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Evaluation of critical success factors for implementing the renewable energy and efficiency energy strategic plans in Palestine

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Thesis Approval

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Declaration

I, the undersigned submitter of the master thesis with the title:

Evaluation of critical success factors for implementing the renewable energy and efficiency energy strategic plans in Palestine

I hereby certify that this submission is the result of my own work, except where otherwise acknowledged, and that this thesis (or any part of it) has not been submitted for a higher degree or quantification to any other university or institution.

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Date:	**August 4, 2022**

DEDICATION

To those who said the truth about them, “And, out of kindness, lower to them the wing of humility, and say: "My Lord! Bestow on them thy Mercy even as they cherished me in childhood.” (Al-Israa: 24)

My mother and my father,

May God prolong their lives and provide them with piety and chastity.

To those who instilled in me all the meanings of love and loyalty, and inherited in me all the motives of love and giving.

My husband &my sister

To my heart, my joy and my life.

My son.

To the sincere hand that gave me directions and influenced the clarity of my vision, without which I would not have completed this research..

Dr. Mohammad Abu Sharbeh.

Dr. Mohammad Alsayed

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ABSTRACT

This research aims to identify the critical success factors that contribute to the successful implementation of strategic plans for energy efficiency and renewable energy in Palestine. The six highest critical success factors (CSF) were identified and arranged from the highest to the lowest impact, t An applied descriptive and analytical methods were adopted, where semi-structured interviews were conducted with 15 key decision makers in the energy field (government, private, academic, and advisory sectors). The study tool had proved its credibility and reliability.

The findings showed that there are many factors that affect the implementation of strategic plans for the renewable energy sector and energy efficiency in Palestine. More specifically, in the strategic plans for energy efficiency, the most influential factors were found to be legislation related to the energy audit system, Energy Service Companies (ESCOs), public awareness of rational use of energy, environmental protection and green house gases (GHG) emission mitigation, tax exemptions on energy efficiency goods and projects, a mechanism to facilitate bank financing related to energy efficiency improvement projects, reliable and energy efficient technologies in the Palestinian market.

Also, the findings showed that the highest effect of legislation is related to the energy audit system on tax exemptions on energy efficiency goods and projects. Then came the effect of tax exemptions on energy efficiency goods and projects on energy service companies (ESCOs). Likewise, the effect of the mechanism to facilitate bank financing is related to energy efficiency improvement projects on energy service companies (ESCOs).

As for the strategic plans for renewable energy, the highest factors affecting the success of implementing the plans were found to be legislations related to renewable energy projects, electrical power distribution network and local connection points including demand, political stability and administrative classification of lands (A, B, C), a mechanism to facilitate bank financing related to renewable energy projects, public awareness of rational use of energy, environmental protection and GHG emission mitigation, a clear and realistic national energy policy.

Finally, the research findings showed also that the highest effect is the effect of political stability and administrative classification of lands (A, B, C) on legislations related to renewable energy projects, and the effect of the political stability and administrative classification of lands (A, B, C) projects on the mechanism to facilitate bank financing related to renewable energy.

Keywords: Strategic Planning, renewable energy (RE), efficiency energy (EE), critical success factors, energy industry, energy service companies (ESCOs).

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CHAPTER I

Introduction

1.1. Research Background

The energy sector is one of the most important sectors that play a major role in the economy and social development. Nevertheless, this sector poses the greatest threat to the environment and sustainable development. The rapid technological development, which is related to the need to improve individual living standards and contributes to increasing population density, has led to an increase in concerns related to environmental pollution resulting from carbon dioxide emissions from factories and vital sources. (Abu-Madi et al.,2013).

Energy renovation is a major measure that contributes to saving energy used and reducing carbon dioxide emissions, in addition to several benefits, including reducing operating costs for buildings. However, there are still many limitations that prevent the encouragement of investments in energy efficiency and the use of renewable energy sources in existing facilities. For example by Salvia et al. (2021) conduced an analysis of the local-level plans of 327 cities in the EU.", They found that one of the biggest problems facing investments in the energy efficiency sector is the lack of financial resources for investments. In addition to several other problems, including that the stakeholders do not have the technical expertise to prove the importance of technological innovation and highlight the profits gained from related investments. The energy efficiency investment sector also faces limitations related to complex regulatory and institutional laws and legislations, which sometimes have a direct relationship with

the multi-level administrative structure with common competencies and responsibilities. (Salvia et al., 2021)

The increasing population growth and industrial development have led to the increasing demand for energy, and that is why planning how to use energy in the most appropriate way has become a very important process to reduce environmental damage resulting from emissions. Energy planning is a complex and endless process for developing future strategies in the energy sector.This prompted development policy makers for future strategies to go to plan and develop energy strategies that ensure economic growth and sustainable development and thus preserve the environment. (Fontana et al., 2013).

The Intergovernmental Panel on Climate Change indicated that developing countries are facing a growing gap between energy demand and supply. This gap needs analysis and the use of strong scientific methods in future alternative energy strategies. In addition to the many challenges facing the energy sector, as the high emissions from different energy use led to an increase in global warming, sea level rise, melting glaciers, and thus environmental degradation. All this puts governments and decision-makers in adopting pro-environmental strategies and reducing the damage caused by energy use through an environmentally-friendly and clean production (CP) approach. (Hoegh-Guldberg et al.,2018).

Clean production is defined as following sound environmental measures through the use of raw materials and energy efficiency in a manner that increases productivity in the production process and improves organizational performance and competitiveness by reviewing policies and plans related to energy use and re-evaluating current energy strategies for sustainable clean energy planning. (Solangi et al., 2019).

The status of the energy sector in Palestine differs markedly compared to other countries in the Middle East for many reasons: scarcity of natural resources, political instability, and lack of financial resources, high population density and an increase in the rate of population growth. In addition to that, Palestine is completely dependent on other countries for fossil fuels, and for no less than 87% of electricity imports from neighboring countries. All this has led to an increase in the demand for energy in Palestine recently, despite the fact that the total energy consumption of the citizen in Palestine is the lowest in the region (0.79 megawatt hour / inhabitant) while the cost is higher than anywhere else in the surrounding countries. (Juaidi et al., 2016).

Depending on the importance of managing the energy sector in Palestine to achieve sustainable development, and the necessity of using new scientific techniques in managing and planning the energy sector, this study evaluates critical success factors (CSF) for implementing energy strategies in the field of energy efficiency (EE) and renewable energy (RE) in Palestine. Critical success factors for each field are studied and identified separately.

1.2. Research Problem

The success of strategic plans depends on the availability of information, as the available information is a vital resource that makes the difference, as it can make or miss the opportunity for success of the strategic plan. Based on this, adopting a detailed and available information approach to developing strategic plans and monitoring their implementation helps planners to transform their plans into real actions. Hence the role of critical success factors, as this approach is a method for designing and monitoring the planning process by identifying and organizing important information and then

evaluating in a way that ensures continuity and support for the implementation of the strategic plan, critical success factors have become a common method for identifying the conditions, activities, information, and events that ensure satisfactory results and competitive performance. (Jenster, 1987).

After reviewing the literature, it was found that there is lack in studies and evaluations of critical success factors for the implementation of projects and plans in the energy sector. This issue had limited the achievements of the prepared and adopted plans on the national level. Furthermore, the research problem is to investigate critical success factors for implementing the strategic planning and finding out the success elements that affect EE and RE strategic planning process in Palestine.

1.3. Research Objectives

The study is aimed to highlight and **evaluate the critical success factors for implementation the RE and EE strategic plans in Palestine**. The importance of the study comes from the importance of strategic planning for the energy sector and the importance of critical success factors in implementing strategic plans. Thus, evaluating the critical success factors of RE and EE strategic planning is the first step to help in the implementation the strategic plans in the Palestinian energy sector in accordance with the vision, mission and strategic goals, and thus keep pace with and meet sustainable development at the Palestinian and global level. This research would contribute in increasing the awareness level of the top management in the energy sector in Palestine.

Moreover, the study serves as a scientific reference for future researchers, for readers and for those interested in this topic, as it will tackle every important factor

especially Israeli occupation role, which has a deep impact on the Palestinian energy sector in Palestine. To the best of researcher's knowledge, there is no current research that has studied the critical success factors for implementing the Palestinian RE and EE strategic plans before. At the end of the study, in addition to the main objective the following sub-objectives would be met.

1. To identify the CSF for implementation of the RE and EE strategic plans in Palestine.
2. To analyze the CSF for implementation of the RE and EE strategic plans in Palestine.
4. To find out the relationship of each CSF and the extent influenced by other factors
5. To find out the proportion of the impact of each CSF on success of the RE and EE strategies.

1.4. Research Questions

The main research question in this study is ***What the impact of evaluating the critical success factors (CSF) on implementing the renewable and efficiency energy strategies in Palestine?***

Accordingly, the following set of questions could be derived:

1. What is the main CSF for implementing the RE and EE strategic plans in Palestine?
2. What is the level of the CSF for implementing the RE and EE strategic plans in Palestine?
3. What is the relationship of each CSF and the extent influenced by other factors?
4. What is the proportion of the impact of each CSF on success the RE and EE strategies?

1.5. Significance of the Study

The importance of the study stems from both scientific and practical importance.

1.5.1. Scientific Importance

- The research is to focus on CSF that helps energy sector's planners in Palestine to develop in implementing EE and RE strategic planning.
- The study is one of the most important modern topics in contemporary planning literature, and the importance of the role played by CSF in energy sector. It is working to provide elements of sound evaluation and monitoring to implementing EE and RE strategic plans in a good way.

  The management of strategic planning for the Palestinian energy sector is important, as it has a clear impact on saving energy consumption and increasing production from renewable energy, which in turn contributes to energy independence in Palestine.

1.5.2. Practical Importance

- Urging and encouraging the use of contemporary methods in implementing the strategic plans for the energy sector in Palestine.
- Stimulating stakeholders in strategic planning for the energy sector in Palestine to develop methods of implementing plans, and to apply effective monitoring and evaluation systems to ensure that the best results are achieved and that goals are achieved.
- Helping in directing planners in the energy sector to the challenges that prevent the implementation of strategic plans with the desired goals and focusing on success factors and thus setting realistic implementation goals.

1.6. Research Methodology

The qualitative research methodology was adopted in this study due to the scarcity of previous research and studies on the subject of critical success factors in the Palestinian energy sector. As Willis explained in his research in 2018, qualitative research works to understand the challenges, opportunities and motives (Willis, 2018).

The data mentioned in this study is based on a review of the previous literature in the field of energy and its efficiency and the renewable energy sector, and then semi-structured interviews with key persons to determine the CSF through their experience in developing and implementing strategic plans for the energy sector. An analysis of CSF has been undertaken to understand them and identify the main areas in which these factors affect them.

1.7. Definition of Terms

Table (1.1) shows the most important terms that have been used in this study.

Table (1.1): Definition of Terms

Critical success factors (CSF)	The limited number of areas in which satisfactory results will ensure successful competitive performance for the individual, department, or organization (Morrison, 2016).
Strategic Planning	The general objectives of the initiative, which results in the emergence of many plans to make up the general goal that governs all the resulting decisions, and it unifies the goal of employees to achieve the organization goals to be reached (Taylor, 2018).
Renewable Energy	Renewable energy is clean energy that is produced from

	natural sources and that is constantly renewable. (Shinn, 2018).
Energy Efficiency.	Energy efficiency is the process of reducing the amount of energy used in facilities, factories, etc. Thus reducing consumption, which in turn reduces air and environmental pollution. (Ritchie et al., 2018)
KPI	The key performance indicator is a measuring tool that evaluates the implementation of the organization's or company's plans for its strategic vision. (Warren, J.,2011)
Energy audit	Energy audit is defined as a comprehensive analysis of all properties and features of the building in terms of how use the energy in all its forms, and then analyzing this data to produce the best use of energy resources financially, administratively and technically without compromising the required quality. (Thollanderet al, 2012).
ESCOS	The Energy Services Company (ESCO) is a company specialized in providing solutions for energy efficiency and use in an appropriate manner. The services provided include energy auditing and redesign. The goal of these companies is to improve energy efficiency and restore energy infrastructure, financing and risk management. (What is an ESCO? Report, 2017).
Sustainable goals	The Sustainable Goals are the global goals for planning and achieving a clean and sustainable future. (Resolution adopted

	by the General Assembly, 2017)
Tariff rate	The electricity tariff price is the sum of the cost of construction, maintenance and operation of the power plants and electricity networks/grids. (Weron, ,2014)

CHAPTER II

LITERATURE REVIEW

- **The Energy Sector in Palestine (Energy Efficiency and Renewable Energy)**
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CHAPTER II

LITERATURE REVIEW

2.1. The Energy Sector in Palestine (Energy Efficiency and Renewable Energy)

2.1.1. Concepts Overview (Energy Efficiency and Renewable Energy)

Energy efficiency means using less energy without affecting the quality of the output that is what called eliminating the energy waste. There are many benefits for increasing the energy efficiency: eliminating GHG emissions, reducing demanding on energy imports, and lowering the energy cost on economy-wide level. While renewable energy technologies also contribute to achieving these goals, improving and increasing energy efficiency is the cheapest and fastest way to decrease of using the fossil fuels. Always there are opportunities for improving the efficiency in every sector in our life, in buildings, transportation, industry, or electrical sector. The improvement of energy efficiency is directly related to human behavior, the way how people use the technologies will impact on efficiency, so how should motivate the people to buy and install the means that help in reducing energy use, this is an important point that should be investigated to make the energy more efficient. (Horizon 2020 Mediterranean Report, 2014)

A few previous studies related to energy sector demonstrate, it has become an extreme necessity to preserve the primary environmental resources due to the scarcity of these resources (heavy oil, natural gas). Such traditional resources have accumulated over millions of years through solar energy and geographic structure, and with the increasing demand for them, they have become a sharp decline in the world's reserves and an increase in their price. Here comes the role of the importance of energy conservation in

developing and developed countries. Conserving energy and reducing its consumption is an applied technology applied to reduce the value of energy consumed within certain criteria and standards without affecting the final quality, that will reflect investment benefits. It has a huge impact on the national economy of any country that adopts energy conservation technologies. (Al-Mofleh, et al., 2009).

Further, Du Plessis, (2007) in his study has described the increasing deterioration of human activity on this land has led to a catastrophic pollution of the environment, which necessitated all the world to consider preserving the environment and establishing a clean, sustainable environmental environment. Adopting the concept of a sustainable construction will reduce environmental risks, waste produced and energy consumed, and this through a planning administrative system aims to establish a healthy sustainable construction and definition of principles for increasing energy efficiency. (Du Plessis, 2007).

Renewable Energy is energy derived from sustainable natural sources that do not negatively affect the environment. These sources, which are constantly and naturally renewed, are used to produce energy of various types, electrical and thermal, and so on. Among the natural resources from which energy is produced are the sun, wind, rain, and tidal waves. These resources do not decrease, unlike fossil fuels, which are threatened with diminishing. (Ellabban et al., 2014).

2.1.2. An Overview of Palestinian Energy Sector

The Palestinian energy sector has a special condition according to the specificity of the State of Palestine and its aspirations for independence from occupation especially economic independence, The energy sector has an important role in the Palestinian

economy and the consequent costs paid annually to Israel rather than as a sector should pay attention to it because its direct impact on the environment, with the world's tendency to conserve the environment and reduce harmful emissions and environmental pollution. This underline the role of reducing the harmful use of energy as much as possible .

One of the most important methods used globally to reduce energy use is to increase its efficiency and how it is consumed in all sectors. Increasing energy efficiency is one of the priorities of the Palestinian Authority and institutions, as it will reflect the savings in costs lost on energy consumed. Through the last decade, Palestine has +2.9% per annum growing population that mean it has the third fastest growing in Middle East and North Africa (MENA) region, this reflects the ever-increasing demand for energy and increasing the economic growth. That makes the increasing of energy efficiency very important at the Palestinian national level especially after reviewing forecasting demand on energy in 2020-2030 timeframe for the residential sector (growth rate estimation: 2.2-2.4%/year) and the economic sectors (4.5%/year). (World Bank, 2016).

The Palestinian economy suffers from many pressures, due to the Israeli occupation, in addition to a clear negligence in the infrastructure and energy sector in the Palestinian territories, which led to the difficulty of keeping pace with development and real growth in all aspects of life, especially the energy sector. The Palestinian territories are divided into the areas of the West Bank and the Gaza Strip, in addition to the fact that the territories of the West Bank are divided into three parts according to the Oslo Accords (A, B and C). It is not allowed to establish any development projects in Area C without the approval of the Israeli authority, knowing that most of the Palestinian lands are classified under category C, and this constitutes as a major obstacle to developing the

infrastructure of the Palestinian lands, especially the establishment of renewable energy projects that require areas of land. (Ismail et al., 2013).

Subsequent to several studies and research, it was found that the West Bank is in a state of improvement regarding the energy sector, especially renewable energy, but the conditions of the Gaza Strip are from worse to worsen, according to the harsh conditions that the sector is going through. A lot of practical research has studied the challenges of the energy sector in Palestine, summarized them in: political instability, dependence on Israel to a large extent to supply energy, loss of energy as a result of weak and old electricity networks in the West Bank and theft of electricity, low level of income compared to other countries, lack of control over Land and the possibility of creating projects easily. (Ajlouni,., Alsamamra,.,2019).

2.2. Strategic Planning in the Palestinian Context

2.2.1. Overview of Strategic Planning

Strategic planning is defined as the long-term planning which considers all external and internal variables, and identifies all target segments and sectors, in addition to the methods of competition (Taylor, 2018). Strategic planning according to Taylor (2018 responds to a question of where we are going, considering the future vision of the institution and the relations of integration and linkage between all aspects of the organization, in addition to the various activities that it undertakes and the relationship that links the organization with the surrounding environment. Also, strategic planning is defined as the general objectives of the initiative, which results in the emergence of many plans to make up the general goal that governs all the resulting decisions, and it

unifies the goal of employees to achieve the organization goals to be reached (Taylor, 2018).

2.2.2. Strategic Planning Elements

Al-Hilali (2006) confirms that the strategic planning methodology consists of a set of elements:

Beliefs: they represent expressions of values, beliefs and obligations. They are the values that individuals who make up different institutions believe in, so that they do not deviate from them, no matter how different places or circumstances in which they find themselves in them.

The Mission: It is a word that expresses the goal and the job of the organization existence. It also represents the cornerstone of the strategic plan.

Policies: they are used within the framework of the strategic planning objectives of institution.

Internal Analysis: it includes aspects of strength and is represented in the existing elements that support the institution's mission, and the areas of weakness are those factors that are likely to prevent the institution from achieving its mission.

External Analysis: This includes the analysis of the external environment and includes examination of opportunities and risks in environmental trends, and technological, economic, population and legislative, political, cultural and social prediction.

Competition: it represents by planning for the future so that it is also necessary to measure competition between the institutions that provide the same service in the region, and when the institution follows the organization of planning through analyzing the competition, then it has reached the point of departure towards developing the goals

and strategies required to support the mission to reach to the vision of the institution (Chorafas, 1999).

Based on the definitions of the elements of strategic planning above, strategic planning for the Palestinian energy sector is critical to the development and independence of the sector. Strategic planning for the energy sector enables maximizing the use of available resources and opportunities and minimizing risks resulting from weaknesses and challenges.

2.2.3. The current situation of the Palestinian strategic planning for the energy sector

According to Country Report on Energy Efficiency and Renewable Energy Investment Climate, since 2010, the Palestinian Energy and Natural Resources Authority has started restructuring the energy sector by implementing a comprehensive program through the comprehensive national strategic plan for the energy sector, which includes all organizational, institutional, legal and legislative aspects. The strategic plan for the energy sector aims to build an integrated system to achieve sustainability and development, while ensuring energy security by increasing clean energy projects and raising energy efficiency, the National Strategic Plan for the Energy Sector, which covers the time period (2010-2020), aims to reduce electricity consumption by about 5%, and thus save at least 55 million US dollars annually from the total electricity cost and reduce carbon dioxide emissions by 285,000 tons. In addition to the National Energy Plan for Energy Efficiency, a comprehensive strategic plan for renewable energy has been approved by the Palestinian Council of Ministers with the aim of reaching 130 megawatts of renewable energy sources in 2020. (Country Report on

Energy Efficiency and Renewable Energy Investment Climate, 2020).

Through interviews with stakeholders involved in the implementation of the strategic plans, it was found that the objectives assigned to these plans were not achieved, and this is likely due to the obstacles and challenges facing the Palestinian energy sector, in addition to the fact that the objectives of the plans were too ambitious and lacked a clear action map for implementation.

2.3. Critical success factor (definition, importance, previous study).

2.3.1. Definition and importance of the critical success factors

Critical success factors (CSF) are defined as the critical information needed by senior management such as CEOs and decision-makers for the success of the plans and work entrusted to them. This information becomes standards for implementation performance and an important tool for the management information system in any organization or company. The identification of CSF leads to knowing the threats and opportunities available to the organization in addition to the strengths and weaknesses, and this is what makes the CSF important in the field of strategic planning and development. (Leidecker, & Bruno, 1984).

CSF are the factors that ensure the success of a company or organization through its strategic plans. The term critical success factor was initially used in information and business analysis. (Rockart, 1979).

Freund explained the most successful CSF methodology (1988) in his article critical success factors, which is summarized in the following points:

- Analyzing the organization's strategies, missions and objectives to determine the critical success factors. Once the factors are identified, each factor is analyzed separately to determine the extent of its contribution to achieving the overall goals.
- For each work unit in the functional areas of the organization, success factors must be determined. The CSF differ in each institution or company, depending on the nature of the work and the challenges and weaknesses facing the implementation of the strategic plan of the institution, in addition to the fact that the number of critical success factors must be limited so that they do not exceed. The ten factors for the purpose of focusing on achieving the goals, as the expansion and abundance of factors leads to dispersal and lack of detail.
- Develop strategic plans to maximize the use of strengths and overcome weaknesses in each area.
- Determine the measurement tools for each critical success factor to monitor the performance of the implementation of strategies so that success is measured through the measurement criterion.
- Disseminate procedures and processes necessary to provide timely feedback on performance.

Management and project planners work to differentiate between factors that are related to outcomes and factors that have a causal-effect on outcomes. The process of identifying CSF is a process resulting from research, exploration, discussion and elicitation of information from specialists. Determining CSF becomes an important issue for the success of any corporate strategies when accurate and rigorous statistical analysis cannot be carried out. The following issues must be taken into consideration when determining factors: (factors that cause the outcome, is it possible to conduct a

statistical analysis from previous data, what are the requirements to change behavior and thus achieve goals, what are the conditions and skills needed to gain success and enable desired results, and finally what tools must be adopted and mastered to achieve goals. (Reh, 2019)

2.3.2. Previous Studies

Through the implementation of strategic planning policies in the province of Jae´n (Southern Spain) to develop its economic sector that relies mainly on olive agriculture, it became clear the importance of using strategic planning and its impact in developing the energy sector, which in turn will positively affect the economic development of the province. A full participatory strategic plan was developed, including energy, this part of the plan highlighted the use of clean energy and its impact, and it was concluded that despite the use of many energy-raising technologies and increasing their efficiency, strategic planning, and in particular SWOT analysis, proved to be an effective and important tool in determining current problems and draw future plans with greater accuracy. (Terrados, Almonacid, &. Hontoria, 2005).

Recently, and after the adoption of the sustainable development goals by the United Nations, pressure has become increasing, especially from stakeholders, to adopt environmentally-friendly practices in various sectors, especially the energy sector, because it has a strong impact on other sectors and the national economy of the country. In an article the importance of strategic planning for the Chinese energy sector was clarified and the CSF defined to overcome the difficulties faced by China in the energy sector, where the management of energy production and how it is consumed has become important too much for policy makers. (Zhao, et al., 2021).

Many researches have been conducted showing the importance of CSF for projects, regardless of the target sector. Whereas, in a previous research by Baccarini & Collins (2003) in various fields, including communications, education and construction projects, and after conducting a survey of 150 members of the Australian Project Management Institute, 15 success factors for the project were reached, and it was noted that there were no conflicting answers in the survey collected from different sectors. One of the most critical elements for the success of the projects was understanding of the implemented project in addition to the project implementation team.

Additionally, there are many studies that have shown that CSF enhance the strategic planning process and highlight the current status of strategic institutional plans, and also contribute to the implementation of strategic action within a tight and strong framework. Integrating the strategic planning process with the identification of CSF reveals comprehensive strategic thinking and an ongoing and realistic development process within an analytical depth. (Linda, 2010).

The challenges facing the energy sector from global warming, environmental pollution, sustainability and increasing demand forced decision-makers to adopt policies and strategies to develop the renewable energy sector, as many renewable energy projects are being implemented, but with the obstacles and problems that exist, these projects fail to achieve their goals, as governments were adopting initiatives to promote consumption and investment in renewable energy only, and to address these challenges and obstacles governments and stakeholders tended to adopt practices that ensure the success of projects and strategies for the renewable energy sector. It was found through a study conducted in Pakistan that identifying critical factors for renewable energy projects helps guide project owners to the success of their investments by highlighting

practices and activities that increase the opportunity the success of these projects and the reduction of obstacles in front of them. The factors were identified through previous studies and interviews with stakeholders and project owners. These factors were analyzed and it was found that the environmental factors are among the most important CSF with a rate of (33.8%) for the success of renewable energy projects. (Maqbool& Sudong,2018).

Through a study conducted by Donastorg and others in 2019 to assess the CSF in the application of renewable energy strategies in the Dominican state, in the case of the Dominicans, and the challenges it faces in the energy sector at the technical and administrative level. It shows the importance of highlighting and evaluating CSF to determine their impact on the implementation of projects and plans related to the renewable energy sector, which in turn supports the overall energy sector of the Vatican City, six CSF have been defined according to the existing challenges: (1) access to the grid, (2) law enforcement, (3) coordination and communication, (4) financial instruments for renewable energy projects, (5) knowledge creation and exploitation, and (6) transparency. Several items were concluded through this study, the most important of which are the correct implementation of the legal framework, as it was found by 72% that there are laws related to renewable energy, but there is weakness in the implementation and binding of these laws, and finding an effective financing method for the implementation of renewable energy projects, transparency in financing issues, legislation and other items related to the successful implementation of renewable energy plans. (Donastorg et al., 2019).

2.3.3. Discussion of the Previous Studies

At the outset, the sustainable goal of the energy sectors was mentioned, which is energy conservation and increased energy efficiency, the previous studies then clarified the importance of strategic planning for the energy sector, especially the Palestinian energy sector, because of the many challenges it faces. Emphasis was placed on the importance of adopting CSF and analyzing them in the success of implementing strategic plans in general, either in the energy sector or others. Then, Zou et al. 2021 point out that identifying CSF contribute to overcoming the difficulties that China is facing in the field of energy, and that it has become necessary for strategists and policy makers to manage energy production and how it is consumed.

It became clear the importance of identifying and analyzing CSF for projects and their strategic plans in all sectors, and this is what Baccarini & Collins proved in 2003 through their study of several different areas, including communications, education and construction projects. Linda explained in 2010 that CSF enhance comprehensive strategic thinking and support the development process in a continuous and realistic way.

In addition to the above, it was found through a study conducted by Maqbool and Sudong in 2018, that identifying CSF in renewable energy projects helps guide people to the success of their investments by highlighting practices and activities that increase the chances of success and reduce obstacles.

A limited number of studies have evaluated CSF for the successful implementation of strategic plans in the energy sector. A study conducted by Donastorg and others in 2019 in the Dominican country focused on the renewable energy sector and evaluated the CSF of strategies for the renewable energy sector in the Dominican Republic, where

they the researchers appointed a group of decision-makers and influencers in renewable energy strategies, and interviews were conducted with them to determine the CSF, the extent to which each factor is affected by the other, and the extent to which these factors affect the implementation of strategic plans and the goals of the sustainable renewable energy sector.

Due to the scarcity of research related to the CSF of the energy sector in Palestine, in this study the qualitative research methodology via semi-structured interviews is adopted, which is the most appropriate method at this type of study, therefore, our study focused on investigating CSF for implementing energy sector strategies in Palestine in terms of energy efficiency and renewable energy.

CHAPTER III

METHODOLGY

- **Research Methodology**
- **Data Collection**
- **Interview Design**
- **Measurements**

CHAPTER III

METHODOLGY

3.1. Research Methodology

The methodological framework for this research is an important step, in the light of which the systematic treatment mechanisms are determined in all its stages, because achieving the desired goal of achieving it requires an organized process that depends on a selected approach and an established nature, and depends on systematic techniques, data collection tools, and methods of analysis. Then, relying on an approach consistent with this study, and was reflected in the descriptive approach, which explains and analyzes the existing situation of energy sector strategic planning and evaluation the critical success factor for implementation the EE and ER plans in Palestine , with the aim of concluding an accurate and integrated practical description of its dimensions.

Due to the lack of research related to the subject of the thesis, in addition to the sensitivity and complexity of energy-related issues, especially in Palestine, the researcher follow the descriptive method, which is based on collecting information from the decision- makers and articles on the subject, the qualitative research methodology was adopted. A qualitative research methodology for this study was chosen because qualitative methods are especially useful in discovering the experience of the key persons in the Palestinian energy sector. As explained by Pathak et al., (2013) the qualitative research method is used to understand people's interactions and experience in a particular field, and this results in the collection of non-numerical data that helps add a new dimension to research.

The data in this thesis is based on previous literature and interviews with relevant persons and decision makers in the Palestinian energy sector. Then, an analysis of the

specific and proposed CSF was conducted in order to identify the main areas for the success of the implementation of the strategic plans for the Palestinian energy sector at the levels of energy efficiency and renewable energy, and thus a comprehensive and deep understanding of the challenges, opportunities and current reality of the sector. As explained by Esteves,(2005) that only the analysis of success factors by reviewing the literature and documents and relying on interviews and thus identifying areas that ensure the performance and success of strategic plans, the analysis of factors requires a deep understanding of the characteristics of CSF such as hierarchy, realism, types, temporal stability, exclusivity, in this study specialization and focus on uniqueness and types .(Esteves, , 2005).

The previous literature has been carefully studied and reviewed in order to collect relevant recent data. In a study prepared by Winchester and Salji, (year) it was found that to collect information and direct it to current knowledge, the basic tool must be used, which is the literature review, and then adopt the analysis of these data to extract the required ones according to the main objective of the research. Studying and reviewing previous literature ensures that research in this field will not be repeated and that this study will be an addition to the Palestinian energy field.

After reviewing the previous literature, semi-structured interviews were conducted with key persons and experts (a total of 15 professionals) to collect the primary data, so that their years of experience are not less than 10 years in the field of energy efficiency and renewable energy. The classification of interviewees was from various organizations (governmental, non-governmental, private and academic sector). The target groups are directors, managers, consultants and university professors, so that the interviews elicit a

comprehensive and understandable view on various fields through PESTEL's analysis in relation to the strategies of the Palestinian energy sector.

3.2. Data Collection

The data collection tool was through studies and then interviews with 15experts and persons specialized in the field of strategic planning for the Palestinian energy sector. These interviews identified the CSF and their impact on the success of the implementation of the plans. The interviews were as follows:

Table (3.1): Information of Interviewees

No.	Participants	Job tittle	Year of related experience
1.	Ayman Ismael	PENRA	18years
2.	Basel Yasin	PENRA	20 years
3.	Basel Abdeljawad	Director for operation department _ PETL	16 years
4.	Salam Alzagha	Energy consultant	40 years
5.	Muhammad Mobied	Project Manager	15 years
6.	Hamdi Tahboub	CEO _ PERC	12 years
7.	Nashaat Abu-Baker	CEO_ PETL	20years
8.	Eynas Darawsheh	Director of planning department _ PETL	17 years
9.	Nidal Abu Elrob	Director of Research, Studies and Exploration Department	15 years
10.	Ali Hamoda	Consultant / energy sector	40 years
11.	Maen Rashed	CEO-PENRA	20 years
12.	Abel hadi Barakat	PMU maneger – PENRA	20 years
13.	Dr. Aysar Yasin	Lecturer at An-Najah National University	15 years
14.	Dr. Muhammd Alsayed	Lecturer at An-Najah National University	10 years
15.	Abedelnaser Dweekat	President of AEE in Palestine	10 years

3.3. Interview Design

The interviews were divided into two parts, a section on energy efficiency plans and a section on renewable energy plans. The interviewees were asked about their opinion and suggestions regarding the CSF for each section. Then, through previous studies, several important factors in the Palestinian context were collected for the success of the implementation of strategic plans, they were discussed with if they constitute CSF or not, then the interviewees were asked to rank the top six critical factors from their point of view affecting the implementation of the plans. Finally, a table was designed for the effect of each factor on the other, and the table was filled in based on the influence of each factor on the other or not. To find out the most influencing factors on other factors

3.4. Measurements

There are several measures to measure trends, the influence of factors and most importantly, the frequency of each factor has been measured as per the view of several managers. The answers were grouped and categorized according to the nature and participation of each factor. The SPSS and Excel programs were used to find out the frequency of the factors and their arrangement from highest to lowest.

CHAPTER IV

EMPIRICAL FINDINGS

- **Introduction**
- **Text analysis _ CSF**
- **Descriptive Analysis**
- **Text analysis _ Possible measurement tool Critical success factor**

CHAPTER IV

EMPIRICAL FINDINGS

4.1 . Introduction

The researcher in this section of the study presents the results of the study through presenting the analysis of interviews questions, dimension of the study. Eventually, the researcher presents the research analysis for the frequency analysis.

4.2 Text analysis-CSF

All the answers to the first question, shown below were analyzed, the details for each factor were clarified, and the number of answers repeated for each factor from the interviewees.

- What are the CSF that you perceive critical for the implementation of strategic plans for energy efficiency?

Table (4.1): Text analysis of interviewees' answers (CSF for energy efficiency)

Details	**CSF**	**Frequency (N)**
Updates in the enacted legislation in this regard, setting mechanisms for the implementation of these policies and legislation, development of general legislation in line with achieving the objectives of the plan. And enact legislation related to energy auditing, regulating the work of companies specialized in the field of energy efficiency, and those legislation binding on the import and purchase of efficient	Legislation and Laws	**14**

electrical appliances, amending and developing legislation regulating the renewable energy sector, and enacting clear and stimulating legislation to support energy efficiency.		
The government ought to play a pivotal and important role in this field by providing material incentives and tax encouragement for energy efficiency projects, considering them to be part of modern energy sources.	Governmental Support	**11**
Controlling the import of used, inefficient, and non-specification devices from abroad, preventing the import of machines and electrical devices that are not suitable for energy efficiency, and the necessity of adopting specifications supporting energy efficiency in imported devices. Providing incentives to citizens to replace old devices in buildings and facilities, and to control and control the introduction of devices and technologies into the Palestinian market by strengthening import control, and preventing the import of non-energy-saving electrical machines and devices through the Ministry of Standards and Metrology, by adopting specifications that support energy efficiency in imported devices.	Controlling the Used Devices	**11**
Absorbing and creating societal awareness is the	Awareness	**6**

main item in the efficiency of the use of new renewable energy, through encouraging national campaigns and initiatives to educate the community and change the culture towards energy conservation, and to educate the community about the need to reduce energy consumption and energy efficiency projects.	Campaigns	
The involvement of banks in energy efficiency projects - to provide financial support, provide financial and technical support for projects, provide financial support, and provide financing facilities to encourage investment in the energy sector.	Providing Financing, especially from Banks	**6**
Establishment of dedicated energy efficiency companies (ESCOs), the creation of specialists in the field of energy / energy service companies, the existence of qualification standards for energy service companies, licensing of energy services companies (ESCOs)	Establishment of Specialized Companies in the Field Of Energy	**4**
That strategic energy efficiency plans be realistic for implementation	Realistic and Attainable Plans	3
Political stability and making agreements regarding licenses on areas (ABC)	Political Status	2
There are no electric power stations	There are no	1

	Electric Power Stations	
Energy prices are very high (the highest price in the surrounding countries is the cost of energy	Energy Prices	1
The stability of the energy sector and the unification of decision-makers as a single regulatory destination.	energy sector stability	1
Establishment of energy audit laboratories	Establishment of energy audit laboratories	1
The presence of engineers specializing in energy audits	The presence of specialized engineers	1
Rehabilitation of networks so that new power generation projects can be connected to them	Network Qualification	1
Availability of financial and technical resources	Financial and technical resources	1
Having a team capable of implementing the strategic plan so that the strategic plan is feasible and realistic	A team capable of executing the strategic plan	1
There is no single body responsible for planning and	Define an	1

managing the sector	entity responsible for planning and managing the sector	
Controlling factories in areas C, which affects energy efficiency, and this is due to the political aspect and the lack of control over it.	Control of factories in regions C	1
Graduate market management specialists / experts for efficiency projects	Specialized Alumni	1

In regard to the second question given below, the answers of the interviewees are summarized in Table (4.2).

- What are the CSF that you perceive critical for the implementation of strategic plans for renewable energy?

Table (4.2): Text analysis of interviewees' answers (CSF for renewable energy)

Details	**CSF**	**Frequency (N)**
Providing a financing mechanism and banking facilities to develop networks and build storage capacities, the need for banks to participate in financing programs, provide the necessary financing as support for energy-efficient projects, develop mechanisms to provide financing and banking facilities, provide	Financing mechanism and bank facilities	11

financing for network development and build storage capacities, and engage banks in financing programs, and provide Funding needed as support for energy efficient projects		
Developing policies governing the renewable energy sector. Increasing its absorptive capacity, automating and improving the electrical network, automating and rehabilitating networks, increasing connection points - electrical interconnection between governorates, and improving the current electrical network.	Grid capacity and rehabilitation the electrical network	11
Issuing building licenses in lands C, and negotiating with the Israeli side to obtain licenses to construct stations on lands C in a smooth manner. Granting building permits in C. lands.	Issuance of building permits in the lands of C	11
political stability	political stability	**9**
Enact laws and legislation that clearly regulate the renewable energy sector, adhere to legislative flexibility in the rights of investors and transfer the rights of others, enact detailed, clear and executive legislation that regulates the renewable energy sector and standardize	Legislation and laws	**9**

procedures for the requirements of linking renewable energy projects, and that the legislative environment is able to achieve a balance between the interests of investors and the interests of companies.		
Consolidation of the electricity distribution network.	Consolidation of the electricity distribution network	9
Storing excess loads from renewable energy production by adopting a storage mechanism for electricity loads.	Storage of overloads	**9**
Establishing specialized investments in the fields of storage (excess storage of the produced solar energy and its use later), rehabilitating the network and increasing its capacity, and building storage systems for generated energy. Improving the networks so that they have the capacity for new energy projects, creating a unified local network with absorptive capacity, stabilizing the electrical network, rehabilitating networks, expanding the connection points, and absorbing new solar energy through improving the electrical	Establishment of specialized investments in the fields of storage	9

network		
Building a storage system to increase storage capacities, and store excess electrical loads from renewable energy production.	Building a storage system to increase storage capabilities	**9**
Lack of control over the transmission and distribution network in Palestine and consequently the inability to connect the connection points through RINGS.	Lack of control over the transmission and distribution network in Palestine	**9**
Network unification through ring.	grid unification through ring	**8**
A realistic and actionable strategic plan.	A realistic and actionable strategic plan	**7**
Adopting a feasible and fair price for investor interest	A fair and feasible price	5
Awareness of the local community, increasing the demand for investment in the field of energy, spreading the culture of renewable energy and the importance of its projects	Awareness of the local community	3
Energy exchange with neighboring countries.	Energy exchange with neighboring countries	3

Use of different renewable energy sources (wind / solar / etc.).	Use of different renewable energy sources	3
Standardization of the regulatory environment for the sector	Standardization of the regulatory environment for the sector	1
Exemption of renewable energy projects from taxes and customs.	government support	**1**
Integrating all agencies as one body and unifying the procedures for implementing the strategic plan, provided that it is a realistic strategic plan.	merge bodies	1
Granting licenses to entities that carry out energy audits.	licensing	1
Adequate qualification of specialists and experts in energy efficiency for the Palestinian market.	Experts	1

4.2. Descriptive Analysis

4.2.1. Frequency analysis of CSF identified from previous studies

The researcher utilized the frequency analysis in order to measure the percentage of each critical success factor that was identified and defined from previous studies.

- Do you think that these elements are CSF for the implementation of the National Energy Efficiency Plan?

  The percentage of contribution of each critical success factor was analyzed from the perspective of the interviewees as in the following table

  Table (4.3): Frequency analysis of CSF identified from previous studies for energy efficiency section)

No.	Statement	Yes		No	
		Frequencies	**Percentage**	**Frequencies**	**Percentage**
F1	Public awareness of rational use of energy, environmental protection and GHG emission mitigation.	11	73.3	4	26.7
F2	Legislation related to the energy audit system.	13	86.7	2	13.3
F3	Energy Service Companies (ESCOs).	13	86.7	2	13.3
F4	A mechanism to facilitate bank financing related to energy efficiency	13	86.7	2	13.3

	improvement projects.				
F5	Environmental legislation, limits, and environmental penalties.	9	60.0	6	40.0
F6	Electric power distribution network.	6	40.0	9	60.0
F7	Reliable and energy efficient technologies in the Palestinian market.	12	80.0	3	20.0
F8	Political stability and administrative classification of lands (A, B, C).	3	20.0	12	80.0
F9	Tax exemptions on energy efficiency goods and projects.	15	100.0	0	0.0

The table shows that the most critical success factor is tax exemption on energy efficiency goods and projects. Then, legislation related to the energy audit system, energy Service Companies (ESCOs) and a mechanism to facilitate bank financing related to energy efficiency improvement projects. However, the least one is the political stability and administrative classification of lands (A, B, C).

- Do you think that these elements are CSF for the implementation of the strategic plan for renewable energy?

  The percentage of contribution of each critical success factor was analyzed from the perspective of the interviewees as in the following table

  Table (4.4): Frequency analysis of CSF identified from previous studies for renewable energy section)

No.	**Statement**	**Yes**		**No**	
		Frequencies	**Percentage**	**Frequencies**	**Percentage**
F1	Public awareness of rational use of energy, environmental protection and GHG emission mitigation.	10	66.7	5	33.3
F2	A clear and realistic national energy policy.	11	73.3	4	26.7
F3	Legislation related to	15	100.0	0	0.00

	renewable energy projects.				
F4	A mechanism to facilitate bank financing related to renewable energy projects.	13	86.7	2	13.3
F5	Clear guidelines for potential investors.	8	53.3	7	46.7
F6	Electrical power distribution network and local connection points including demand.	15	100.0	0	0.00
F7	An encouraging and fair tariff rate for investors in the field of renewable energy.	8	53.3	7	46.7
F8	Political stability and	15	100.0	0	0.00

	administrative classification of lands (A, B, C).				

The above table shows that CSF for the implementation of the strategic plan for renewable energy. The highest CSF according to the investigated experts are electrical power distribution network and local connection points including demand and Political stability and administrative classification of lands (A, B, C). However, the least accepted CSF are clear guidelines for potential investors and an encouraging and fair tariff rate for investors in the field of renewable energy.

4.2.2. Frequency analysis of CSF (From the interviewees' point of view)

- The most important CSF for planning energy efficiency

Table (4.5): Frequency analysis of CSF identified from the interviewees' point of view for energy efficiency section

Rank	CSF for energy efficiency plans	CSF	Percentage of interviewees Cited (N=15)
1	Legislation related to the energy audit system.	**F2**	82
2	Energy Service Companies (ESCOs).	**F3**	79
3	Public awareness of rational use of energy, environmental protection and GHG emission mitigation.	**F1**	75
4	Tax exemptions on energy efficiency goods and projects.	**F 9**	72
5	A mechanism to facilitate bank financing related to energy efficiency improvement projects.	**F4**	63
6	Reliable and energy efficient technologies in the Palestinian market.	**F 7**	58

- The most important CSF for the implementation of the strategic plan for renewable energy.

  After interviewing people to rank the most important critical factors in energy plans in Palestine, these six factors were repeatedly selected from most of the interviewees, the 6 factors are based on the most frequent and targeted responses from the interviewees as shown in the following tables

  Table (4.6): Frequency analysis of CSF identified from the interviewers' point of view for renewable energy section

Rank	CSF for renewable energy section	CSF	Percentage of interviewees Cited
1	Legislation related to renewable energy projects.	**F3**	76
2	Electrical power distribution network and local connection points including demand.	**F6**	66
3	Political stability and administrative classification of lands (A, B, C).	**F8**	58
4	A mechanism to facilitate bank financing related to renewable energy projects.	**F4**	53
5	Public awareness of rational use of energy, environmental protection and GHG emission mitigation.	**F1**	45
6	A clear and realistic national energy policy.	**F2**	40

4.2.3. Frequency analysis of the impact of each critical success factor on the other

Each person interviewed was asked whether one factor affected the other as shown in the table belowThe numbers in the matrix below show the number of people who were interviewed and who answered with the effect of the first factor on the second factor For example, eight people answered that the factor F4 affects the factor F1, but no response was received from anyone regarding that the factor F4 affects the factor F1

- (Please mark with an * in the case that the factor affects the other factor, and an _ sign if the factor does not affect its application to the other factor, leave the box empty in the case that the two factors do not influence each other from your point of view)

Table (4.7): Frequency analysis of the impact of each critical success factor on the other for energy efficiency section

	F1	F2	F3	F4	F5	F6	F7	F8	F9
F1		5	10	8	4	0	2	2	9
F2	0		0	0	7	1	0	3	3
F3	4	10		11	4	4	4	2	11
F4	4	8	6		3	3	4	1	8
F5	1	8	2	0		1	0	2	2
F6	0	2	0	1	1		1	1	1
F7	7	9	6	6	4	0		0	8
F8	0	0	0	0	0	0	0		0
F9	0	12	0	1	3	0	0	1	

The matrix shows that the highest effect of Legislation related to the energy audit system on Tax exemptions on energy efficiency goods and projects. Then the effect of Tax exemptions on energy efficiency goods and projects on Energy Service Companies

(ESCOs). Likewise, the effect of the mechanism to facilitate bank financing related to energy efficiency improvement projects on energy Service Companies (ESCOs).

Table (4.8): Frequency analysis of the impact of each critical success factor on the other for renewable energy section

	F1	F2	F3	F4	F5	F6	F7	F8
F1		8	7	9	5	1	6	2
F2	1		9	1	1	10	0	8
F3	1	10		1	2	13	0	**15**
F4	4	10	14		3	9	8	**15**
F5	0	6	9	6		3	0	7
F6	0	3	5	4	0		0	13
F7	2	3	8	0	0	7		8
F8	0	0	0	0	0	0	0	

The matrix shows that the highest effect is the effect of Political stability and administrative classification of lands (A, B, C) on legislation related to renewable energy projects. and the effect of the Political stability and administrative classification of lands (A, B, C) projects on the mechanism to facilitate bank financing related to renewable energy.

4.3. Text analysis _ Possible measurement tool Critical success factor

The interviewees were asked about the measurement tools for each critical success factor to know how to manage these factors in the future and manage them using these measurement tools. The answers from the interviewees were analyzed and the measurement tools categorized for each critical success factor as shown the tables 4.9 and 4.10

- Possible Measurement tools for the CSF for energy strategic planning.

Table (4.9): Possible Measurement tools for the CSF for planning energy efficiency

Number	CSF for planning energy efficiency	Possible measurement tools
F1	Public awareness of rational use of energy, environmental protection and GHG emission mitigation.	Questionnaires on the number of energy audit projects Survey to study the market and community awareness Number of awareness bulletins and meetings in the governorates
F2	Legislation related to the energy audit system.	Number of laws and decisions issued by the Council of Ministers regarding energy efficiency. Number of legislations issued during 5 years. The number of laws and regulations issued in this field. Mandatory energy audit
F3	Energy Service Companies (ESCOs).	The number of licensed companies in the market The number of licenses issued to establish these companies

F9	Tax exemptions on energy efficiency goods and projects.	Implementation of a tax exemption law Number of tax-exempt projects annually Clear measures in terms of quality and quantity for energy efficiency baskets and projects Number of implemented and tax-exempt projects
F7	Reliable and energy efficient technologies in the Palestinian market.	Take random samples of devices sold in the market to know the specifications Checking devices in the local market Palestinian Energy Label, Minimum Consumption of MEPS Appliances Specifications and certificates required by the Ministry of Standards and Metrology for import
F4	A mechanism to facilitate bank financing related to energy efficiency	Number of financed projects by banks

	improvement projects.	The number of funding for projects Number of loans and financing from Palestinian banks in the field of energy efficiency
F5	Environmental legislation, limits, and environmental penalties.	Number of legislations in the last five years Number of violations issued per year
F 6	Electric power distribution network.	Number of projects optimized for the current network

Table (4.10): Possible Measurement tools for the CSF for planning renewable energy.

Number	**CSF for planning renewable energy**	**Possible measurement tools**
F8	Political stability and administrative classification of lands (A, B, C).	Number of licenses to establish projects on C lands indicators world bank report on political stability in Palestine
F2	A clear and realistic national energy policy.	Dissemination of the clear and accessible policies to all parties The number of laws enacted recently, in particular

		Number of explanatory and targeted publications
F3	Legislation related to renewable energy projects.	Number of issued laws to regulate the renewable energy sector Annual amendments and releases Number of issued legislations regulating the sector Number of projects issued and implemented Legislation issues and annual updates
F5	Clear guidelines for potential investors.	Reports issued in particular by the Authority of Energy The number of applications submitted to the Energy Authority to request licenses for solar energy generation.
F6	Electrical power distribution network and local connection points including demand.	Number of expansion projects to accommodate new renewable energy projects The carrying capacity of the network

		Rehabilitation projects and increase the absorptive capacity Number of anchor points Network rehabilitation projects in the West Bank Number of connection points that have the capacity to absorb new renewable energy projects
F4	A mechanism to facilitate bank financing related to renewable energy projects.	Number of funded projects. Projects implemented through bank financing. Good loans and financing reports.
F7	An encouraging and fair tariff rate for investors in the field of renewable energy.	1. Feasibility study regarding the approved price 2. Feasibility studies for price feasibility 3. Feasibility reports from seller and buyer
F1	Public awareness of rational use of energy, environmental protection and GHG emission mitigation.	1. Number of seminars and publications 2. Number of seminars and publications issued Surveys

CHAPTER V

DISCUSSION

At this chapter, a discussion of the results from the empirical study is conducted as shown below.

5.1 Discussion of interview questions

The sub-questions will be discussed according the results as following:

5.1.1 Discussion of the Main Question

The main question of the study stated that: What is the impact of evaluating the CSF on implementing the renewable and efficiency energy strategies in Palestine? To answer this question, the researcher divided it to several *sub-questions* as follows:

5.1.1.1 What is the main CSFs for implementation the RE and EE strategic plans in Palestine?

- Energy efficiency section:

Through the interviews, it was found that laws and legislation are among the most important factors that affect the success of strategic plans for energy efficiency, as 14 people responded with a focus on the laws and regulations legislated and regulating the energy efficiency sector, which have a major role in strategic plans. And also the results show that the factor (government support) plays a pivotal role in terms of financial support and control in preventing importing the used devices that have a negative impact on energy efficiency and thus limit the success of the strategic plan.

After reviewing the results with the interviewees regarding the laws and legislation, they clarified that this result is due to the lack of coherence of all the laws related to the energy sector and the multiplicity of authorities that run the sector without a clear and unified vision in harmony with all bodies, in addition to the lack of a binding authority

to implement the laws and the absence of a mechanism to impose environmental and energy sanctions

Six interviewees said that awareness is an important success factor as the community is a partner in the success of energy efficiency plans, but the majority did not agree that raising awareness in the Palestinian society in the field of energy is a critical success factor, as there is a good cultural awareness and a societal orientation to adopt modern and renewable energy technology, but some stressed that it is necessary to continue to raise awareness and persevere more actively so that citizens become partners in the success of energy plans.

Six of the interviewees explained the necessity and importance of financial aspects in the success of any energy plan, and since we as a country suffers from scarce financial resources, the majority stressed the importance of integrating banks as partners in energy projects, which would benefit the banks and thus encourage them to enter investments in energy and thus reduce the resource scarcity gap Finance. In addition to the previous factors, 4 people confirmed the importance of energy services companies and their importance in the local market and thus the success of the plans, this is due to the absence of any licensed company in the field of energy services and the limited provision of energy audit services from the Energy and Natural Resources Authority. An important critical success factor was mentioned, which is the reality of the strategic plan and its feasibility for implementation, Whereas, after discussing the interviewees, that the previous strategic plans did not achieve the intended goals due to the lack of financial and technical capacity and capabilities in the Palestinian energy sector.

- Renewable energy section

The outputs through the answers show that the electricity distribution network is an important success factor, as 11 interviewees participated in the importance of this factor in terms of rehabilitating the network and increasing its capacity and the number of connection points in addition to unifying the electrical network. This explains the increased ability to connect renewable energy projects in different regions, thus contributing to the success of strategic plans for renewable energy, 11 interviewees confirmed that the current network needs to be rehabilitated because it is unable to absorb the energy produced in some areas, such as the Tubas area, and this explains that the rehabilitation of the electrical network is a critical success factor. The response was from 9 interviewees regarding laws and regulations related to regulating the renewable energy sector and political stability as CSF, their justification was that the laws relating to the renewable energy sector were unclear and lacked explanatory policies. 11 interviewees regarding providing financial support and involving banks in financing renewable energy projects, as discussed above in the efficiency sector , they made it clear that involving banks in implementing renewable energy projects as a partner is a critical success factor, as integrating banks into projects will provide an easy financing mechanism and reduce the gap and lack of financial resources in the Palestinian energy sector. 11 interviewees confirmed that the issuance of building permits in the lands of C is CSF, As the possibility of building on C lands will provide large areas for investment in building renewable energy plants and thus increase energy productivity, but this point specifically relates to several policy aspects and the Palestinian government must pressure to negotiate licenses to build renewable energy projects on C lands in a smooth and uncomplicated manner. In addition to the success factors, investment in the fields of

energy storage, as 9 interviewees participate in the importance of this factor, as there are many projects that have not been implemented due to the inability to absorb the energy produced on the network and also the lack of a storage system for energy produced at peak times

Interviewees share CSF in small percentages, namely, raising awareness of renewable energy projects (3 interviewees), adopting an encouraging and fair energy selling price (5 interviewees), exchanging energy with countries and neighboring countries, and using different renewable energy sources (3 interviewees). Finally, 7 interviewees emphasized the importance of the implementation plan being realistic and applicable.

5.1.1.2. What is the level of the CSF for implementation the RE and EE strategic plans in Palestine?

- Energy efficiency section

The findings showed that the highest critical success factor affecting the success of the implementation of strategic plans for energy efficiency is legislation related to the energy audit system with a frequency 84%, this percentage explained by interviewees that the laws related to energy efficiency in Palestine did not focus on energy auditing. Therefore, energy audit lacks clear laws and policies, and there are no responsible executive bodies until now. then the energy service companies (ESCOs) as CSF (79%), then public awareness of rational use of energy, environmental protection and GHG emission mitigation with a weight of 75%, Whereas, despite the awareness campaigns, the rational use of energy, electricity theft and environmental practices to reduce harmful emissions are still widely present in the Palestinian society.

The tax exemptions on energy efficiency goods and projects (72%), it is a high percentage compared to other rates, and this is because when tax exemptions are made for products that contribute to energy efficiency, citizens and investors will be directed to adopt these tax-exempt products, and this is an encouraging matter. A mechanism to facilitate bank financing related to energy efficiency improvement projects (63%), finally reliable and energy efficient technologies in the Palestinian market (58%).

- Renewable energy section

  The findings showed that the most important CSF for the implementation of the strategic plan for renewable energy is the legislation related to renewable energy projects (76%), electrical power distribution network and local connection points including demand(66%), political stability and administrative classification of lands (A, B, C) with a weight of 58%, a mechanism to facilitate bank financing related to renewable energy projects(53%), public awareness of rational use of energy environmental protection and GHG emission mitigation (45%) and a clear and realistic national energy policy (40%), respectively.

5.1.1.3. What is the relationship of each factor and the extent influenced by other factors?

- Energy efficiency section

  The findings showed that the highest effect of legislation related to the energy audit system on tax exemptions on energy efficiency goods and projects, this is what the interviewees explain that tax exemptions are a result of the amendment to legislation and laws. Then the effect of tax exemptions on energy efficiency goods and projects on Energy Service Companies (ESCOs), whereas, tax exemptions will have a clear impact

on energy service companies, which will encourage companies to adopt products, mechanisms and products that contribute to increasing energy efficiency that have been exempted from tax. Likewise, the effect of the mechanism to facilitate bank financing related to energy efficiency improvement projects on energy Service Companies (ESCOs), This is what the interviewees explain that providing bank financing will allow companies the opportunity to start with the availability of the financial source that supports their path in the field of energy services.

- Renewable energy section

  The matrix shows that the highest effect is the effect of Political stability and administrative classification of lands (A, B, C) on legislation related to renewable energy projects, and the effect of the Political stability and administrative classification of lands (A, B, C) projects on the mechanism to facilitate bank financing related to renewable energy. This is explained by the interviewees that the legislation and laws related to renewable energy are directly related to the political situation, in addition to the fact that the mechanisms of bank financing are affected by the political situation, as the political situation greatly affects the success or failure of renewable energy projects, and thus the demand or decline of banks for financing, this is for fear of any financial risks that expose them to loss.

5.1.1.4. What is the proportion of the impact of each CSF on success the RE and EE strategies?

- Energy efficiency section

  The findings showed that the proportion of the impact of each CSF on success the EE strategic plan, as follows: tax exemption on energy efficiency goods and projects

(100%). Those who were interviewed made it clear that this percentage is justified, because the tax exemption on energy products will encourage everyone, companies and individuals, to buy these products according to their low price, and thus the community contribution will be greater in achieving the goals of energy efficiency plans. Then, the legislation related to the energy audit system, energy Service Companies (ESCOs) and reliable and energy efficient technologies in the Palestinian market, these three factors have the same effect with a value of (86.7%), this has been explained by the fact that these factors are very interrelated with each other and it is difficult to control one without the other. Then a mechanism to facilitate bank financing related to energy efficiency improvement projects (80%). However, the least one is the Political stability and administrative classification of lands (A, B, C) (20%).

- Renewable energy section

  The findings showed that the highest proportion of the impact of CSF on success the RE strategic plan according to the investigated experts are: Electrical power distribution network and local connection points and Political stability and administrative classification of lands (A, B, C) (100% for these three factors), as improving the network, developing its capacity and expanding the lands on which renewable energy projects can be built, are two main factors, and without them, the sustainable and desired goals of the strategic plans for the renewable energy sector cannot be achieved, the two mentioned factors cannot be managed well and developed without being linked to the political situation, and this explains that the three factors: network development, (A, B, C) lands and political stability got 100%. Then a mechanism to facilitate bank financing related to renewable energy projects(86.7%), public awareness of rational use

of energy, environmental protection and GHG emission mitigation(66.7%). However, the least impact CSF are clear guidelines for potential investors and an encouraging and fair tariff rate for investors in the field of renewable energy (53.3%), this was explained by the fact that the current price of energy tariffs is a moderate and encouraging price compared to neighboring countries.

CHAPTER VI

CONCLUSIONS AND RECOMMENDATIONS

6.1 Conclusions

It can be concluded that CSF increase the probability of success in implementing the strategic plan, but this is not a 100% guarantee of its success. There is always a rate of failure to reach the strategic goals depending on the factors of weakness and challenges facing the Palestinian energy sector, but the CSF must be considered at any stage of the implementation of strategic plans, and the necessary measures to be addressed must be addressed. CSF reveal the areas that must be monitored continuously over time for the successful implementation of the strategic plans for the energy sector in Palestine, which are:

- **In terms of implementing strategic plans for energy efficiency**

- Regarding the legal framework: 82% of the decision-makers in the energy sector confirmed that there are sufficient laws, but they need to be reconsidered, especially the implementation of legislations related to energy efficiency and energy audits.
- Regarding energy services: 79% of the decision-makers said that the establishment of energy services companies will increase the demand for energy efficiency consultancy and projects,
- On the level of awareness: 75% of the decision-makers confirmed the importance of public awareness in energy efficiency, rational use of energy and environmental protection. It was clarified by some of the interviewees that awareness in this field is the main driver of the different sectors' orientation in using energy in the most appropriate way, this is because there are no mandatory laws yet or environmental violations.

- On the level of tax exemption: 72% of decision-makers explained the importance of tax exemption on energy efficiency goods and projects as an important critical success factor, as tax exemption increases the orientation of different sectors to adopt goods that help in energy conservation.
- Creating financial instruments for energy efficiency projects. 63% of decision-makers indicated that tools or funds for energy efficiency projects are few and insufficient, and that the involvement of banks in financing these projects is an important critical success factor.

- **In terms of implementing strategic plans for energy efficiency**

- As is the case with energy efficiency plans, 76% of the interviewees have clarified to reconsider the laws related to the renewable energy sector, which is sufficient, but the focus has been on how to implement and review the issued legislation, and 40% of them have clarified the importance of having a clear, realistic national policy as a success factor critical.
- Grid capacity: 66% of the decision-makers explained the importance of the electricity distribution network to accommodate renewable energy projects, through rehabilitating the electrical network, increasing the connection points, and unifying the network in the West Bank, despite the difficulty of unification according to the policies of the occupation.
- Political stability: The importance of political stability has been emphasized by 58% of the decision-makers, especially the ability to issue licenses for the construction of projects on C-zones and lands, but according to their testimony. This factor is considered so far one of the weaknesses that limit access to the goals of strategic plans related to renewable energy due to the inability to expand and exploit lands in areas C.

- Creating financial instruments for renewable energy projects: 53% of decision-makers indicated that tools or funds for renewable energy projects are few and insufficient, and that the involvement of banks in financing these projects is an important critical success factor.
- The importance of public awareness has been emphasized by 45% of decision-makers in the field of renewable energy, as the greater awareness of the importance of energy production from clean and renewable sources, the greater the turnout for renewable energy projects, thus contributing to the success of the goals of the strategic plans for the renewable energy sector.

6.2 Recommendations

- It is recommended for the decision makers and strategic planners in the Palestinian energy sector to take into consideration CSF when preparing strategic plans so that they are realistic and executable plans and achieve the desired goals of these plans.
- According to the important impact of the laws and legislations regulating the Palestinian energy sector, the researcher recommends that decision makers coordinate with the concerned authorities to reconsider the foregoing legislation and develop a mechanism for its implementation that matches the Palestinian reality and the challenges in the sector.
- It is recommended that decision makers cooperate with the government to start energy storage projects because of their great importance in absorbing the generated energy, which is currently difficult to absorb in the electricity distribution networks.

- Reliable and energy efficient technologies in the Palestinian market. 58% of the decision-makers indicated that the adoption of reliable specifications and technologies for devices imported into the Palestinian market is an important critical success factor
-

6.3 Contributions & Implications

According to the objective of the study, the results demonstrated the importance of defining and identifying CSF for the energy sector in Palestine during the design of strategic plans, as many factors showed that there is a positive impact on strategic planning when determining CSF, so that the focus is on strength and success factors and setting appropriate goals. To these factors so that the strategic plan becomes closer to reality and achievable goals.

6.4 Limitation of the Study

The study was limited to the lack of previous research studies on the topic, and the study was limited to the number of interviews where only 15 decision-makers were interviewed, as the study of evaluating CSF for implementing strategic plans in the energy sector was limited to those decision-makers.

One of the limitations of the study is the insufficient understanding of the concept of CSF by interviewees.

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Appendix –A-

The interview

الجامعة العربية الأمريكية
ARAB AMERICAN UNIVERSITY

تقييم عوامل النجاح الحاسمة لتنفيذ الخطط الإستراتيجية للطاقة المتجددة وكفاءة الطاقة في فلسطين

إسم الطالب : عطرة الحسيني

(أنا الطالبة عطرة الحسيني تخصص تخطيط استراتيجي وتجنيد أموال، يتمحور بحثي حول تقييم عناصر النجاح الحاسمة لإنجاح تنفيذ الخطط الاستراتيجية لقطاع الطاقة، والتي يتم تحديدها من قبل صناعي القرار والمشاركين في إعداد الخطط الاستراتيجية في قطاع الطاقة بناء على خبرتهم العملية والتحديات التي واجهتهم في تنفيذ الخطط السابقة، سيقدم بحثي عناصر النجاح الحرجة ومدى تأثير كل عنصر في تنفيذ الخطط الاتسراتيجية إضافة الى التحديات التي يواجهها قطاع الطاقة في تنفيذ الخطط المتعلقة في كفاءة الطاقة والطاقة المتجددة)

(وقد تم اختيار 25 شخص مؤثرين في مجال الطاقة والتخطيط الاستراتيجي لقطاع الطاقة للإجابة عن هذه المقابلة، إن رأيكم له أهمية بالغة في نجاح المقابلة وبالتالي نجاح البحث العلمي ، علما أن جميع إجاباتكم سوف تستخدم لغايات البحث العلمي فقط)

شاكرين لكم حسم تعاونكم

الدكتور المشرف:

د. محمد أبو شربة

د. محمد السيد

الأسم

المسمى الوظيفي

عدد سنوات الخبرة

الجزء الخاص بعناصر النجاح الحرجة لخطط كفاءة الطاقة

ما هي عوامل النجاح الحرجة التي تراها مهمة لتنفيذ الخطط الاستراتيجية لكفاءة الطاقة :

- .....
- .....
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-
-
-

هل تعتقد أن هذه العناصر عوامل نجاح حاسمة لتنفيذ الخطة الوطنية لكفاءة الطاقة؟:

رمز العامل	عوامل النجاح الحرجة لخطط كفاءة الطاقة	نعم	لا
F1	توعية الجمهور بالاستخدام الرشيد للطاقة وحماية البيئة وتخفيف انبعاثات غازات GHG.		
F2	التشريعات الخاصة بنظام تدقيق الطاقة.		
F3	شركات خدمات الطاقة(ESCOs) .		

F4	آلية لتسهيل التمويل المصرفي المتعلق بمشاريع تحسين كفاءة الطاقة.		
F5	التشريعات البيئية ، الحدود ، العقوبات البيئية.		
F6	شبكة توزيع الطاقة الكهربائية.		
F7	تقنيات موثوقة وفعالة للطاقة في السوق الفلسطيني.		
F8	الاستقرار السياسي والتصنيف الإداري للأراضي (أ ، ب ، ج).		
F9	الإعفاءات الضريبية في سلع ومشاريع كفاءة الطاقة.		

يرجى ترتيب أهم ستة عوامل في منظورك من الأعلى إلى الأقل وذكر أداة القياس الممكنة لكل عامل

الرقم	عوامل النجاح الحرجة لخطط كفاءة الطاقة	أدوات القياس الممكنة
1		
2		
3		
4		
5		
6		

(يرجى التعليم باشارة × في حال كان العامل يؤثر على العامل الآخر، وإشارة _ في حال كان العامل لا يؤثر تطبيقه على العامل الأخر ، على أن يترك المربع فارغ في حال أن العاملان ليس لهما أي صله ببعض من وجهة نظرك)

	F1	F2	F3	F4	F5	F6	F7	F8	F9
F1									
F2									
F3									
F4									
F5									
F6									
F7									
F8									
F9									

الجزء الخاص بعناصر النجاح الحرجة لخطط الطاقة المتجددة

ما هي عوامل النجاح الحرجة التي تراها مهمة لتنفيذ الخطط الاستراتيجية للطاقة المتجددة :

-
-
-
-
-

هل تعتقد أن هذه العناصر عوامل نجاح حاسمة لتنفيذ الخطة الاستراتيجية للطاقة المتجددة؟.

رمز العامل	عوامل النجاح الحرجة لخطط الطاقة المتجددة	نعم	لا
F1	توعية الجمهور بالاستخدام الرشيد للطاقة وحماية البيئة وتخفيف انبعاثات غازات GHG.		
F2	سياسة طاقة وطنية واضحة وواقعية.		
F3	تشريعات خاصة بمشاريع الطاقة المتجددة.		
F4	آلية لتسهيل التمويل المصرفي المتعلق بمشاريع الطاقة المتجددة.		
F5	إجراءات إرشادية واضحة للمستثمرين المحتملين.		
F6	شبكة توزيع الطاقة الكهربائية ونقاط التوصيل المحلية بما في ذلك الطلب.		
F7	سعر تعرفة مشجع وعادل للمستثمرين في مجال الطاقة المتجددة.		
F8	الاستقرار السياسي والتصنيف الإداري للأراضي (أ ، ب ، ج).		

يرجى ترتيب أهم ستة عوامل في منظورك من الأعلى إلى الأقل وذكر أداة القياس الممكنة لكل عامل

الرقم	عوامل النجاح الحرجة لخطط الطاقة المتجددة	أدوات القياس الممكنة
1		
2		
3		
4		
5		
6		

(يرجى التعليم باشارة × في حال كان العامل يؤثر على العامل الآخر، وإشارة _ في حال كان العامل لا يؤثر تطبيقه على العامل الأخر ، على أن يترك المربع فارغ في حال أن العاملان ليس لهما أي صله ببعض من وجهة نظرك)

	F1	F2	F3	F4	F5	F6	F7	F8	F9
F1									
F2									
F3									

F4									
F5									
F6									
F7									
F8									
F9									

Appendix -B-

Evaluation of critical success factors for implementing strategic plans for renewable energy and energy efficiency in Palestine

Student's name: Otrah Al-Husseini

Supervisor:

Dr. Mohammed Abu Sharbeh

Dr. Mohamed El Sayed

***Name*:**

Position:

Years of Experience

Section on Critical Success Elements of Energy Efficiency Plans

What critical success factors do you see as important for the implementation of strategic plans for energy efficiency:

- .....
- .....
-
-
-

-

Do you think that these elements are critical success factors for the implementation of the National Energy Efficiency Plan? :

CODE	Critical success factors for energy efficiency strategic plans	yes	no
F1	Increase public awareness about rational use of energy, protecting the environment and the mitigation of GHG emissions.		
F2	The existence of special legislation for the energy audit system.		
F3	Establishment of energy services companies (ESCOs).		
F4	Creating a mechanism to facilitate bank financing related to the energy audit process.		
F5	Issuing environmental legislations_ Environmental penalties		
F6	Rehabilitation of the electric power distribution Grid.		
F7	Promoting clean and efficient energy technologies in the Palestinian market.		
F8	Tax exemptions in EE goods and projects.		
F9	Increase public awareness about rational use of energy, protecting the environment and the mitigation of GHG emissions.		

Please rank the six most important factors in your perspective from highest to lowest and mention the possible measurement tool for each factor:

No.	Critical success factors for energy efficiency plans	Possible measuring tools
1		
2		
3		
4		
5		
6		

(Please mark with an x in case the factor affects the other factor, and an _ sign in case the factor does not affect its application to the other factor, provided that the box is left empty in the event that the two factors are not related to each other from your point of view) :

	F1	F2	F3	F4	F5	F6	F7	F8	F9
F1									
F2									
F3									
F4									
F5									
F6									
F7									
F8									
F9									

Section on Critical Success Elements of Renewable Energy Plans

What critical success factors do you see as important for implementing strategic plans for renewable energy :

-

-

-

-

-

Do you think that these elements are critical success factors for the implementation of the strategic plan for renewable energy?:

code	Critical success factors for renewable energy plans	yes	no
F1	Public awareness of rational use of energy, environmental protection and GHG emission mitigation.		
F2	A clear and realistic national energy policy.		
F3	Legislation related to renewable energy projects.		
F4	A mechanism to facilitate bank financing related to renewable energy projects.		
F5	Clear guidelines for potential investors.		
F6	Electrical power distribution network and local connection points including demand.		
F7	An encouraging and fair tariff rate for investors in the field of renewable energy.		
F8	Political stability and administrative classification of lands (A, B, C).		

Please rank the six most important factors in your perspective from highest to lowest and mention the possible measurement tool for each factor

No.	Critical success factors for renewable energy plans	Possible measuring tools
1		
2		
3		
4		
5		
6		

Please mark with an x in case the factor affects the other factor, and an _ sign in case the factor does not affect its application to the other factor, provided that the box is left empty in the event that the two factors are not related to each other from your point of view

	F1	F2	F3	F4	F5	F6	F7	F8	F9
F1									
F2									
F3									

F4									
F5									
F6									
F7									
F8									
F9									

Appendix -C-

الملخص

يهدف البحث إلى التعرف على عوامل النجاح الحاسمة التي تساهم في التنفيذ الناجح للخطط الإستراتيجية لكفاءة الطاقة والطاقة المتجددة. تم تحديد ستة عوامل نجاح حاسمة وترتيبها من الأعلى إلى الأقل تأثيرًا ، وطبق الباحث الأساليب الوصفية والتحليلية ، وأجريت المقابلات مع 15 من صانعي القرار الرئيسيين في مجال الطاقة (القطاع الحكومي والخاص والأكاديمي والاستشاري) . أثبتت أداة الدراسة مصداقيتها وموثوقيتها.

وأظهرت النتائج أن هناك العديد من العوامل التي تؤثر على تنفيذ الخطط الاستراتيجية لقطاع الطاقة المتجددة وكفاءة الطاقة. في الخطط الإستراتيجية لكفاءة الطاقة ، كانت العوامل الأكثر تأثيرًا هي التشريعات المتعلقة بنظام تدقيق الطاقة ، وشركات خدمات الطاقة (ESCOs) ، والوعي العام بالاستخدام الرشيد للطاقة ، وحماية البيئة وتخفيف انبعاثات غازات الدفيئة ، والإعفاءات الضريبية على سلع كفاءة الطاقة و آلية لتسهيل التمويل المصرفي المتعلق بمشاريع تحسين كفاءة الطاقة والتقنيات الموثوقة والموفرة للطاقة في السوق الفلسطيني.

وأظهرت النتائج أن التشريع المتعلق بنظام تدقيق الطاقة أعلى تأثير على الإعفاءات الضريبية على سلع ومشاريع كفاءة الطاقة. ثم أثر الإعفاءات الضريبية على سلع ومشاريع كفاءة الطاقة على شركات خدمات الطاقة. وبالمثل ، أثر آلية تسهيل التمويل المصرفي المتعلق بمشاريع تحسين كفاءة الطاقة على شركات خدمات الطاقة (ESCOs).

أما بالنسبة للخطط الإستراتيجية للطاقة المتجددة ، فإن أهم العوامل المؤثرة على نجاح تنفيذ الخطط هي: التشريعات المتعلقة بمشاريع الطاقة المتجددة ، وشبكة توزيع الطاقة الكهربائية ونقاط الاتصال المحلية بما في ذلك الطلب والاستقرار السياسي والتصنيف الإداري للأراضي (أ ، ب). ، ج) آلية لتسهيل التمويل المصرفي المتعلق بمشاريع الطاقة المتجددة ، والتوعية العامة بالاستخدام الرشيد للطاقة ، وحماية البيئة وتخفيف انبعاثات غازات الدفيئة ، وسياسة طاقة وطنية واضحة وواقعية.

أظهرت النتائج أن التأثير الأعلى هو تأثير الاستقرار السياسي والتصنيف الإداري للأراضي (أ ، ب ، ج) على التشريعات المتعلقة بمشاريع الطاقة المتجددة ، وتأثير الاستقرار السياسي والتصنيف

الإداري للأراضي (أ ، ب ، ج) المشاريع الخاصة بآلية تسهيل التمويل المصرفي المتعلق بالطاقة المتجددة.

الكلمات المفتاحية: التخطيط الاستراتيجي ، الطاقة المتجددة (RE) ، كفاءة الطاقة (EE) ، عوامل النجاح الحاسمة ، صناعة الطاقة ، شركات خدمات الطاقة (ESCOs).