strategy with proposed objectives to achieve fuel security in case of crisis in the State of Palestine. The researcher reached six main results, including the absence of a strategy to check fuel security in Palestine and the private sector, especially Al-Huda Company, bears the burden of providing fuel to the Palestinian markets in case of a crisis, failure to adopt a fuel security strategy due to the absence of a healthy environment (political conditions) and the direct linked to full independence and openness to markets as well as the need to adopt a fuel security strategy not only for emergencies but also for the ability to set prices independently of Israel and finally building fuel security strategy needs legislative support.

In light of these results, the recommendations of the study included strengthen the procedures of the Palestinian Petroleum Authority and private companies to ensure the availability of fuel in the Palestinian markets, the necessity of initiating the building of the infrastructure needed to create a fuel security strategy in the future, the necessity for continuous and diligent efforts and actions to compel the Israelis to abide by the agreements signed during the Oslo Accords, the necessity of competent authorities to

search for alternative manners to provide fuel for Palestine and to avoid dependence on Israel because of the high cost of fuel to the Palestinian citizen (in other words the dissolution of the Paris economic agreements). the necessity of coordinating with the private sector, which provides fuel to the Palestinian markets, and in the legislative aspect the necessity of the competent authorities to Pass laws and regulations to regulate the fuel sector in Palestine.

This study is important for planners, policy makers and decision makers, as it will highlight the importance of the fuel shortage crisis for future fuel security in Palestine.

KEYWORDS

Strategy, energy, energy security, fuel, fuel security.

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List of Abbreviations

Abbreviations	**Full form**
AFP	Agency France-Press
GDP	Gross Domestic Product
IEA	International Energy Agency
JPRC	Jordan Petroleum Refinery Company
LPG	Liquefied Petroleum Gas
MOSES	Model of Short- Term Energy Security
R&D	Research and Development
SPR	Strategic Petroleum Reserve
UK	United Kingdom
US	United States

Chapter One: Introduction

Petroleum, including fuel oil, is the main and strongest source of energy for any country and has proven to be the driver of many other industrial, construction, agricultural, service-sector and economic opportunities in the modern world. Fuel oil is efficient, sustainable and safe. Here, safe is a multidimensional concept that includes internal and external factors, such as health, politics and security (Kisel, Einari et al, 2016**).** As former U.S. President George W. Bush said in 2001, "energy security must be the first priority of our foreign policy and the key to domestic politics" (Bush, George W., 2001). Any negative impact on the stability of the supply and flow of oil to a country causes serious damage to the national security, political stability, and social welfare of citizens of that country as energy affects all sectors of society (Cohen, A, 2007).

In view of the political crises experienced by the State of Palestine, and taking into consideration the prevailing conditions of the state, fuel is a decisive instrument to that can be used to instigate planning and forms the core of the strategic policies that are needed for Palestine to reach state status. (AFP, 2018)

In the case of Gaza strip, lack of fuel has contributed to unprecedented levels of health problems. By the end of January 2018, the shortage of fuel had led to the closure of a significant number of Gaza health centers, which had served nearly two million people. Seven centers were closed due to the depletion of fuel used to operate standby generators. Therefore, fuel shortages threaten individual security, health security, and national security, all of which force hospitals to close. (AFP. 2018)

If we focus on energy security studies in the past, we will find that historically energy security studies concentrated on oil supplies, markets and infrastructure and each challenge was addressed as a separated problem.

It's clear that energy security challenges are increasingly complex. Scholarly discourses on energy security have developed in response to policy agendas, such as the supply of fuels for armies and transportation, uninterrupted provision of electricity, and ensuring the effectiveness of investments. As a result, three distinct perspectives on energy security have emerged: the 'sovereignty' perspective has its roots in political science; the 'robustness' perspective has its roots in natural science and engineering; and the 'resilience' perspective has its roots in economics and complex systems analysis. At present, the energy security challenges are increasingly entangled so that they cannot be analyzed within the boundaries of any single perspective" (Cherp, & Jewell, 2011).

Previous studies on energy security have centered around understanding the dimensions of the concept (Cherp and Jewell, 2011; Cherp and Jewell, 2014; Sovacool and Brown, 2010). These written studies summarize many new meta-surveys (Cherp and Jewell, 2010, 2011; Sovacool and Brown, 2010). One method for characterizing this issue or concept is by outlining various sorts of risks, along with long-term perspectives. Many of the studies concentrate on energy security as long-term issue (Cherp et al., 2011).

A popular paper that looks at the European Union's standard for energy security (Scheepers, M., Seebregts, A., de Jong, J., & Maters, H. (2007). The paper uses a model for assessing energy security that has one qualitative indicator and two quantitative indicators. The qualitative indicator assesses overall consumer/producer relations. The first quantitative indicator is named the index of supply and demand, and analyzes the supply and demand. The second quantitative indicator is the sudden unexpected

interruption of supply in the short-term and the ability to manage those risks. It is called the crisis capability index. One of the most widely sited energy security studies is the index of crisis capability and the supply and demand index (Scheepers, Seebregts, de Jong & Maters, 2007).

Defining energy security as the 'low vulnerability of vital energy systems' opens a path towards a more detailed understanding of (a) vital energy systems; and (b) their vulnerabilities, composed of exposure to risks and resilience. "Of course, the concepts of vital energy systems, vulnerabilities, risks and resilience have different meanings in different contexts and for different actors. In particular, they reflect not only objective properties of energy stocks, flows, infrastructure, markets and prices, but also political constructs rooted in institutional interests, memories and distinct perspectives on the future. This is precisely why the meaning of energy security will always vary from one place to another" (Cherp&Jewell, 2014,420).

1.1.Problem Statement

In order to survive and carry out even minimal activities, Palestinians have to be able to have functional hospitals and the possibility to cook and work. Palestinians also need basic mobility for security, transportation, and even minimal trade and industry. Currently Palestinians are often relying on electricity generators in times of crisis. These generators are their only option for future fuel crises because Palestine's only source of fuel is Israel, a hostile state. A potential alternative to this state of crisis is to create fuel crisis reserves in Palestine, as well as a series of strategies for utilizing these reserves.

Most countries around the world have fuel reserves for times of crisis, such as disasters and war. Additionally, there are many international agencies, such as the International

Energy Agency, whose main purpose is to provide energy security. One of the main objectives of the Israeli Ministry of Energy is to prepare for emergencies, such as war, terrorist incidents, malfunctions, and climatic events. Considering all of this, how can we overlook the creation of a similar reserve for a besieged country like Palestine?

Based on this, the study aims to answer the main question: What are the main obstacles that facing the adoption of a fuel security strategy in Palestine?

1.2. Added Value

This study adds value because:

• To the researcher's knowledge, it is one of the few studies on fuel reserves in Palestine;

• This study will be a contribution to scientific research on Palestine, in specific, and the Arab World, more generally;

• This study will enrich scientific research on the importance of emergency fuel storage;

• And finally, this study is important for planners, policy makers and decision makers, as it will highlight the importance of fuel storage and of fuel security.

1.3. Questions and Aims

1.3.1 Objective

The study aims to highlight the influence of fuel crisis reserves on other sectors, while shedding light on how an emergency fuel plan could benefit the future state of Palestine. It also proposes a methodology for the creation of a fuel reserve, an evaluation of the current fuel options, and a future study on how much fuel would be necessary to achieve fuel security. This will be followed by the standard analysis method used to determine

the quantities of fuel required to cover Palestine's needs during various potential crises and the results of interviews with specialists who will contribute to fuel-security policy in the future. The objectives of this study are summarized below:

- Diagnosis of the current state of fuel security in Palestine;
- Identification of fuel security challenges;
- Exploration of geopolitical variables and their impacts on fuel security;
- Identification of the quantities of fuel needed to achieve fuel security in Palestine;
- Identification of Palestine's fuel storage policies;
- Identification of the infrastructure needed to achieve fuel security in Palestine;
- Identification of the authorities in charge of fuel security in Palestine;
- Identification of the different roles private and government institutions could play in achieving fuel security;
- Identification the effectiveness of Palestine's fuel security strategy;
- Identification of the most important problems with the implementation of fuel security strategy in Palestine;
- Identification of stakeholder interest in developing future fuel security in Palestine.
- Identification of the most important obstacles curbing the development of fuel security strategy in Palestine;
- And the completion of a master's degree in strategic planning and fundraising from the Arab American University.

1.3.2. Questions

This study will answer the following main questions and sub-questions:

- What are the main obstacles curbing the development of fuel security strategy in Palestine? Is there a fuel security strategy in Palestine?
- If there is a fuel security strategy in Palestine, what does the strategy consist of?
- What is the relationship between the security situation and fuel security in Palestine?
- How much fuel storage is needed to achieve fuel security in Palestine?
- What are the best geographic areas to use for fuel storage in Palestine?
- Are there any differences between government and private sector storage facilities?
- How effective is the fuel security strategy in Palestine?
- What are the most important problems facing the implementation of fuel security strategy in Palestine?
- How interested are various stakeholders in developing future fuel security in Palestine?

1.4. Limitations

Spatial boundaries: Since the study concerns the Palestinian State, its spatial boundaries will be the West Bank and the Gaza Strip.

Time limits: years from 1994 to 2019, conducting study in the first semester of the year 2018/2019

Human Boundaries: This study will include people who are either working in the fuel sector or deeply connected to either the private or public fuel sector.

1.5. Methodology

This study uses the descriptive and comparative approach, in which the researcher aims to create an objective and clear description in order to generalize the findings of the study. The descriptive approach is used here because the study requires the collection of clear and relevant data regarding strategies for creating fuel security in Palestine. It also employs a comparative approach because the study requires the comparison of the fuel storage situation in Palestine with neighboring countries and international standards and compare with fuel security indicators for Canada and France as a short-term security.

1.5.1. Population

The study population includes all 130 employees of the Palestinian Petroleum Authority, as well as 290 private-sector oil companies, of which 276 are located in the West Bank and 19 in the Gaza Strip.

1.5.2. The Study Sample

The study sample uses a purposeful and objective selection of seven employees in the Palestinian Petroleum Authority and owners of oil companies.

1.5.3. Study Tools

The researcher used interviews to gather data from the interviewees. The interview was unstructured in order to gather all the data that needed to be collected. To verify the validity of the interviews, the interview questions were presented to arbitrators with expertise and experience in the field of administrative work. After the experts gave their opinions, the interview questions were redrafted and finalized. The interview conditions

were prepared in advance, and the interviewees were informed of the objectives, duration and location of the interview.

1.5.4. Time of Interview

Respondents were interviewed individually during the course of one day due to time constraints, since the interviews were conducted during working hours.

1.5.5. Sources of Data Collection

The data for this study was collected from the following sources:

1. Secondary Sources: books, scientific journals, studies and previous research.
2. Primary sources: This data was collected from the interviewees.

1.5.6. Statistical Processing

The data collected from the respondents was processed using frequency, a statistical measurement used to illustrate the distribution of the sample by demographic variables.

1.6. Definition of Terms

Palestine: includes both the West Bank and the Gaza Strip.

Strategy: Stratégie in French. The origin of the word strategy is the Greek word "strategos," which means the art of command and combat management used by the military. (Tzu, 2008) **T**he term was first used by **Sun Tzu** and Clausvitz. In this study, strategy is defined as, "important and influential decisions taken by institutions and decision-makers to maximize their ability to benefit from the opportunities offered by

the environment and to develop the best means to protect them from the threats posed by the environment."

Fuel security: In this study, fuel security is defined as the ability to meet the fuel needs of the community—in the short term. Improving fuel security is fundamental to minimizing shortages of liquid fuels (petrol, diesel and jet fuel) or gas, which can cause significant disruptions in daily life. Activities that support better fuel security include minimizing and managing fuel supply shortages and protecting the state from loss of fuel.

Consumed oil: These products can either be imported or domestically refined. Both choices have their own resilience factors and specific risks. The products of domestically refined oil are exposed to many risks like supply disruptions and refinery outage, while imported products might be impure or face trade barriers or compromises in the importing infrastructure.

Middle distillates: This group includes diesel, gas, jet fuel, and different types of kerosene**,** as well as white spirits, jet fuel, lubricants, petroleum coke, fuel oil, ethane, aviation gasoline, paraffin waxes, naphtha, and refinery gas among others.

Chapter Two: Literature Review

In this chapter, concepts related to the focus of this research will be presented, as well as a long list of resource materials related to the research topic.

2.1. The Concept of Strategy

Some definitions of strategic management focus on the results of the organization's long-term performance while neglecting its surrounding environment. Conversely, others focus on the strategic decisions and operations undertaken by the organization. Here, strategic management is defined as the expression of the future vision of an institution, the identification of the goals of the institution and its long-term mission, and the study of the relationships between the institution and its environment. The goal of strategic management is to enhance the opportunities and strengths of an organization while indicating its vulnerabilities so that its leadership can make long-term strategic decisions (Al Maghribi, 1999)**.** According to Ansoff**,** strategic management is the process of creating an institution's long-term goals by understanding the organization's relationship with its environment. (Ansoff, 1965)**.** According to Wheelen and Hunger**,** strategy refers to the management's actions and decisions that govern the long-term performance of an institution (Wheelen and Hunger, 2004).

2.1.1.The Importance of Strategy The importance of strategy can be understood through the following two factors.

First is the belief that increased administration and strategic management brings great benefits to the institution both in its current and future work.

The second factor is that the upper management depends on the strategic management because of local challenges, regional or global, all of which drive the institution to move away from ineffective management methods (Salem, 2005).

2.1.2. The Benefits of Strategy

The process of studying and predicting future events helps an institution to prepare for the future and to control its status and growth. Strategic choices and rational problem solving are not only important for the creation of strategy itself, but also for the creation of efficient and effective processes within an organization.

Putting environmental variables under the microscope and attempting to control them helps to decrease risks and take advantage of an organization's strengths. Strategic management positively affects financial returns and improves economic results. If an institution studies the markets and its surrounding environment, it will be able to take advantage of available resources become more competitive. Fully utilizing an institution's internal resources helps it to address an external scarcity of resources and overcome other weaknesses (Salem, 2005).

2.1.3. The Stages of Strategy

These are the stages of strategy:

- Analysis of the external and internal environment;
- Formulation of a long-term strategic plan;
- Implementation of the strategy;
- And finally, control and evaluation (Salem, 2005).

2.2. Palestinian National Agenda 2017- 2022

The strategic plan for maintaining fuel security in Palestine to be integrated with the plan of the Palestinian government called "National Policy Agenda for the years 2017-2022" and in accordance with the Palestinian government's continuing directions towards reform and sustainable development and efforts towards economic independence and seeking to secure all the elements of steadfastness by providing security and securing basic needs. (Palestinian National Policy Agenda 2017-2022, 2016, p5-8)

2.2.1. Improvement of the Quality of Public Services

The second approach of the National Policy Agenda (NPA), which is the approach of reform and improvement of the quality of public services, consists of a number of national priorities and policies. The national priority is the citizen-responsive government, which is the national policy: enhancing the responsiveness of the local authorities to citizens and the policy of upgrading the public services provided to citizens. In addition to national priority: effective government, linked to the policy of efficiency and effectiveness of public money management. (Palestinian National Policy Agenda 2017-2022, 2016, p 26)

In order to ensure the provision of services in an integrated manner to citizens, the Palestinian government will adopt an integrated approach to partnership between the various private and public sectors and NGOs. To develop and strengthen the services provided to citizens in all their places of residence. This policy will be implemented through policy interventions: developing the strategy of improving the services provided to citizens at different levels in cooperation with partners and enhancing

complementarity and partnership with the private sector in providing services. (Palestinian National Policy Agenda 2017-2022, 2016, p 28-29)

The ninth national policy of enhancing accountability and transparency is to be implemented in relation to policy intervention: human resource development and effective management of the civil service sector. (Palestinian National Policy Agenda 2017-2022, 2016, p 32)

The tenth national policy of efficient and effective public money management and for effective implementation of this purpose includes public debt management and procurement, requiring the ability to provide policy makers with options and policies based on evidences, taking into account their potential financial impacts. As a result, executing governmental policy decisions regarding revenues and debt collection and correcting financial shortage. (Palestinian National Policy Agenda 2017-2022, 2016, p 33)

2.2.2. Sustainable Development

The third approach is the approach of sustainable development. This approach is closely linked to economic and political independence, but it is impossible to achieve it in the long term in the case of Israel's control over land and resources, Israeli obstacles and stipulations and permissions to develop necessary infrastructure and import products. (Palestinian National Policy Agenda 2017-2022, 2016, p 35)

This approach will be implemented through several priorities and national policies, including the priority of achieving economic independence that includes the policy of building the elements of the Palestinian economy. (Palestinian National Policy Agenda 2017-2022, 2016, p 34)

The priority of a bolster steadfastness society, development and the policy of "providing security for the State and citizens, strengthening the rule of law" and the policy of "providing the basic needs of communities". (Palestinian National Policy Agenda 2017-2022, 2016, p 35)

Here, the national strategy is designed in a way that combines the quality of service delivery to support citizens' steadfastness and improve their lives. (Palestinian National Policy Agenda 2017-2022, 2016, p 36)

The sixth national priority towards economic independence through priority is to provide an appropriate investment environment represented by the policy of providing a supportive legislative and administrative environment for the business sector. (Palestinian National Policy Agenda 2017-2022, 2016, p 37)

The tenth national priority is an" able to withstand and sustainable society" by strengthening the consolidation of steadfastness for communities and providing them with basic services and safeguarding their security. It will be achieved through the national policy "enhancing security for the State and the citizen and strengthening the rule of law", by the intervention policy "strengthening crisis response capacity and crisis management" and the national policy "Providing basic needs for the groups of citizens" through interventions policy: connecting communities to reliable energy sources of "and" improving the quality of transport service to citizens ".(Palestinian National Policy Agenda 2017-2022, 2016, p 44)

2.3. Storage Management

In his book, *Purchasing and Storage Management*, Ahmed Raedhi writes that the body authorized to store, organize, plan and implement procedures, and control the disbursement of materials depends on the type and quantity or the users of the inventories. Proper storage should meet two main criteria: conservation, which ensures the safety of the materials that are stored and reduces the risk of fire, damage, theft, etc.; and retention, which is a core storage function.(Al Ghadeer, 1997)

2.3.1. Services Provided by Storage Management

Storage management includes the following services:

1. Auditing the balance of raw materials, equipment and machines needed to complete the operations. This balance consists of the incoming materials, the materials currently in storage, and the outgoing materials.

2. Providing the necessary spare parts and maintenance to ensure continued service and operations.

3. Obtaining and disposing of materials at a profit, whether goods are already ready for sale or raw materials are refined and resold ((Al Ghadeer, 1997)

2.3.2. Responsibilities and Competencies of the Storage Manager

The responsibilities of the storage manager are the following (Al Ghadeer, 1997):

Effective storage should cut costs in a number of ways.

2. A storage manager sets the specifications and classification of the inventory. Effective storage management facilitates the process of obtaining materials as well as the processes of maintaining and distributing materials. Managers also classify materials by category using numbers, letters, colors, or other symbols.

3. Storage managers receive the materials to be stored.

4. They check and inspect materials.

5. They maintain the inventory and make sure the materials are safe.

6. They take stock of the stored materials.

7. They distribute materials.

8. They keep inventory records and save their accounts.

9. They protect the inventory from damage.

10. They provide periodic reports on the inventory.

11. They maintain a balance between procuring and storing materials by controlling the movement of stored materials and controlling the levels and quantities of stored materials.

C. They decide how to store materials.

2.3.3. Importance of Storage

Storage and storage management is important for a number of reasons:

1. Practical importance: as it is impossible to move materials directly from the source to those who need them. Storage ensures a continuous supply. (Al Ghadeer, 1997):.

2. Economic importance: Purchasing materials in economical quantities and then storing them help reduce the costs of frequently changing prices, buy materials at discounted prices for possible price fluctuations. (Al Khahaili, 2017)

3. Planning: Ensure no interruption as a result of the import of materials from other countries to achieve the abundance of materials long enough for import from abroad. (Al Khahaili, 2017)

4. Implementation: If goods are not readily available then they cannot be sold and produce revenue.

On the other hand, neglecting storage management leads to a number of negative results:

2.4.Petroleum

Oil is discovered through underground drilling techniques and is extracted by drilling wells. Petroleum is used by petrochemical industries both in its raw and in its refined state. Oil products coming from petroleum include fuel, paraffin, liquefied petroleum gas, light oil, kerosene, gas and solvents.

Oil is a very dark color with a metallic, greasy texture. It consists of hydrogen grease, and is also called oil, crude oil or raw ((Borges et al/ Khouri, 1990)

2.4.1.History of Petroleum

Oil has historically been identified by gas leakage and fires. It was first discovered by the Chinese when they were searching for rock salt and their wells reached the depth needed to strike oil. Ancient peoples used oil to lubricate their wheels, paint ships and increase the hardness of cement for housing. The Chinese transferred gas through bamboo canes to light homes and heat and ignite stoves and furnaces. In medieval times, oil was used in the pharmaceutical and medical fields. (Borges et al/ Khouri, 1990)

The first flame of the modern petroleum industries began with the well of Edwin Laurent Drake (1819-1880), followed by the invention of aviation fuel, auto fuel, and gas lighting. This followed by the era of liquid fuel and petrochemicals, which were invented in 1950. (Borges et al/ Khouri, 1990)

2.4.2. Nature of Petroleum

According to Borges,, large amounts of hydrogen coal is an oil mixture as well as a variable amount of bonds consisting of oxygen, nitrogen and sulfur. Different categories of petroleum are classified by their different chemical compounds: Sulfuric, Naphthalene, Paraffinic, Aromatic, Special. (Borges et al/ Khouri, 1990)

2.4.3.Petroleum Products

“ Petroleum products are any petroleum-based products that can be obtained by refining and comprise refinery gas, ethane, liquefied petroleum gas (LPG), naphtha, gasoline, aviation fuel, marine fuel, kerosene, diesel fuel, distillate fuel oil, residual fuel oil, gas oil, lubricants, white oil, grease, wax, asphalt, as well as coke. Petrochemical products (Speight, 1999a) are not included here.” (Speight, J. G. 2015)

Petroleum products include the following:

Kerosene

For more than a century, kerosene has been the main product of the petroleum industry as Speight (2015) and is still used for lighting and heating. In order to reduce the side effects and risks resulting from the use of flammable materials, its volatility and flash point have been determined. High quality kerosene can burn for a long time (hours) without exploding or smoking. It is known for its resistance to freezing and corrosion, all of which has been confirmed by laboratory testing. (Borges et al/ Khouri, 1990)Benzene

Initially it is a colorless material, but yellow, red or blue coloring is added to the fuel for easy fraud detection. (Borges et al/ Khouri, 1990) It is made up of flammable liquid

hydrocarbons which derived from petroleum as Speight (2015) and is characterized by a controlled volatility. This material can be used as either a solvent or as fuel.

Diesel or gasoil

This product has both heavy and light varieties. The first type of gasoil is for heating and cannot be used for motor engines. It is often dyed red for that purpose. The second type of diesel is used for engines and plays a large role in the economy because of its use in trains and trucks(Borges et al/ Khouri, 1990)**.**

Liquefied gases (butane and propane)

This gase is melange of gaseous hydrocarbons sold in compressed cylinders, butane and propane are produced through refining natural gas and petroleum, and stabilization petroleum, and are used to heat houses, as kitchen gas and for industrial uses. (Speight, 1999)

Lubricant

It's used to minimize the wear and fraction between metallic bearing surfaces which are moving to each other with respect. It is distinguished by a high boiling point from other crude oil fraction. (Speight, 1999)

Heavy oils

These oils are used in the shipping and trucking industry, as well as in ovens. To verify their effectiveness, their sulfur rate test, flammability, viscosity and sediment ratio are tested. (Borges et al/ Khouri, 1990) Petroleum Asphalt

These materials are commonly used in buildings and roads and are tested through propagation, penetration and viscosity tests. (Borges et al/ Khouri, 1990)Petroleum Candles (Paraffin)

Paraffin has a high melting rate, which gives it strong adhesion and prevents the staining of the candles (Borges et al/ Khouri, 1990)**.**

2.4.4.Petroleum and Global Politics

Since the Second World War, many countries, particularly Latin America and the Middle East, have been producing petroleum products, and petroleum wealth is now a large percentage of their national product. For these countries, oil companies have also contributed tax money and income from their licensing fees. In all countries, petroleum, especially fuel is regarded as a core contributor to tax revenues. For example, in France, the income from petroleum has reached 18 billion francs since 1974. Since the First World War, various countries have tried to control the petroleum market. (Borges et al/ Khouri, 1990)

2.5. Petroleum Storage

This type of storage is done by placing a volume or quantity of oil in some type of reservoir. (Borges et al/ Khouri, 1990)

2.5.1. The Importance of Storage

The importance of storage stems from the need to provide regular quantities to consumers

and industries. Petroleum manufacturers, like other industries, face risks from natural disasters on land or sea, breakdowns in infrastructure, and economic or trade economic obstacles due to poor relations with the countries concerned. Several types of storage

are typically used, including raw storage, oil refineries, and reserve storage. (Borges et al/ Khouri, 1990)

2.5.2. Reserve Storage

After the second Arab-Israeli war (the 1956 crisis), the quantity of gasoline exported to a number of countries such as Europe dropped significantly. Since then, most countries have enacted laws to store compulsory reserves. For example, in France oil companies must keep enough oil in storage for three months of consumption. Some of this oil must be refined and ready to use, and some of it crude oil. (Borges et al/ Khouri, 1990)

In their book, *Oil Tanks and Control*, Ameen and Abdeljameed write that reservoirs or tanks are used to store crude oil or petroleum products as well as liquids, such as chemicals or water. The type and quality of the tank are determined by the material to be stored and other international standards. Note that the specifications of reservoirs in terms of pressure, heat and capacity are different. In some cases the capacity of tanks can reach nearly half a million barrels of crude oil, and and handle temperatures of 200 degrees Celsius or more for. This is especially true for storage tanks used for high-viscosity oils or for storing asphalt. Other tanks can handle temperatures lower than 14 degrees Celsius, such as hydrocarbon gas reservoirs used for butane storage. All these specifications must be taken into account for the proper storage of each product **. (Ameen, 2015)**

Tanks are classified according to several criteria. They include, pressure, diameter, the base of the tank, the shape and type of lid, and the type of closure.

Tanks classified by pressure

There are two types of tanks, one with internal pressure and the other with low pressure on the inside. The first type is used for high-pressure steam products, while the second type of tank is used for raw or insulated gas materials.

Tanks classified by diameter

Some small tanks have diameters of around 60 meters and are designed using the "one-foot method." Larger tanks extend to 120 meters in diameter and are designed using the "variable design method."

Tanks Classified by Base

There are two types of tanks in this classification. The first type is tanks fixed and can be used in places with strong winds or where there is the possibility of earthquakes. For tall tanks with a small diameter, there is an increased need to fix the tank. The second type is used in stable areas or when the tank is short with a large diameter.

Tanks Classified by Lid

Churchill wrote that conical lids can ensure the safety of oil stored in tanks with small capacities or which have small diameters, while elliptical lids are usually used for medium-sized tanks or to reduce gas pressure in the tank.

The lid of the tank can also be fixed or removable. Both oval and conical lids can be fixed, meaning they are attached to the walls of the tank. Removable lids are for materials with high steam pressure and volatile materials like kerosene, benzene and crude oil. The aim of this design is to reduce evaporation in the case of a large surface area from a large-diameter barrel. It is also used to reduce the risk of evaporation costs. They are used frequently when exporting of oil in large-diameter tanks to prevent hydrocarbon vapors from mixing with air, which produces a flammable combination. Being able to move the lid down or up depends on the amount of material and

movement within the tank and can be assisted by buoys. There is also usually a rubber controller to avoid friction between the walls of the tank and the roof. There are single-deck lids, double-deck lids, and lids with closed floating pipes, among others.

Fixed lids do not have movable ceilings, except if there is a floating ceiling inside the tank. Fixed lids can include self-supporting tanks, central supports or supported tanks. The type of lid is determined by the weight of the lid, the structure of the walls, and the diameter of the tank.

Several factors must be taken into consideration for the design of the tank, such as how corrosive the materials being stored are, the volatility of the stored material, the heat and pressure of the material, environmental factors, how much hydrocarbon needs to be released, and the type of tank being used **((Ameen, 2015)**

Chapter Tree: The Concept of Fuel Security

"The IEA defines energy security as the uninterrupted availability of energy sources at an affordable price. Energy security has many aspects: long-term energy security mainly deals with timely investments to supply energy in line with economic developments and environmental needs. On the other hand, short-term energy security focuses on the ability of the energy system to react promptly to sudden changes in the supply-demand balance."

Accordingly, the IEA defines energy security as, "the uninterrupted physical availability at a price which is affordable, while respecting environmental concerns."

Countries around the world became concerned about fuel security when the international crude oil price tripled in Oct 1973. As a consequence, achieving a secure supply of oil became the core of the agenda of energy policy for the majority of industrialized states around the world (LaCasse and Plourde, 1995).

However, energy security is itself a contestable notion. Instead of giving a broad definition of energy security, here the author attempts instead to weigh insurances against risks.

A critical part of energy security is to reduce the risk of disruptions to the importing of oil in order to ensure economic and social welfare, and the state's ability to operate both internationally and domestically (Lesbirel, S. H., 2004).

In his article, "Ensuring energy security," Daniel Yergin writest that at the time of the First World War, Winston Churchill made a historic move: he changed the British navy's ships' power source from coal to oil. Churchill intended to make his fleet faster compared with its German counterpart. This transformation meant that Royal Navy

would not be dependent on coal from Wales but on more insecure oil supplies from what was then Persia**.** Consequently, energy security became a key part of the British strategy.

The most recent decade has seen a considerable increase in the demand for oil because of the dramatic economic development in developing nations. Diesel is the most common fuel used by European drivers, half of whom now purchase diesel automobiles. And it has progressively been used to power economic development in Asia, where it is used for transportation as well as to generate electricity. Because of this, the essential worry for both China and India is to guarantee that they have sufficient energy to support their economic development and to prevent energy shortages that may trigger political and social turbulence (Yergin, 2006).

Rising oil prices in 2007 again 2008 again caused countries to be concerned about energy security. The U.S. Congress introduced more than 180 bills mentioning energy security during its 2009-10 session. The same was the case for other nations around the world as well (Loschel, Moslener, Rubbelke, 2010).

In his book, *The Routledge Handbook of Energy Security*, Sovacool writes that there are a number of countries, inclduing France and the U.S. that have developed enough nuclear power for a self-sufficient electricity supply but they are still dependent on imported foreign oil to fuel the transportation sector. More vulnerable countries depend on imported oil for both their electricity and their transportation (Sovacool, 2010). Countries that are completely dependent on foreign oil face the continual threat of being cut off from their energy supply.

Kucharski and Unesaki give a simple definition of energy security, characterizing it as, "Assessing various types of risk in the energy system." The main drawback of this

definition is it simplifies energy security into an action. Assessing risks is part of the process of creating energy security, however there are other parts (Kucharski, J., &Unesaki, H., 2015).

The petroleum reserves in the United States were interrupted during the 1973-1974 oil embargo, which caused the government to work to prevent supply disruption in the future. "As of September 2, 2016, the inventory was 695.1 million barrels (110,510,000 m^3). This equates to about 38 days of oil at 2013 daily US consumption levels of 18.49 million barrels per day (2,940,000 m^3/d)[3] or 71 days of oil at 2013 daily US import levels of 9.859 million barrels per day (1,567,500 m^3/d).[4] However, the maximum total withdrawal capability from the SPR is only 4.4 million barrels per day (700,000 m^3/d), so it would take over 158 days to use the entire inventory" (American Strategic Petroleum Reserve (SPR), 2017)**.** The current storage capacity in the U.S. is 713.5 million barrels.

3.1. Palestinian Petroleum Authority

The Petroleum Authority was established in October 1994 by the Council of Ministers. The authority is an independent body that is directly affiliated with the president of the National Authority. Later, in 2003, it was incorporated into the Ministry of Finance and in 2018 it was incorporated into the Council of Ministers.

Within the borders of Palestine, the General Petroleum Authority is the only body responsible for anything related to oil. The Authority works to make sure oil products meet European specifications. It is also responsible for licensing "fuel distribution centers" and making sure oil is available to the State of Palestine.

The Authority works to facilitate the provision of petroleum products and to deliver them without interruption to consumers despite all the political and economic obstacles experienced by the Palestinian State.

The departments of the General Petroleum Corporation are as follows:

1. Administration
2. Finance
3. Storage
4. Purchases
5. Sales
6. Control and quality management
7. Licenses and Technical

To date, the General Petroleum Authority is in the process of developing a suitable structure that would allow it to achieve harmony and to achieve its objectives in the best possible way. The offices of the General Petroleum Authority are distributed throughout Palestine to facilitate the provision of its services. The Authority has 130 employees.

Objectives of the General Petroleum Authority

The General Petroleum Authority works to develop the petroleum derivatives sector and seeks to create an effective and efficient system capable of providing for the growing needs of the State of Palestine.

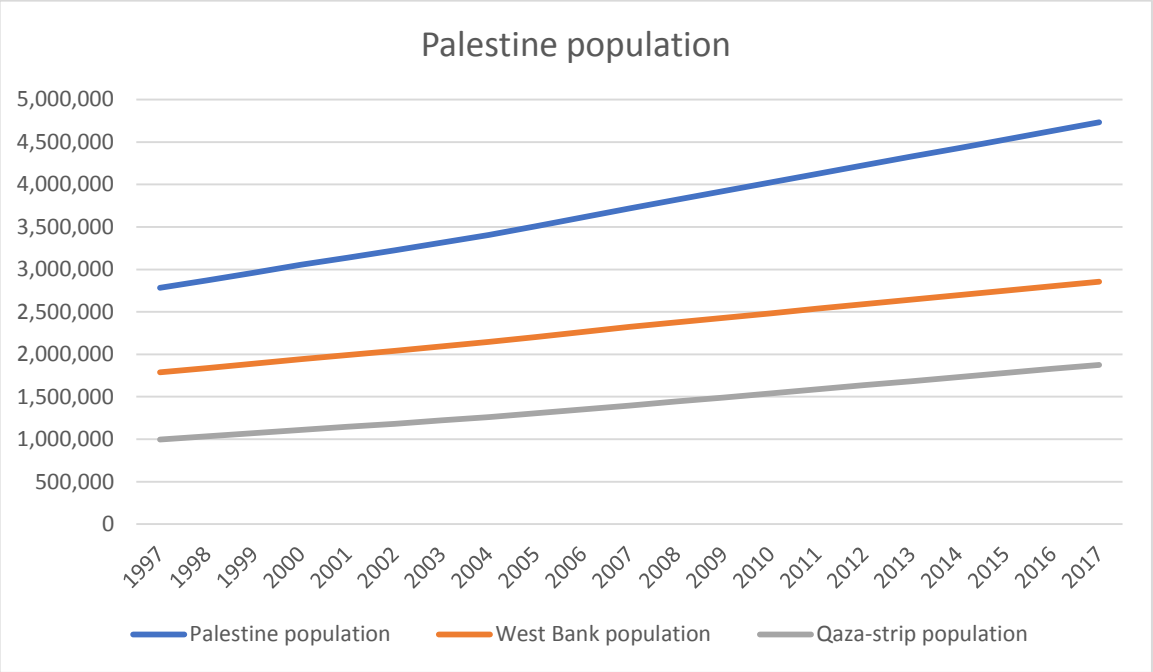
The Palestinian Petroleum Authority serves the Palestinian population as it grows in size, as shown in Table (1) and Graph (1)., which charts the Palestinian population from 1996 until 2017. The quantities of oil derivatives used in both the West Bank and Gaza are shown in Table (2). Graph (2) and Table (3) show the quantities of imported petroleum products in 1996 according to the geographical region. Graph (3) shows the

quantities of oil derivatives imported in 2000 according to region, followed by Table (4) and Graph (4) which shows the quantities of oil derivatives Imported in 2016 according to region.

Table (1): Population of Palestine

Year	Palestine population	West Bank population	Qaza-strip population
1997	2,783,084	1,787,562	995,522
1998	2,871,568	1,838,807	1,032,761
1999	2,962,226	1,891,171	1,071,055
2000	3,053,335	1,943,658	1,109,677
2001	3,138,471	1,992,577	1,145,894
2002	3,225,214	2,042,306	1,182,908
2003	3,314,509	2,093,381	1,221,128
2004	3,407,417	2,146,400	1,261,017
2005	3,508,126	2,203,738	1,304,388
2006	3,611,998	2,262,735	1,349,263
2007	3,719,189	2,323,469	1,395,720
2008	3,820,801	2,376,893	1,443,908
2009	3,922,130	2,430,170	1,491,960
2010	4,023,462	2,483,446	1,540,016
2011	4,124,795	2,536,725	1,588,070
2012	4,226,410	2,590,152	1,636,258
2013	4,327,751	2,643,435	1,684,316
2014	4,429,084	2,696,714	1,732,370
2015	4,530,416	2,749,990	1,780,426
2016	4,632,025	2,803,411	1,828,614
2017	4,733,357	2,856,691	1,876,666

“The Palestinian Central Bureau of Statistics, estimated population in Palestine mid-year by governorate,1997-2017”

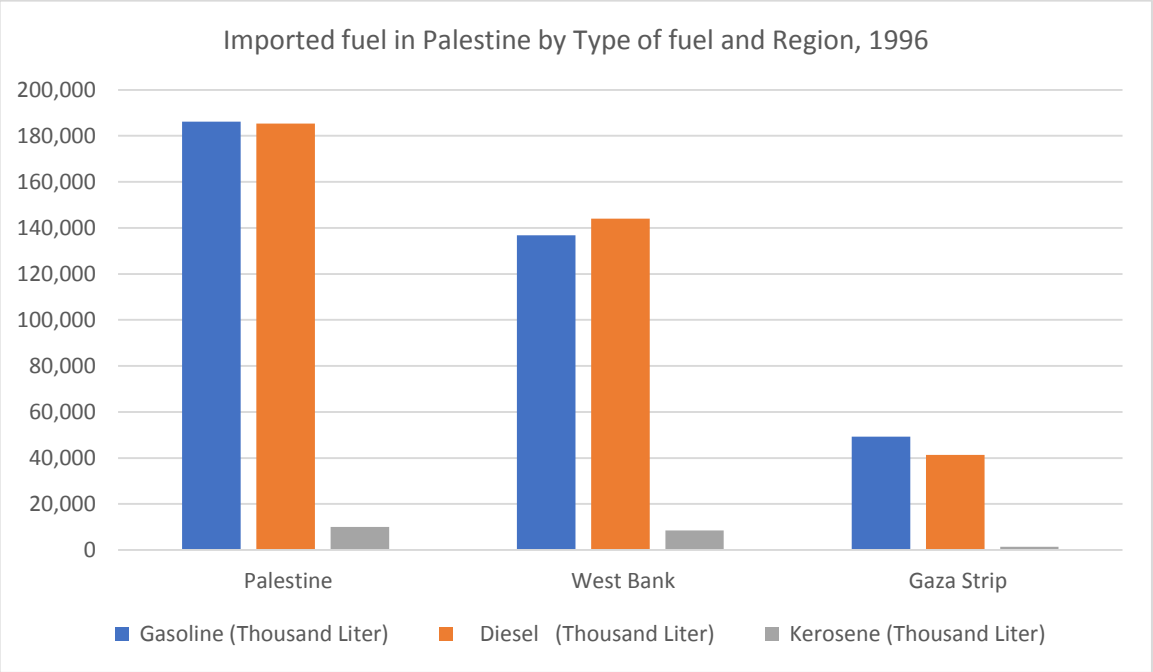


Graph (1): Palestinian Population

Table (2): Type of Fuel Imported to Palestine by Region, 1996

Region	Type of Fuel		
	Gasoline (Thousand Liter)	Diesel (Thousand Liter)	Kerosene (Thousand Liter)
Palestine	186,144	185,394	9,973
West Bank	136,843	144,054	8,510
Gaza Strip	49,301	41,340	1,462

"The Palestinian Central Bureau of Statistics, energy consumption in the Palestinian Territory annual report 1996"

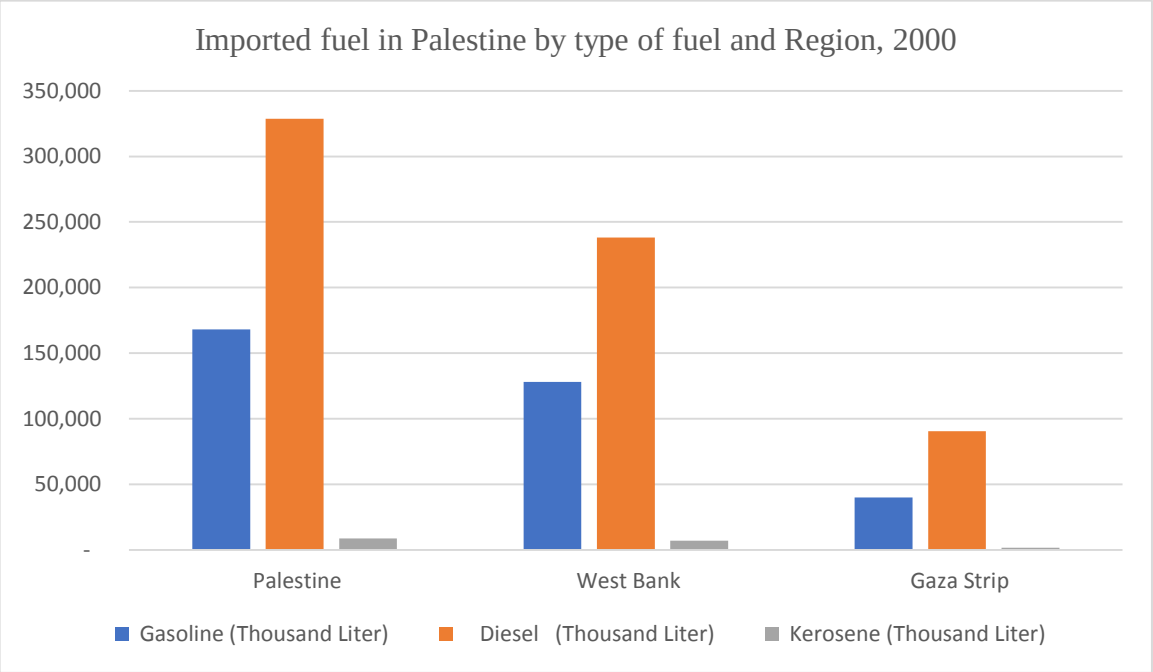


Graph (2): Type of Fuel Imported to Palestine by Region, 1996

Table (3): Type of Fuel Imported to Palestine by Region, 2000

Region	Type of Fuel		
	Gasoline (Thousand Liter)	Diesel (Thousand Liter)	Kerosene (Thousand Liter)
Palestine	**168,145**	**328,707**	**8,801**
West Bank	**128,076**	**238,273**	**7,176**
Gaza Strip	**40,069**	**90,434**	**1,625**

"The Palestinian Central Bureau of Statistics, energy consumption in the Palestinian Territory annual report 2000"

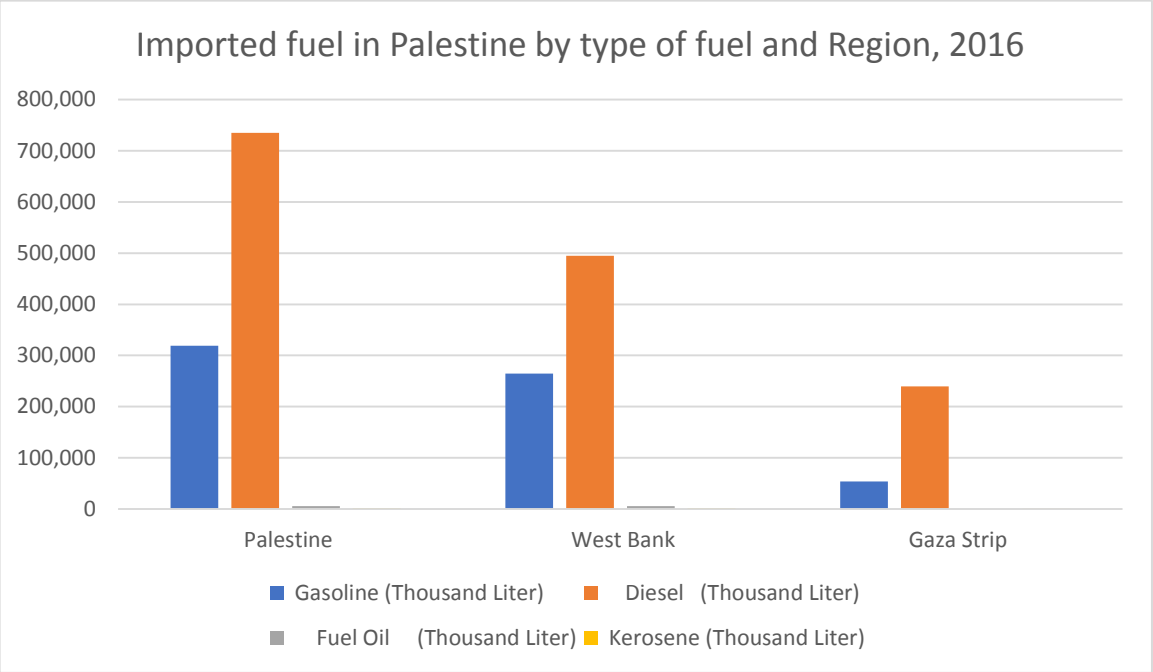


Graph (3): Type of Fuel Imported to Palestine by Region, 2000

Table (4): Type of Fuel Imported to Palestine by Region, 2016

Region	**Type of Fuel**			
	Gasoline (Thousand Liter)	Diesel (Thousand Liter)	Fuel Oil (Thousand Liter)	Kerosene (Thousand Liter)
Palestine	**318,826**	**734,748**	**5,395**	**1,809**
West Bank	264,827	495,041	5,395	1,659
Gaza Strip	53,999	239,707	-	150

"The Palestinian Central Bureau of Statistics, energy tables and energy balance 2016"



Graph (4): Type of Fuel Imported to Palestine by Region, 2016

Tasks of the General Petroleum Authority:

- Supply of petroleum products (diesel, gasoline, cooking gas, gas), natural gas and mineral oil import of Israeli companies to meet the needs of the Palestinian market.
- Distribute licenses for the energy sector.
- Fixing monthly fuel prices in a manner consistent with the general economic conditions of the State of Palestine.
- In cooperation with other relevant parties, work is being done on the development of hydrocarbon, petrochemical and plastic industries related to petroleum derivatives.
- Control the quality of oil derivatives and prevent smuggling in cooperation with the relevant bodies.
- Supervision of licenses for gas distributors and oil stations.
- Give permission to license vehicles for the distribution of gas cylinders and fuel tanks.

3.2. Previous Studies

Al-Zubair's study, Policy on the Distribution of Petroleum Products in the Oil Corporation, explains what drives institutions to the storage process, explaining the many benefits, such as saving time. In addition to avoiding the crisis of fuel shortage, the products are always available when needed. (Al-Zubair, 2015)

Ben Al Seid and Mohamed **conducted a** study titled "Management and Distribution of Petroleum Products from 2010 to 2015." A case study of Nafat - HassiMasoud Branch shows that storage is important for marketing and industry. For industrial facilities, storage creates a balance between the need to purchase and the stability and follow-up of the production process (Ben Al Seid, Mohamed, 2016).

The study, "Energy Security and its Strategic Implications" aims to determine the impact of the presence or absence of sources of energy and how it influences the policy and the foreign affairs of a number of countries, namely China, the United States, Russia and Saudi Arabia (Mohammed, Khadija Arafa, 2014).

This paper uses case studies as its methodology. It studies a number of energy-exporting and importing countries in order to understand the impact of different sources of energy on politics and especially the foreign policy of the state. The study reached several conclusions, including that the capabilities of the state, including energy capabilities, have an impact on the foreign policy of the State. The failure or success of the foreign policy is linked to several factors, including the state's capabilities, which impact the state's ability to pursue an active foreign policy in addition to confronting its problems and determining its policies in terms of cooperation and international conflict. The second result showed the difference between the traditional definition of energy security based on the security of supply and other definitions, which define security

economically, environmentally and politically. The study concludes that it is difficult to reach one definition of security. The third result shows that the political system influences foreign policy, but that this is often misleading. When studying the cases of the United States of America, it is a democratic state and a dominant global power aspiring towards human rights and democracy. China, on the other hand is led by the Communist Party and has been accused of violating human rights by some, but it uses economic and technical power instead of military power. Meanwhile the United States uses military power along with its other tools. Here it appears that China is focusing on the second definition of the concept of energy security which holds that the energy sector is the focus of security. China and the United States share a concern regarding energy security, which is reflected in their changing foreign policy and the expansion of their spaces of movement and use of various diplomatic tools.

Petroleum is considered a strategic commodity in times of both war and peace. Hence, petroleum has international strategic importance. It is a source of both security and strength for states and allows them to dominate and control global conflict. It can be used as an indicator to measure the prosperity and progress of countries, but also causes the exacerbation and intensification of conflict.

A decent beginning stage in conceptualizing fuel security is Baldwin's article, which defines security as, “economic security, environmental security, identity security, social security, and military security are different forms of security, not fundamentally different concepts” (Baldwin, 1997, 23). This applies to energy security too, implying that a energy security ought to be founded on an idea of overall security.

A study of non-traditional security issues in China, titled “China's Quest for Oil Security: Oil (Wars) in the Pipeline?,” deals with several major issues with the strategic

reserve of Chinese petroleum. It mentions, “Outside China, international strategic thinkers have been arguing among themselves over how China’s thirst for oil would impact on regional peace and stability" **(Pak K. Lee, 2005).**

This paper answers the questions, how and why has the basic need for crude oil been perceived as a security question in China? And how does China enhance its oil security?”

Lee’s paper has demonstrated the importance of investigating China’s oil diplomacy and security. He broadens the scope of his research into China’s security by joining economic security, non-traditional security, territorial integrity, and traditional security.

However, as mentioned on the BBC, “Not all countries have salt domes to store oil underground. Nor do all countries even have large, specialized storage facilities for SPR purposes. The UK, for instance, has neither. ‘What the UK has is an obligation on industry to hold oil at their existing sites above what they would normally do,’ explains Young. That oil is quietly kept aside by firms so that the government can access it immediately, if and when it’s needed” **(Baraniuk, 2015).**

The paper “Oil-Importing States and the Index of Oil Vulnerability studies 26 oil-importing states in 2004 with focus on various ratios like oil consumption vs. GDP and oil importing quantity vs. domestic oil products, among others. The findings of this study show there are significant differences between countries in terms of oil vulnerability (Gupta, 2008)**.**

This approach, which focuses on risk doesn't cover key factors such like the flexibility of energy systems. This focus on security centers on physical accessibility and availability and the economic cost of energy (Gupta, 2008).

A competing view of energy security argues that policymakers should not focus only on geopolitical power and sign contracts with states with states with large energy resources. Trade alliances are not the only way to reach energy security. It is also necessary to encourage smart costumer behavior with "tools such as R&D expenditures, subsidies, tariffs, and standards can be just as important, possibly more, for achieving available, affordable, efficient, and responsible forms of energy supply and use" (Sovacool and Brown, 2010).

Another paper focuses on the long-term indicators of energy security. This paper shows that there is no ideal indicator of energy security because they are all strongly context-dependent (Kruyt et al., 2009).

A regularly cited approach to energy security is the four As of energy security: the geological accessibility, geopolitical availability, economic affordability, and the social and environmental acceptability. This approach links economic factors with the environmental factors of energy security (Kruyt et al., 2009).

A new study done in 2010 by the Chamber of Commerce in America follows the same approach, showing four sides of energy security including infrastructure, economic balance, and environmental issues linked to global warming and other geopolitical issues. Whereas this method is inclusive, it doesn't relate closely with other analyses of energy systems because the indicators overlap in various ways.

Usually policy makers treat environmental concerns as constraints whereas they must consider them a key aim of energy security. These concerns are significant, but they are not included in the Model of Short-Term Energy Security **(MOSES),** that concentrates on only short-term physical disruptions to energy supply. This IEA model deals with

short-term consequences (days to weeks), while ignoring long-term indicators like natural resource depletion, environmental impact and affordability and price issues.

3.3. Fuel Security in the Hashemite Kingdom of Jordan.

Jordan is in the same region as Palestine and had a population of 10,240,111 in 2018.It adopted an energy security plan for 2015 to 2025, with several strategic objectives, including, "achieving energy security for comprehensive and sustainable development, increasing the contribution of local energy sources to the overall energy mix and reducing reliance on imports." In addition to the inclusion of many strategic points related to fuel security directly, Jordan is also working "to achieve the security of supply for oil products in a sustainable way and enhance competition in the sector for the period 2015-2025."

The Jordan Petroleum Refinery, through the process of refining imported crude oil, covers about 60 percent of the fuel needed to meet the needs of the Kingdom. The capacity of the Jordan Refinery is about 14,000 tons daily. This figure is close to 100,000 barrels on a daily basis. Forty percent of the Kingdom's needs is covered through importing oil from international markets and competitive bidding through the Jordanian Petroleum Refinery.

Achieving the security of Jordan's energy supply is approached in various ways:

1. The Jordan Petroleum Refinery (JPRC) is undertaking its fourth expansion project, and it has been granted a period of five years to enable the refinery to implement the project.. Alternatives to expanding the refinery were put forward, including reducing the rate of refining, importing suspending refining activity and importing all of Jordan's oil, or building a new oil refinery to enhance fuel security.

2. The companies meeting Jordan’s needs for oil.

3. Increasing the storage capacity of petroleum products for 90 days.

4. Implementing the company's logistics activities related to oil facilities by providing strategic storage capacities.

The following table shows the current and future storage capacities of oil and oil products in the Kingdom of Jordan

Table (5): Current and future storage capacities of oil and oil products in the Kingdom of Jordan

Subject	Current Capacities		Future capacity to enter the service by the end of 2016		
	Current capacity	Enough	The new capacities of the Ministry's projects (thousand tons)	Storage capacities Current and new (Thousand tons)	Sufficient after entering projects in service (day) *
	Thousand tons	day			
Crude Oil	319	31	100	419	41
Liquefied petroleum gas	27.6	25	16	43.6	40
Benzene	170	52	132	302	92
Diesel	236	59	171	407	102
Aviation fuel	63.5	67	34	97.5	103
Fuel oil (without electricity)	160	290	-	160	290
Gasoline (seasonal consumption)	90	225	-	90	225
Total	1066		453	1421	

“Ministry of Energy and Mineral Resources of Jordan, energy security strategies in Jordan 2015”

5. Completing the construction of the pipeline to transport oil from Iraq through the Kingdom of Jordan to the export port located in Aqaba, with an export capacity of about

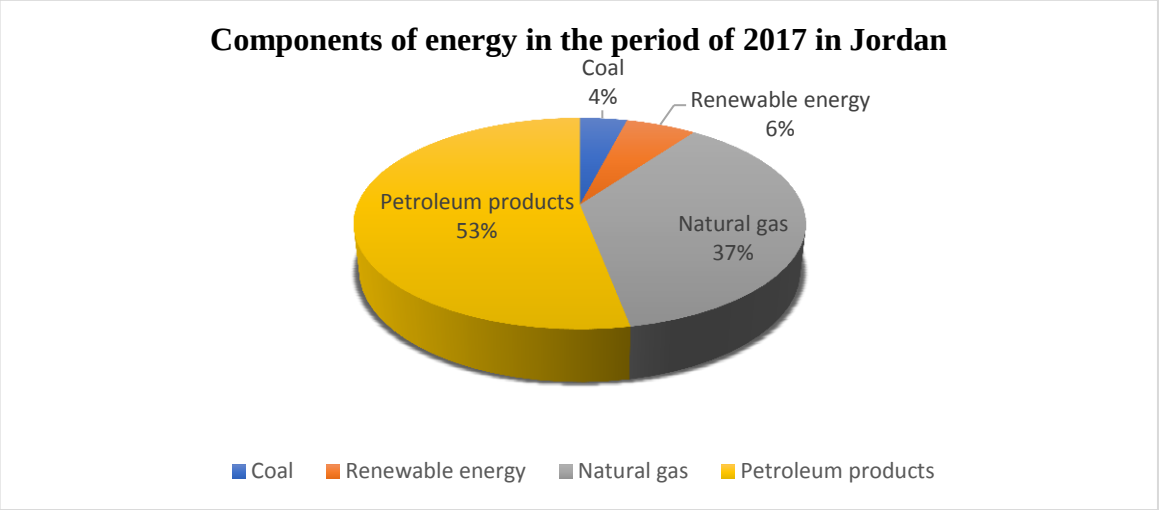
one million barrels/day. In addition to this main pipeline, a sub-oil pipeline will be constructed to meet the needs of the oil refinery starting in 2022.

• The expansion of storage capacities for petroleum products, except LPG, must be sufficient for a period of 90 days in order to achieve flexibility and adaptability in importing petroleum products.

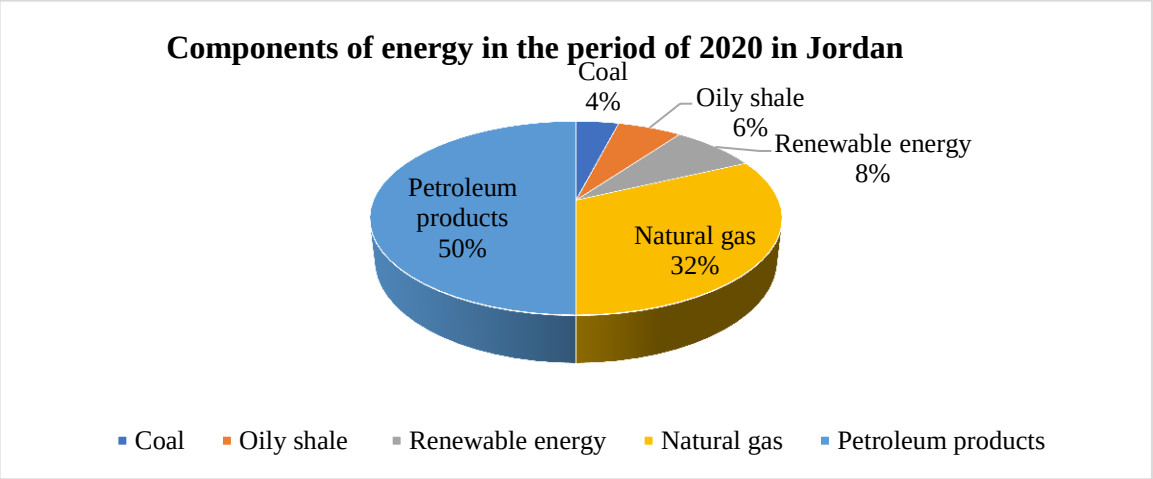
• Taking the necessary measures to maintain free market bidding on petroleum products.

• The prevention of the impact of oil shortage or the possibility of future shortage in the government by making decisions and implementing measures to meet the need of the Kingdom of Jordan from oil products.

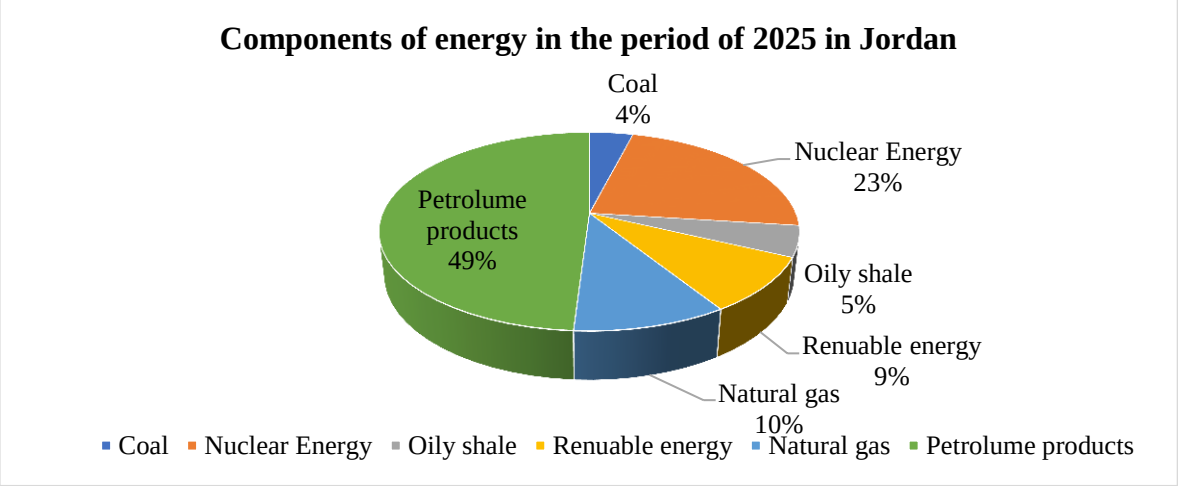
Graphs show the sources of energy in Jordan during the period 2015 to 2025.



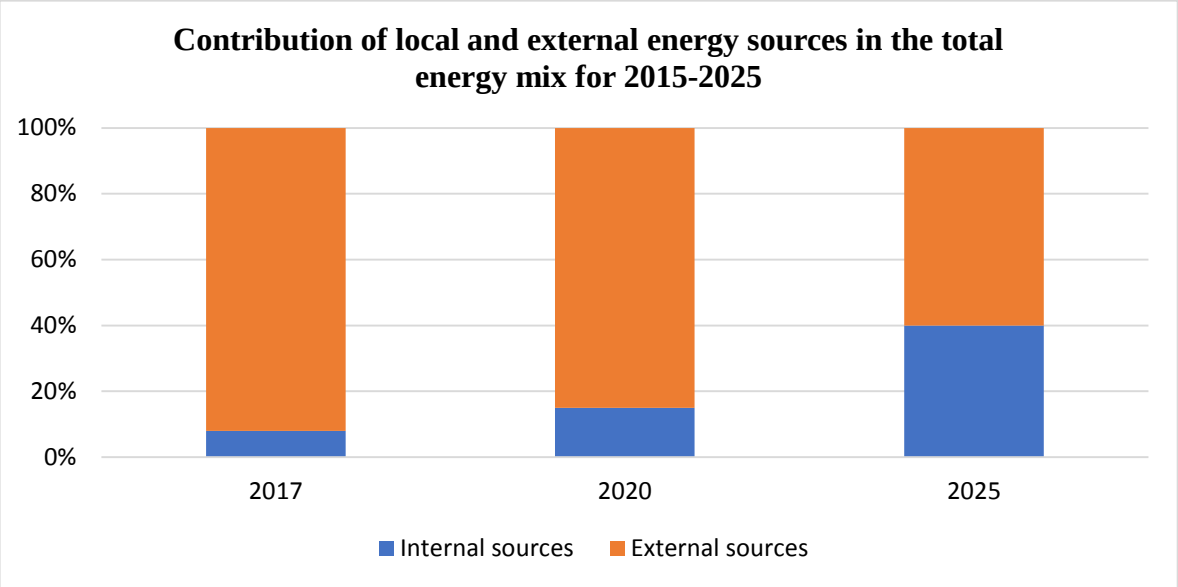
Graph (5): Components of energy in the period of 2017 in Jordan
" Ministry of Energy and Mineral Resources of Jordan, energy security strategies in Jordan 2015"



Graph (6): Components of energy in the period of 2020 in Jordan
"Ministry of Energy and Mineral Resources of Jordan, energy security strategies in Jordan 2015"



Graph (7): Components of energy in the period of 2025 in Jordan
"Ministry of Energy and Mineral Resources of Jordan, energy security strategies in Jordan 2015"



Graph (8): Contribution of local and external energy sources in the total energy mix for 2015-2025
"Ministry of Energy and Mineral Resources of Jordan, energy security strategies in Jordan 2015"

3.4. Canadian Oil Security.

In 2010, Canada's population was 34,005,274 and its population growth during the same year was 1.11395972071239. According to the World Bank, fossil fuel energy consumption (% of total) was 75.3857415699794. And energy imports, the net percentage of energy use was 51.374873798441. This is from the IEA Model of Short-term Energy Security, which specifically focuses on oil security, which contains 2010 data and was published in 2011 (Jewell, 2011).

The model analyzes a country's supply of crude oil and the flexibility of its refinery infrastructure. In this assessment, Canada receives high marks for both oil security and also infrastructure flexibility.

The model also analyzes the number of the refineries in a country in relation to its size, and here also Canada operates a large number of refineries, which is 2+ with the highest marks for flexibility of its crude oil refineries and supply of vulnerable oil products.

Step two of the assessment analyzes the vulnerability of Canada's imported oil products. Canada again appears to be high (>=5 ports) on its infrastructure rating but medium on its diversity rating.

After that, the country's output is analyzed against its exposure to external risks. Canada here has a very low (<5) level for its gasoline imports, no deficit for its imported middle distillates and a medium level (25 percent to 45 percent) for its products with high external resilience.

Step three of the analysis joins the data mentioned above to assess the vulnerability of both internally refined oil and imported products. Here Canada is one of the most secure countries in terms of its domestically refined gasoline, middle distillates and other oil products.

In the last step of the analysis the vulnerability of Canada's total supply of oil products is assessed which merges the previous assessment with the average levels of oil products in storage. High levels of storage could mitigate both internal and external vulnerability at the various supply chain stages. And here Canada has stored more than six weeks of supply of each produce, gasoline, middle distillates and other oil products.

In 2010 the IEA set the number of middle distillates between 24 percent and 84 percent. The demand for gasoline ranges from 5 percent to 45 percent. Naphtha was not accounted for in the IEA model because it is primarily used in the petrochemical industry and is likely an input resource rather than energy source. For a large number of IEA nations, there is less than a 5 percent demand for oil product except naphtha that

kind accounts in Korea (especially in the industry of petrochemical) 40% of demand from oil products, other seven countries from IEA countries use from 10% - 20%, except fuel oil; that used from 10% -30% in 10 of demand of oil products for the countries from the members of IEA. Easily fuel oil and crude oil could be replaced, or natural gas to generate power.

Canada's oil security profile in 2010

Canada imports ≤45% of its gasoline consumption with gasoline stocks ≥6 weeks.

It imports ≤45% of its consumption of middle distillates with a stock of middle distillates ≥9 weeks.

It imports **≤45%** of its consumption of other oil products with stocks of ≥6 weeks.

3.5. France's Oil Security

France's population in 2010 was 65,027,507 and its population growth in the same year was 0.49402976972961. The World Bank ranked its fossil fuel consumption (percentage of total) as 49.8363783215558. Its energy imports were (% of energy use) 48.1634659237485.

This study presents French oil security the same way it did Canadian oil security using the IEA Model of Short-term Energy Security **(MOSES)**, which uses 2010 data and was published in 2011. The analysis is done separately for gasoline, middle distillates and other oil products (Jewell, 2011).

In the first stage analyzing the state's supply of crude oil and the flexibility of the refinery infrastructure, France has a medium score for crude oil supply security and also medium score for its refineries' infrastructural flexibility.

For stage number two, which assesses the number of the refineries compared to the states' size, France also has a medium score of 2+ with a medium a medium score for the flexibility of its crude oil refineries and its supply of vulnerable oil products.

To reduce the vulnerability of imported oil products, a state needs a larger number of entry points where it can receive imported oil and a large number and diversity of suppliers. France has a high rating (>=5 ports) for its infrastructure and a high diversity rating.

After that, the data managed above is compared with the state's exposure to external risks. France here has a very low (<5) level for gasoline imports and a medium rating (25%-40%) for middle distillates and a low rating (5%-25%) other products with high external resilience.

Step number three is an analysis of all the data mentioned above used to assess the vulnerability of both internally refined oil and imported products. And here France has a medium rating for its domestically refined gasoline, refined middle distillates and other domestically refined oil products, while it has a high rating for imported gasoline, middle distillates and other oil products.

For the last step, the total amount of stored oil is assessed. High levels of stored oil might mitigate both internal and external vulnerabilities at different stages of the supply chain. And here France has more than six weeks of supply for in each product, gasoline, middle distillates and other oil products.

According to 2010, France's oil security profile is as follows. France imports ≤45% of the state's consumption of gasoline with enough gasoline stores for three to six weeks with moderate to high flexibility in its refining capabilities. It imports ≤45% of the state's consumption of middle distillates with enough stores of middle distillates ≥3

weeks. And it imports ≤45% of the state's consumption of other oil products with enough stores for three to nine weeks and moderate flexibility in its refining capacities.

Chapter Four: Strategies for Fuel Security in Palestine

When factorize strategies for fuel security in Palestine via the status of fuel security in Palestine, the challenges of fuel security in Palestine, the adoption of fuel security in Palestine toward recommend Palestinian fuel security strategy.

4.1. Status of Fuel Security Strategy in Palestine.

There are many factors that have an impact on the status of fuel security in Palestine, and one of them is the conditions of Paris Economic Accord. Importing fuel to Palestine is directly related to Paris Economic Accord signed on 24 April 1994 with regard to oil products and their import conditions, as listed below:

A. The terms of importing fuel into the Palestinian territories from the Hashemite Kingdom of Jordan are mentioned in the Paris Economic Accord in clause 12 and Annex 1 will be accepted if their standards comply with the United States and European Union standards that are proportional to the geographical conditions of Israel, West Bank and Gaza Strip, and for fuel that does not match these standards there will be a suitable through a joint committee of experts, and this committee can accept fuel does not match some American and European standards and meet the Jordanian standards, and will take the decision within six months, Within a period not exceeding six months from the signing of the Agreement, the Palestinian Authority can import gasoline for Palestinian areas provided:
    1. Change the color of gasoline to distinguish it from gasoline in Israel.
    2. Take all necessary measures by the Palestinian Authority to ensure that it is not marketed in Israel.

B. Not to exceed 15% of the final consumer price of gasoline in Israel and the right to set prices for other petroleum products of the Palestinian Authority except gasoline.

C. Egyptian fuel will be accepted if its standards meet the conditions stated in the paragraph (a).

To find out and analyze the status of Palestine fuel security, interviews were conducted with both members of the public sector (the Petroleum Authority) and the private sector (owners of petrol stations in the State of Palestine).

According to the researcher's findings, there is no doubt that there is no specific fuel security strategy either in the public sector or the private sector. However, there are some procedures that are implemented according to the vision of the competent authorities to achieve fuel security, so that fuel is provided for specific periods of time, depending on the political conditions.

According to the information provided by Al-Huda Fuel Company, the director general of the company said that fuel security strategy was initiated by the private sector. Major fuel companies developed a strategy in 2003. Planning has been completed until the end of the year 2021. The plan was designed to deal with any security challenges that threaten to stop the supply of fuel to the State of Palestine.

Officially, there has been no serious plan to develop a fuel security strategy, but attempts were made to build a vision to keep fuel supplies flowing uninterrupted. The first attempt to create this vision was made at the beginning of the year 2016 before a draft cabinet bill was passed.

There are new indicators suggesting that serious consideration will be given to build a fuel security strategy after the movement of the Petroleum Authority to Council of Ministers. Thus, the conditions will be favorable to start building and developing a fuel security strategy in the State of Palestine.

It can be said that there is not yet a strategy for fuel security in the State of Palestine, but only a short-term plan to achieve immediate targets. The reasons for not adopting a fuel security strategy in Palestine are both objective and subjective. The creation of a state has not yet been fully realized and is governed by changing political relations with the Israelis, making it difficult to work on a strategy. This uncertainty has led specialists to adopt policies to ensure the continued supply of fuel to the State of Palestine, and to circumvent the unstable political and security situation.

There is no doubt that the process of providing fuel under these conditions, especially after Israel closed the roads and imposed a siege on the State of Palestine. The Palestinian Petroleum Authority and the owners of fuel companies have been forced to take measures to ensure the continued flow of fuel to companies in the State of Palestine through an Israeli transport company, which has been contracted to transport fuel. This company is located in Jerusalem and uses transport vehicles with yellow Israeli license plates to access Palestine without restrictions. Palestinian officials said that they had to make a deal with the Israeli company because they lack sufficient stores of fuel in the State of Palestine.

This means that the fuel companies in Palestine are tied to Israeli fuel companies because they are dependent on the Israeli oil refineries. Since Israel's fuel companies do not have sufficient fuel reserves, then Palestine’s fuel companies do not have them either.

Regarding the price of fuel, the respondents said that the measures they are taking to provide an uninterrupted supply of fuel mean they constantly suffer from a pricing problem. This is largely because they are tied to fuel prices in Israel, as stipulated in the Paris Economic Agreement. Therefore, the Palestinian Petroleum Authority does not

have the right to change the price of petroleum products because it is completely linked to fuel prices in Israel.

Despite the absence of a strategy to achieve fuel security in Palestine, the authority has taken into account the increase in fuel consumption, due to the natural increase in fuel use caused by the increase in the population and the expansion of construction and industry.

Thus, it has become a problem to figure out how to provide fuel in the event of emergency crises, such as a blockade on the Palestinian territories. This is a legitimate question, especially in the absence of a fuel security strategy in Palestine. Al-Huda, being the largest fuel company in the Palestinian market, has built fuel stores that are sufficient to meet the needs of the Palestinian market for a period of ten to fourteen days, which is reasonable when compared to other fuel companies and the Petroleum Authority, which can store fuel for only two days.

According to Al-Huda, it could effectively provide fuel for a two-week period. In case of the Palestinian Petroleum Authority, the storage period is not sufficient for more than one day. The authority would need immediate access to fuel, unless this problem is circumvented by Israeli fuel transport companies.

There are those who believe that the lack of a fuel security strategy compromises Palestine's security and safety, since fuel storage is dependent on a private fuel company, The owner of the fuel company is also responsible for addressing any problems with the fuel store, such as fire or leakage. In both cases, he is careful to maintain his fuel supply in order not to suffer losses. Meanwhile the fuel storage station in the Gaza Strip meets all the requirements of security and safety in accordance with

international standards. This station has been licensed by the Israeli authorities, which oversee the conditions.

Because of the Israeli army's frequent incursions into the territory of the State of Palestine, which often come with curfews and blocked roads, fuel carriers have limited mobility within Palestine. As an example, one of the biggest fuel companies in Palestine has a contract with an Israeli fuel transport company, which is based in Jerusalem. The Israeli company can transfer fuel to the Palestinian fuel companies because it has an Israeli registration plate, and so is allowed to move freely in the Palestinian territories.

Palestinian companies are also taking into account that if they accumulate any debts with the Israeli companies then they will no longer be able to purchase fuel.

Because of the unstable security situation, the establishment of barriers on the roads, and the restrictions on the movement of the population and vehicles, fuel companies throughout Palestine are threatened. This is also due to the agreement on the partition of the territory of the State of Palestine, which has divided the territory into the A area under full Palestinian administrative and security control, the B areas, which are administratively under Palestinian control, and the (C) areas under Palestinian and Israeli control.

4.2. Challenges to Fuel Security in Palestine

The respondents stressed that there are many problems that prevent the creation and development of fuel security strategy in the State of Palestine. Those problems can be classified into security, administrative, political, and financial categories.

The security problems are due to the Israeli occupation, which continuously imposes restrictions that paralyze all aspects of life, whether by restricting the movement of

people, closing crossings and borders, or preventing the transfer of goods and equipment from one area to another. Especially in industries monopolized by Israeli companies, notably fuel, the Israeli occupation forces to prevent the Israeli authorities from providing the Palestinian Petroleum Authority and fuel companies with fuel, as a punitive measure taken against the Palestinian population.

Successive Israeli governments, and their army forces deployed in the territory of the State of Palestine, have been implementing security policies in order to limit the local population's lives. The most prominent manifestation of these policies is the prevention of the supply of goods from being delivered to the Palestinian population. This restriction causes great harm to the Palestinian economy. In the event of a halt to Palestine's access to Israel's fuel supply, Palestinian factories would also cease to operate, and the process of transporting goods would stop due to the paralysis of vehicles and the interruption of fuel supplies.

In order to overcome this dilemma, Palestinian fuel companies built fuel stations. One of these stations is in Gaza, and was completed before Israel withdrew from the Gaza Strip. Another is a special store operated by one of the biggest Palestinian fuel companies near Ramallah. These stations can supply the Palestinian population with fuel for a period of ten to fourteen days. In addition, Palestinian fuel companies contract with Israeli companies to transport fuel to the State of Palestine. The Israeli companies have Israeli license plates, allowing them to move freely under the Israeli ban.

The administrative problems that prevent the adoption fuel security strategy in Palestine include the lack of laws and legislation necessary to regulate the storage and distribution of fuel. To this day, a proposal regarding laws related to the fuel supply and its availability in the Palestinian market has not been put forward, nor has a bill been

submitted to allow the construction of fuel stores inside the territory of the State of Palestine due to the absence of a unified body specialized in the provision and distribution of fuel. Despite the establishment of the Palestinian Petroleum Authority, this body is not a unified official body that regulates the process of the provision, distribution and storage of fuel in Palestine because it has not been a part of the Palestinian Council of Ministers.

Because of this, the vacuum left by the Palestinian Petroleum Authority had to be filled. Private companies are working to ensure the continued supply of fuel to the Palestinian market. They have taken measures to address the administrative neglect of the Palestinian fuel sector. They have made bold and practical steps, which are nevertheless illegal, to build a fuel depot outside the border of their fuel stations.

As for the political obstacles, it is known that the Oslo Accords did not lead to agreement on the final status of Palestine. Some of the issues were postponed for a period of five years, during which time the issues related to the postponement were supposed to be settled, although that has not happened. There is no doubt that the fuel situation was one of those issues because it is linked to crossings and borders. It is not possible for Palestine to import oil from neighboring countries directly, because of its lack of control over its own crossings.

Therefore, because the negotiations related to the Oslo Accords were never finalized, many commercial activities in the State of Palestine remain dependent on Israel, which is governed by a systematic policy aimed at preventing Palestine's full independence and keep the Palestinians fully subordinate to the Israeli economy.

One of the major fuel security challenges in this sector is the failure of Israel to abide by the agreements reached with the Palestinian side, which dealt with part of this sector,

especially the declaration of Principles on Interim Self-Government Arrangements (Oslo Accords), which was signed on 13 September 1993, as clause (11) entitled (Israeli-Palestinian Cooperation in the Economic Fields) dealt with the formation of an economic cooperation committee from the Israeli and Palestinian sides with the aim of implementing and developing the programs mentioned in the attached protocols specifically (Annex 3 and Annex 4) after the Agreement of Principles enters into implementation phase.

The Third Annex of the Oslo Agreement on the Protocol for Israeli-Palestinian Cooperation and exactly at the third point, including the cooperation of the two parties in the field of energy and energy development program, taking into account the exploitation of gas and oil for industrial purposes. The program may include the establishment of an industrial petrochemical complex in Gaza Strip and the construction of a gas and oil pipelines.

While the fourth annex concentrates on the same protocol in the regional development programs, the program consists of two components: the first of the West Bank and the Gaza Strip and the second regional program. The second program was related to regional cooperation aimed at transferring oil, gas and other sources of energy and industrial exploitation and distribute it.

Moreover, in the second Oslo II Agreement (transitional period) between the representative of the Palestinian people and the government of the State of Israel signed in Washington on September 28, 1995 and containing thirty-one clauses and seven annexes and eight maps where the first chapter on the Council, Means the establishment of a transitional Palestinian Authority for self-government. Chapter II details redeployment and security arrangements and is directly linked to this study, in particular

clause XI, Chapter III on Legal Affairs, Chapter IV, Cooperation, and Chapter V, as well as including different provisions and concluding paragraphs.

What is directly related to the study of fuel security is the chapter about redeployment and security arrangements, especially in clause(11), entitled "The Land", where the land was divided into three sections (Areas A,B and C), the areas (A and B) are under the control of the Palestinian Authority in the first stage The redeployment phase represents eighteen months in three phases, each six-month phase. During the first phase, Area B will transfer civilian and non-territorial responsibilities from Israel to the Council. Area C is the area outside the "A" and "B" These areas will be gradual transfer it to the Palestinian state in accordance with this agreement and in three phases, except the final status negotiations, such as the borders, to be started after a period of not more than three years, but Israel has delayed each of the three stages, and with regard to area "C" The largest part of the territory of Palestine was supposed to receive its affairs, but actually the Israeli side has the control of its security affairs and urban planning, Israel has delayed the implementation of the first and second phases and did not implement the third phase at all, the transfer of its mandate to the Palestinian side did not implemented, the final status negotiations that were supposed to discuss the most important issues such as borders have failed, all of which directly affect importing products in general and the importing fuel in particular, in addition to the inability to build fuel storage in Area "C" without Israeli approvals, which the Palestinians have not received from the Israeli side and the inability to build fuel storage in other populated areas.

Since this matter depends on a political agreement, there are no measures to be taken to overcome this problem either from the Palestinian Petroleum Authority or the private fuel companies because the political situation can only be resolved through negotiations. As confirmed by the respondents, that there are also financial difficulties preventing the adoption of a fuel security strategy in the State of Palestine. It is well known that the process of building a national oil refinery, like the ones constructed in other countries, is the mainstay of the energy sector in the country. If it is forbidden to build a Palestinian oil refinery for the political reasons mentioned above, the process of building the refinery needs large sums of money and external assistance.

The construction of these reservoirs is not only impossible because of the Israeli ban, but also because of the problem of funding. The problem is not only in providing direct costs but also in compensating the residents of the areas in which the reservoirs will be built because large tracts of land are needed. Because of this the reservoirs and the areas surrounding them must be state owned.

4.3. Adoption of a Fuel Security Strategy in Palestine

The following table shows the main obstacles preventing the adoption of a fuel security strategy in Palestine. Table (6) shows three respondents (42.9%) talked about the problem of smuggling fuel, as well as the problem of securing enough land to build fuel reservoirs, and Israel's strategy to unload bad fuel on the Palestinians, the proliferation of illegal fuel stations, and citizens' lack of awareness of the necessity of fuel security and quality as being the main problems preventing fuel security.

Table (6): The Main Obstacles Preventing the Adoption of a Fuel Security Strategy in Palestine

Paragraph	**frequency**	**percentage**
Israel's refusal to provide the General Petroleum Authority with sufficient quantities of fuel.	1	14.3
Lack of funding to build fuel tanks.	1	14.3
Israeli control over the proposed and suitable land to build reservoirs.	3	42.9
Lack of laws to regulate fuel storage safety.	0	0
Failure to comply with existing laws and regulations related to fuel security.	2	28.6
Lack of qualified and trained personnel to create a fuel security strategy.	2	28.6
Lack of desire among decision makers to create a fuel security strategy.	2	28.6
The difficulty of providing the necessary equipment for fuel storage.	1	14.3
Israeli restrictions on the freedom to import fuel from other countries.	1	14.3
The number of competent authorities concerned with fuel security (Ministry of Economy - Energy Authority - Petroleum Authority - Security Forces)	2	28.6
Lack of specialization (Academic/functional/professional) related to petroleum engineering.	0	0
The spread of settlements in the territory of the Palestinian state, which prevents Israel from agreeing to allow Palestinians to build fuel stores.	1	14.3
Israel's monopoly on supplying the state of Palestine with fuel.	0	0
Israel's desire to unload bad fuel into Palestinian markets.	3	42.9
Fuel smuggling.	3	42.9
Illegal fuel stations.	3	42.9
Lack of public awareness about fuel security and quality.	3	42.9
The public is not responding to the government's attempts to stop fuel smuggling.	4	57.1

The following Table (7) shows, the intermediate obstacles that prevented the adoption of a fuel security strategy in Palestine. Table (7) shows that (28.6%) of the respondents said that Israel's refusal to provide the General Petroleum Corporation with sufficient quantities of fuel, the lack of financial means to build fuel tanks, and the lack of land suitable for the construction of reservoirs being under the control of the occupation all lead to fuel insecurity. There is also a lack of laws necessary to regulate the safe storage of fuel, the lack of desire among decision-makers to address fuel security, and the lack of appropriate academic/occupational specialization related to petroleum engineering. These are all intermediate-level obstacles that prevent the adoption of a strategy for fuel security in Palestine.

Table (7): The Intermediate-level Obstacles Preventing the Adoption of a Fuel Security Strategy in Palestine

Paragraph	**frequency**	**percentage**
Israel's refusal to provide the General Petroleum Authority with sufficient quantities of fuel.	2	28.6
Lack of funding to build fuel tanks.	2	28.6
Israeli control over the suitable land for building reservoirs.	2	28.6
Lack of laws to regulate fuel storage safely.	2	28.6
Failure to comply with existing laws and regulations related to fuel security.	1	14.3
Lack of qualified and trained personnel to create a fuel security strategy.	0	0
Lack of desire among decision makers to create a fuel security strategy.	2	28.6
The difficulty of providing the necessary equipment for fuel stores.	0	0
Israeli restrictions on the freedom to import fuel from other countries.	0	0

The number of competent authorities concerned with fuel security (Ministry of Economy - Energy Authority - Petroleum Authority - Security Forces)	1	14.3
Lack of specialization (Academic/functional/professional) related to petroleum engineering.	2	28.6
The spread of settlements in the territory of the Palestinian state prevents Israel from agreeing to build fuel stores.	0	0
Israel's monopoly on supplying the state of Palestine with fuel.	1	14.3
Israel's desire to unload bad fuel in the Palestinian markets.	0	0
Fuel smuggling.	0	0
Illegal fuel stations.	0	0
Lack of public awareness about fuel security and quality.	1	14.3
The citizen does not respond to the government's intentions regarding smuggled fuel.	0	0

The following table (8) shows the low-level obstacles preventing the adoption of a fuel security strategy in Palestine. Table (8) shows that the difficulty of providing the necessary equipment for the fuel stores, the Israeli restrictions on the freedom to import fuel from others, and the spread of settlements in the territory of the Palestinian state prevent Israel's approval to build fuel stores for the sake of the settlers. A small percentage, or 6 of the respondents (85.7) talked about the absence of the necessary laws to regulate the storage of fuel safely. Five of the respondents (71.4) talked about the lack of qualified and trained professionals (academic/functional/ professional) in the field of petroleum engineering. In addition, four of the respondents (57.1) talked about Israel's refusal to provide the General Petroleum Corporation with sufficient quantities of fuel, lack of financial means to build fuel tanks, failure to comply with existing laws and regulations related to fuel security, the number of agencies in the fuel economy (the

Ministry of Economy - the Energy Authority - the Petroleum Authority - the security forces), Israel's desire to unload bad fuel in the Palestinian markets, fuel smuggling, and the proliferation of illegal fuel centers are all low-level factors preventing the achievement of a fuel security strategy in the State of Palestine.

Table (8): The Low-Level Obstacles Preventing the Adoption of a Fuel Security Strategy in Palestine

Paragraph	**frequency**	**percentage**
Israel's refusal to provide the General Petroleum Authority with sufficient quantities of fuel.	4	57.1
Lack of funding to build fuel tanks.	4	57.1
Israeli control over the suitable land to build reservoirs.	2	28.6
Lack of laws to regulate fuel storage safety.	5	71.4
Failure to comply with existing laws and regulations related to fuel security.	4	57.1
Lack of qualified and trained personnel to create a fuel security strategy.	5	71.4
Lack of desire among decision makers to create a fuel security strategy.	3	42.9
The difficulty of providing the necessary equipment for fuel stores.	6	85.7
Israeli restrictions on the freedom to import fuel from other countries.	6	85.7
The number of competent authorities concerned with fuel security (Ministry of Economy - Energy Authority - Petroleum Authority - Security Forces)	4	57.1
Lack of specialization (Academic/functional/professional) related to petroleum engineering.	5	71.4
The spread of settlements in the territory of the Palestinian state prevents Israel from agreeing to build fuel stores.	6	85.7
Israel's monopoly on supplying the state of Palestine with fuel.	6	85.7
Israel's desire to unload bad fuel in Palestinian markets.	4	57.1
Fuel smuggling.	4	57.1
Illegal fuel stations.	4	57.1
Lack of public awareness about fuel security and quality.	3	42.9
The public does not respond to the government's attempts to control fuel smuggling.	3	42.9

Chapter Five: Results and Recommendations

When comparing the Palestinian situation with previous studies and international models for each of Canada and France fuel security, there were enormously differences pointed below:

1- In comparison between Canada, France and Palestine's short-term oil security, analyzes a country's supply of crude oil and the flexibility of its refinery infrastructure, Canada has high marks for both oil security and also infrastructure flexibility. When France has a medium score for crude oil supply security and also medium score for its refineries' infrastructural flexibility. And here in Palestine, it is not supplied with crude fuel and there are no oil refineries.

2- For the second indicator about the number of the refineries in a country in relation to its size, Canada operates a large number of refineries, which is 2+ with the highest marks for flexibility of its crude oil refineries and supply of vulnerable oil products. But France has a medium score of 2+ with a medium score for the flexibility of its crude oil refineries and its supply of vulnerable oil products. In comparison with the Palestinian situation, there are no oil refineries in Palestine.

3- And about the indicator of the vulnerability of state's imported oil products (To reduce the vulnerability of imported oil products, a state needs a larger number of entry points where it can receive imported oil and a large number and diversity of suppliers), Canada again appears to be high (>=5 ports) on its infrastructure rating but medium on its diversity rating. While France has a high rating (>=5 ports) for its infrastructure and a high diversity rating. And when analyzing the Palestinian status which has none controlled borders but are under Israeli control. As for what

is related to the diversity of suppliers, the supplier is the Israeli side represented by two Israeli oil refineries to supply fuel to Palestine.

4- The indicator that measure the country's output is against its exposure to external risks shows that Canada has a very low (<5) level for its gasoline imports, no deficit for its imported middle distillates and a medium level (25 percent to 45 percent) for its products with high external resilience. Whereas France has a very low (<5) level for gasoline imports and a medium rating (25%-40%) for middle distillates and a low rating (5%-25%) other products with high external resilience. There is no fuel production in the State of Palestine, which is fully dependent on the imported of all fuel products, and is highly vulnerable to foreign risks as it imports fuel from a country classified as hostile.

5- Data mentioned above to assess the vulnerability of both internally refined oil and imported products. Here Canada shows that it is one of the most secure countries in terms of its domestically refined gasoline, middle distillates and other oil products. In comparison with France which has a medium rating for its domestically refined gasoline, refined middle distillates and other domestically refined oil products, while it has a high rating for imported gasoline, middle distillates and other oil products. In comparison, Palestine is a country with no oil refineries. In view of the imported petroleum products, they are vulnerability as they are subject to disruption and instability due to political, security and financial reasons.

6- About the vulnerability of state's total supply of oil products is assessed which merges the previous assessment with the average levels of oil products in storage (High levels of stored oil may ease internal and external vulnerabilities at different stages of the supply chain) and here Canada has stored more than six weeks of

supply of each product, gasoline, middle distillates and other oil products. France has more than six weeks of supply for each product

The summary of Canada's oil security profile in 2010 shows that Canada imports ≤45% of its gasoline consumption with gasoline stocks ≥6 weeks, it imports ≤45% of its consumption of middle distillates with a stock of middle distillates ≥9 weeks, it imports ≤45% of its consumption of other oil products with stocks of ≥6 weeks.

whilst France imports 45% of the state's gasoline consumption with enough gasoline stores for three to six weeks with moderate to high flexibility in refining capacity, and imports 45% of the country's consumption of medium distillates containing adequate stocks of medium distillates 33 weeks, whereas it imports 45% of the country's consumption of other oil products with enough stores for three to nine weeks and moderate flexibility in its refining capacity.

While Palestine imports 100% of its consumption of fuel products, refinery is not existing and there is no storage.

Several significant results and recommendations have emerged from this study and are listed below.

5.1. Results

According to this study, there were six main results.

1. The results of the study showed that there is no strategy for fuel security in Palestine, although there are precautionary measures and procedures to deal with emergencies.
2. The failure to adopt a fuel security strategy is due to the absence of a healthy environment (political conditions).
3. The private sector, especially Al-Huda Company, bears the burden of providing fuel to the Palestinian markets in case of a crisis.
4. Building a fuel security strategy is directly linked to full independence (control of crossings and borders) and openness to foreign markets.
5. Building a fuel security strategy in Palestine is an urgent necessity not only for emergencies but also for price fixing because fuel prices in the current situation are tied to fuel prices in Israel.
6. The study also showed that building a fuel security strategy in Palestine needs legislative support, including:

    A. The enactment of laws to regulate the fuel sector in Palestine.

    B. The training of competent personnel.

    C. Increased capital to fund the high costs of creating a fuel security strategy.

    D. Coordination with friendly states to benefit from their experience in this field.

5.2. Recommendations

In the light of the study's results, the researcher recommends the following:

1. To strengthen the procedures of the Palestinian Petroleum Authority and private companies to ensure the availability of fuel in the Palestinian markets.

2. The necessity of initiating the building of the infrastructure needed to create a fuel security strategy in the future.

3. The necessity of coordinating with the private sector, which provides fuel to the Palestinian markets.

4. The necessity for continuous and diligent efforts and actions to compel the Israelis to abide by the agreements signed during the Oslo Accords.

5. The necessity of competent authorities to search for alternative methods to provide fuel for Palestine and to avoid dependence on Israel because of the high cost of fuel to the Palestinian citizen (in other words the dissolution of the Paris economic agreements).

6. The necessity of the competent authorities to:

A. Pass laws and regulations to regulate the fuel sector in Palestine.

B. Qualify and train competent staff.

C. Accumulate the capital to fund the high costs of constructing the strategy.

D. Coordinate with friendly nations to benefit from their experiences in this field.

5.3. Recommended Fuel Security Strategy

The end goal of a fuel security strategy is to stockpile fuel for crisis periods. The justification for supporting the proposed strategy from the year 2020 to 2030 was presented above, and is essential for political, legal and commercial reasons. This strategy is meant to be a proactive approach to creating a diverse fuel supply and preventing disruptions. Palestine, in both the public and private sector, is not well organized to address threats to its economy, national security and stability that could be created by interruptions to its fuel supply. Here are some suggestions to mobilize the government and donors' resources to create deep attention to the balance between security, stability and economic factors needed to achieve fuel security in Palestine. Based on this study, some possibilities exist to support the fuel sector and achieve fuel security in Palestine.

Goal 1: from 2020 to 2023

Pass legislation that ensures the development of fuel security.

Objective 1.1: Develop and supervise policies and legislation related to fuel security in consultation with the relevant parties in the State of Palestine

Strategy 1.1.1: Draw on case studies from other countries that illustrate possible laws regarding stockpiling crisis fuel reserves.

Strategy 1.1.2: Coordinate with relevant authorities to propose laws.

Strategy 1.1.3: Develop Laws related to the regulation of the fuel sector and stockpiling of fuel crisis.

Strategy 1.1.4: Pass laws regulating the relationship between the General Petroleum Corporation and other related parties.

Objective 1.2: Enhance the contribution of the fuel sector to Palestine's fuel supply security.

Strategy 1.2.1: Push towards a law that allows the private sector to store fuel reserves to support the public sector in times of crisis and emergency.

Strategy 1.2.2: Develop a licensing system for crisis fuel reserves for the private sector.

Strategy 1.2.3: Establish general safety and security conditions for fuel reserves outside the government stations.

Goal 2: from 2023 to 2027

Agreements and treaties concluded to be re-examined and agreements to be amended

Objective 2.1: Re-examine and analyze current status of previously concluded agreements and treaties.

Strategy 2.1.1: Work with experts in international law.

Strategy 2.1.2: Identify and disband inappropriate agreements, treaties and protocols.

Strategy 2.1.3: Negotiate with the relevant authorities regarding the removal of the inappropriate agreements.

Objective 2.2: Ratify fair and appropriate agreements regarding fuel security in Palestine.

Strategy 2.2.1: Focus on the search for mechanisms to conclude fair agreements to facilitate the process of supplying fuel to the State of Palestine.

Strategy 2.2.2: Find possible sources of fuel from countries other than Israel, such as Venezuela.

Objective 2.3: Propose a fuel reserve project in cooperation with international organizations.

Strategy 2.3.1: Request that international organizations finance the construction of crisis fuel reserves.

Strategy 2.3.2: Coordinate with international organizations to provide crisis fuel reserves as grants to the State of Palestine.

Strategy 2.3.3: Cooperate with international organizations to operate and supervise crisis fuel reserves when completed.

Goal 3: from 2027 to 2028

Store sufficient amounts of crisis fuel distributed geographically throughout Palestine.

Objective 3.1: Build sufficiently large fuel storage facilities.

Strategy 3.1.1: Coordinate with Israel to build fuel reserve stores in border areas.

Strategy 3.1.2: Coordinate and grant approvals and licenses to build fuel reserves.

Strategy 3.1.3: Identify locations for the fuel reserve stores and conduct the necessary tests on them. Ensure that they are distributed throughout the Palestinian state (central, north, south).

Strategy 3.1.4: Communicate with companies with expertise in building fuel reserve stores.

Strategy 3.1.5: Focus on determining the appropriate specifications for the fuel reserve stores and determining the security and safety conditions for them, taking into account the sensitivity of the Palestinian situation.

Strategy 3.1.6: Start bidding for building fuel reserve stores and choose the best offers.

Strategy 3.1.7: Sign agreements to build fuel reserves and follow up on their implementation.

Objective 3.2: Provide adequate fuel reserves.

Strategy 3.2.1: Search for fuel suppliers with appropriate qualifications and prices.

Strategy 3.2.2: Expand the network of oil refineries in other countries willing to sell to Palestine.

Strategy 3.2.3: Start bidding for the supply of fuel to the State of Palestine.

Strategy 3.2.4: Sign fuel supply agreements with specifications suitable for the State of Palestine.

Strategy 3.2.5: Evaluate and follow up on the implementation of the agreements for the supply of fuel.

Goal 4: from 2028 to 2030

Import fuel to be from diversified sources.

Objective 4.1: Build strong ties with oil refineries in other countries.

Strategy 4.1.1: Focus on strengthening relations with suppliers of oil derivatives in other countries.

Strategy 4.1.2: Expand relations with oil suppliers in other countries.

Strategy 4.1.3: Explore the local and international market for the oil derivatives sector.

Objective 4.2: Provide fuel from diverse sources at reasonable prices.

Strategy 4.2.1: Study the feasibility for securing a diverse supply of oil derivatives (both crude oil and re-refining or supply of oil derivatives in its final form).

Strategy 4.2.2: Study the possibility of providing oil derivatives through grants to the State of Palestine (both crude oil and oil derivatives in their final form).

Strategy 4.2.3: Offer bids to fuel suppliers with appropriate conditions, specifications and prices to ensure sustainability.

Objective 4.3: The transfer of fuel through pipelines from the Israeli refineries

This suggestion could limit smuggling and waste and reduce the problem of transporting fuel from Israeli refineries to the warehouses of the General Petroleum Corporation, thus overcoming the problem of interruptions due to closures or holidays.

Strategy 4.3.1: Initiate pipelines between the Palestinian fuel stores of the General Authority of Petroleum and the Israeli refineries.

Strategy 4.3.2: Follow-up by maintaining the security and safety of the pipelines.

Goal 5: from 2020 to 2030

Improve the efficiency of the Palestinian General Petroleum Authority.

Objective 5.1. Provide sufficient human resources to carry out the activities of the General Petroleum Authority.

Strategy 5.1.1: Recruit experienced specialists to the General Authority for Petroleum.

Strategy 5.1.2: Providing programs to increase the employees' efficiency at the General Petroleum Corporation through quality training programs.

Objective 5.2: Build an accounting program commensurate with the work of the General Petroleum Corporation.

Strategy 5.2.1: Build an electronic software program for crisis fuel reservoirs.

Strategy 5.2.2: Build accounting programs suitable for the work of the General Petroleum Authority that could assist with licensing and supply of oil derivatives and distribution to Palestinian fuel companies.

Objective 5.3. Promote the financial efficiency of the General Petroleum Authority.

Strategy 5.3.1: Build programs to pay off the debts of compromised fuel companies and secure funds to build crisis fuel reserves.

Strategy 5.3.2: Work with fuel companies only on a cash basis, which will form a protective shield against disruptions due to inability to transfer cash to supply companies and also limits delays from the General Petroleum Corporation.

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Appendix (1): National Policy Agenda 2017-2022

Pillar 2: Government Reform/p26	
National Priority	**National Policies**
Effective Government	9. Strengthening Accountability and Transparency 10. Effective, Efficient Public Financial Management
Pillar 3: Sustainable Development/p34	
National Priority	**National Policies**
Economic Independence	11. Building Palestine's Future Economy. 13. Improving Palestine's Business Environment. 14. Promoting Palestinian Industry.
Resilient Communities	26.Ensuring Community and National Security, Public Safety and Rule of Law. 27.Meeting the Basic Needs of Our Communities.

Strengthening Accountability and Transparency/p32

Strengthen results-based management and integrated planning and budgeting.

Promote effective human resources management and development.

National Policy 10: Effective, Efficient Public Financial Management/p33

Chapter four of this Agenda outlines in more detail the deep fiscal challenges facing Palestine arising from the occupation and steep cuts in foreign aid. Over the medium term, tough choices will need to be made with respect to returning Palestine to a fiscally sustainable path. To do so effectively, the Government will need to strengthen the quality of its public financial management. Areas of focus may include macroeconomic management, fiscal policy, debt management and procurement. More generally, the civil service must be capable of providing decision makers with evidence-based policy analysis and options that take into account their potential fiscal impact. In this way, the Government will be able to make informed policy decisions with respect to remedying fiscal imbalances, reducing arrears, mobilizing revenue and constraining expenditures.

Our public institutions were built to deliver the full range of functions required by a national government. This has largely been achieved. The next step will be to reshape these public institutions to ensure that they increasingly emphasize service delivery over administration and deliver services in the most cost-effective way.

This will be accomplished through the following measures:

Ensure fiscal sustainability and improve public financial management, with a particular focus on strengthening macroeconomic/fiscal policy, public debt management and procurement.

Reform and restructure Palestine's public institutions to increase efficiency and improve service quality.

Unquestionably, for Palestinians, the concept of sustainability is inextricably linked to independence. There is little purpose in discussing long-term economic sustainability if the large majority of our natural resources and land continue to be exploited by Israel, or if efforts to expand a business, export a product or build vital infrastructure routinely require permits from the occupying authority that are rarely granted.

Nonetheless, there must still be steady improvement. Through the Sector and Crosscutting Strategies, the measures required to deliver better services and improve our citizens' quality of life now will accompany those policies that can only be fully implemented with the end of occupation. The previous two pillars aimed at nation and government-wide reforms. This pillar comprises the majority of sector-specific policy interventions.

National Priority 6: Economic Independence/p37

The Government will work closely with Palestine's private sector and research and academic institutions to develop an economic strategy that, while responsive to today's urgent economic and investment needs, provides a clear economic vision that looks beyond the inevitable withdrawal of Israel's extractive, colonial institutions to the day when Palestine's enormous economic potential can be unlocked.

National Policy:	**Policy Intervention**
Building Palestine's Future Economy	Attract domestic and foreign direct investment, focusing on construction, tourism, agriculture, energy and ICT sectors.
Improving Palestine's Business Environment	

National Priority 10: Resilient Communities/p43

For now, we must support Palestine's communities and enhance their resilience by ensuring their safety and security, improving and expanding basic services, providing a clean, healthy and sustainable environment and empowering our communities to participate in state building and development

National Policy	**Policy Interventions**
Ensuring Community and National Security, Public Safety and Rule of Law	Implement measures to enhance community security and public safety. Strengthen capacity for disaster response and crisis management.
Meeting the Basic Needs of Our Communities	Expand community access to reliable energy.

Appendix (2): Oslo II - The Israeli-Palestinian Interim Agreement

ARTICLE XI

Land

1. The two sides view the West Bank and the Gaza Strip as a single territorial unit, the integrity and status of which will be preserved during the interim period.
2. The two sides agree that West Bank and Gaza Strip territory, except for issues that will be negotiated in the permanent status negotiations, will come under the jurisdiction of the Palestinian Council in a phased manner, to be completed within 18 months from the date of the inauguration of the Council, as specified below:
    a. Land in populated areas (Areas A and B), including government and Al Waqf land, will come under the jurisdiction of the Council during the first phase of redeployment.
    b. All civil powers and responsibilities, including planning and zoning, in Areas A and B, set out in Annex III, will be transferred to and assumed by the Council during the first phase of redeployment.
    c. In Area C, during the first phase of redeployment Israel will transfer to the Council civil powers and responsibilities not relating to territory, as set out in Annex III.
    d. The further redeployments of Israeli military forces to specified military locations will be gradually implemented in accordance with the DOP in three phases, each to take place after an interval of six months, after the inauguration of the Council, to be completed within 18 months from the date of the inauguration of the Council.

e. During the further redeployment phases to be completed within 18 months from the date of the inauguration of the Council, powers and responsibilities relating to territory will be transferred gradually to Palestinian jurisdiction that will cover West Bank and Gaza Strip territory, except for the issues that will be negotiated in the permanent status negotiations.

f. The specified military locations referred to in Article X, paragraph 2 above will be determined in the further redeployment phases, within the specified time-frame ending not later than 18 months from the date of the inauguration of the Council, and will be negotiated in the permanent status negotiations.

3. For the purpose of this Agreement and until the completion of the first phase of the further redeployments:

. "Area A" means the populated areas delineated by a red line and shaded in brown on attached map No. 1;

a. "Area B" means the populated areas delineated by a red line and shaded in yellow on attached map No. 1, and the built-up area of the hamlets listed in Appendix 6 to Annex I; and

b. "Area C" means areas of the West Bank outside Areas A and B, which, except for the issues that will be negotiated in the permanent status negotiations, will be gradually transferred to Palestinian jurisdiction in accordance with this Agreement.

Appendix (3): 1993 OSLO ACCORDS (DECLARATION OF PRINCIPLES)

ARTICLE XI

ISRAELI-PALESTINIAN COOPERATION IN ECONOMIC FIELDS Recognizing the mutual benefit of cooperation in promoting the development of the West Bank, the Gaza Strip and Israel, upon the entry into force of this Declaration of Principles, an Israeli-Palestinian Economic Cooperation Committee will be established in order to develop and implement in a cooperative manner the programs identified in the protocols attached as Annex III and Annex IV .

ANNEX III

PROTOCOL ON ISRAELI-PALESTINIAN COOPERATION IN ECONOMIC AND DEVELOPMENT PROGRAMS The two sides agree to establish an Israeli-Palestinian continuing Committee for Economic Cooperation, focusing, among other things, on the following:

3.Cooperation in the field of energy, including an Energy Development Program, which will provide for the exploitation of oil and gas for industrial purposes, particularly in the Gaza Strip and in the Negev, and will encourage further joint exploitation of other energy resources. This Program may also provide for the construction of a Petrochemical industrial complex in the Gaza Strip and the construction of oil and gas pipelines.

ANNEX IV

PROTOCOL ON ISRAELI-PALESTINIAN COOPERATION CONCERNING REGIONAL DEVELOPMENT PROGRAMS

The Regional Economic Development Program may consist of the following elements:

12/6/2007 1:53 PM The establishment of a Middle East Development Fund, as a first step, and a Middle East Development Bank, as a second step. 1. The development of a joint Israeli-Palestinian-Jordanian Plan for coordinated exploitation of the Dead Sea area. 2. 3. The Mediterranean Sea (Gaza) - Dead Sea Canal. 4. Regional Desalinization and other water development projects. A regional plan for agricultural development, including a coordinated regional effort for the prevention of desertification. 5. 6. Interconnection of electricity grids. Regional cooperation for the transfer, distribution and industrial exploitation of gas, oil and other energy resources. 7. A Regional Tourism, Transportation and Telecommunications Development Plan. 8. 9. Regional cooperation in other spheres.

Appendix (4): Protocol Paris on Economic Relations

between

the Government of the State of Israel

and

the P.L.O., representing the Palestinian people

Paris, April 9, 1994

SUPPLEMENT TO THE PROTOCOL ON ECONOMIC RELATIONS

1. The clearance of revenues from all import taxes and levies and from excise on fuel products between Israel and the Council, according to this Agreement, will come into full force on the date of completion of the first phase of the redeployment of the Israeli military forces prior to the elections, i.e., 22 days before the day of elections (hereinafter "the said date"). However, in view of the special needs of the Palestinian Authority and in order to assist it in covering current expenses, Israel has agreed to transfer to the Palestinian Authority:
   a. One month after the signing of this Agreement - 50% of the revenues collected during this month from import taxes on goods, the final destination of which is the West Bank, and from excise on petroleum purchased by the Palestinian side for the West Bank.
   b. Two months after the signing of this Agreement - 50% of the revenues collected during the previous month from import taxes and petroleum excise as aforesaid.
   c. On the said date - 100% of the revenues collected during the period since the previous payment according to subparagraph b. above, from import taxes and petroleum excise as aforesaid.

a. Jordanian standards, as specified in the attached Appendix I, will be acceptable in importing petroleum products into the Areas, once they meet the average of the standards existing in the European Union countries, or the USA standards, which parameters have been set at the values prescribed for the geographical conditions of Israel, the Gaza Strip and the West Bank. Cases of petroleum products which do not meet these specifications will be referred to a joint experts' committee for a suitable solution. The committee may mutually decide to accept different standards for the importation of gasoline which meet the Jordanian standards even though, in some of their parameters, they do not meet the European Community or USA standards. The committee will give its decision within six months. Pending the committee's decision, and for not longer than six months of the signing of the Agreement, the Palestinian Authority may import to the Areas, gasoline for the Palestinian market in the Areas, according to the needs of this market, provided that:

    1. this gasoline is marked in a distinctive colour to differentiate it from the gasoline marketed in Israel; and
    2. the Palestinian Authority will take all the necessary steps to ensure that this gasoline is not marketed in Israel.

b. The difference in the final price of gasoline to consumers in Israel and to consumers in the Areas, will not exceed 15% of the official final consumer price in Israel. The Palestinian Authority has the right to determine the prices of petroleum products, other than gasoline, for consumption in the Areas.

c. If Egyptian gasoline standards will comply with the conditions of sub-para (a) above, the importation of Egyptian gasoline will also be allowed.

في ذلك عدم وجود استراتيجية للتحقق من أمن الوقود في حكومة فلسطين والقطاع الخاص ، وشركة الهدى ، تتحمل عبء توفير الوقود للأسواق الفلسطينية في حالة حدوث أزمة ، وعدم تبني إستراتيجية أمن وقود بسبب عدم وجود بيئة صحية (الظروف السياسية) والارتباط المباشر بالاستقلال والانفتاح الكاملين للأسواق بالإضافة إلى الحاجة إلى اعتماد إستراتيجية أمن الوقود ليس فقط لحالات الطوارئ ولكن أيضًا للقدرة على تحديد الأسعار بشكل مستقل عن إسرائيل وأخيرا بناء استراتيجية أمن الوقود تحتاج إلى دعم تشريعي.

في ضوء هذه النتائج ، تضمنت توصيات الدراسة تعزيز إجراءات هيئة البترول الفلسطينية والشركات الخاصة لضمان توافر الوقود في الأسواق الفلسطينية ، وضرورة البدء في بناء البنية التحتية اللازمة لإنشاء استراتيجية لأمن الوقود في المستقبل ، ضرورة بذل جهود وإجراءات مستمرة ودؤوبة لإجبار الإسرائيليين على الالتزام بالاتفاقيات الموقعة خلال اتفاقيات أوسلو ، وضرورة قيام السلطات المختصة بالبحث عن طرق بديلة لتوفير الوقود لفلسطين وتجنب الاعتماد على إسرائيل بسبب ارتفاع تكلفة الوقود للمواطن الفلسطيني (وبعبارة أخرى حل اتفاقات باريس الاقتصادية). ضرورة التنسيق مع القطاع الخاص الذي يوفر الوقود للأسواق الفلسطينية ، وفي الجانب التشريعي ، ضرورة قيام السلطات المختصة بإصدار القوانين واللوائح لتنظيم قطاع الوقود في فلسطين.

أهم نتائج هذه الدراسة هي الاستراتيجية والأهداف المقترحة لتحقيق الأمن في استهلاك الوقود ، وخاصة في فلسطين. هذه الدراسة مهمة للمخططين وصانعي السياسات وصانعي القرار ، حيث إنها ستسلط الضوء على أهمية لأمن الوقود في حال التعرض لأزمة نقص وقود في المستقبل في فلسطين.

الكلمات الدالة

الإستراتيجية ، الطاقة ، أمن الطاقة ، الوقود ، أمن الوقود.

الملخص

يلعب الوقود دورًا رئيسيًا في العديد من جوانب الحياة ، وخاصة في الأمن القومي للبلد. يؤدي انعدام الأمن في الطاقة إلى عدم الاستقرار الاقتصادي والسياسي ، ويمكن أن يتسبب في اندلاع الحروب أو الإضراب.

في هذه الدراسة ، تبحث الباحثة في الاستراتيجيات المستخدمة للحفاظ على أمن الوقود في فلسطين. بهدف تحديد التحديات التي تواجه أمن الوقود في فلسطين ، مع استكشاف المتغيرات الجيوسياسية وتأثيراتها. علاوة على ذلك ، تهدف الباحثة إلى تحديد كميات الوقود اللازمة لتحقيق أمن الطاقة في فلسطين ، وكذلك دراسة سياسات تخزين الوقود في المنطقة وإمكانية إنشاء البنية التحتية لأمن الوقود. علاوة على ذلك ، تحاول هذه الدراسة تحديد الاختلافات بين المؤسسات الخاصة والحكومية التي تعمل على تحقيق الأمن في استهلاك الوقود وتقييم فعالية استراتيجية تأمين الوقود في فلسطين. بعد فهم العقبات الرئيسية التي تحول دون تطوير استراتيجية أمان الوقود في فلسطين ، سوف تواصل الباحثة مع الأطراف المعنية التي تعمل على تطوير تحقيق أمن الوقود في المستقبل.

تم استخدام مزيج من المنهج الوصفي والمقارن لأن الدراسة تتطلب جمع بيانات واضحة ومناسبة حول استراتيجيات الحفاظ على أمن الوقود في فلسطين ومقارنة الظروف الفلسطينية بظروف الدول الأخرى في تحقيق أمن الوقود على المدى القصير. الحدود الزمنية للدراسة من 1994 إلى 2019 ، وكانت الحدود المكانية للدراسة هي فلسطين ، بما في ذلك الضفة الغربية وقطاع غزة.

تم استخدام المقابلة كأداة لجمع البيانات من الأشخاص الذين تمت مقابلتهم حيث يمكن للباحث الحصول على جميع البيانات اللازمة لجمعها.

تتكون الدراسة من خمسة فصول تتألف من مقدمة للدراسة ، أدبيات الدراسة ، مفهوم أمن الوقود ، استراتيجيات أمن الوقود في فلسطين، النتائج والتوصيات.

تنبع القيمة المضافة لهذه الدراسة من كونها واحدة من الدراسات العلمية القليلة ، ضمن علم الباحثة ، والتي تتناول موضوع احتياطي الوقود في فلسطين. سوف تضيف إلى المكتبة الفلسطينية على وجه الخصوص والمكتبة العربية بشكل عام عن طريق توليد مواد علمية جديدة حول أهمية أمن الوقود خاصة في أوقات الأزمات.

النتائج الرئيسية لهذه الدراسة هي إستراتيجية أمن وقود مقترحة مع الأهداف المقترحة لتحقيق أمن الوقود في حالة حدوث أزمة في دولة فلسطين. توصلت الباحثة إلى ستة نتائج رئيسية ، بما