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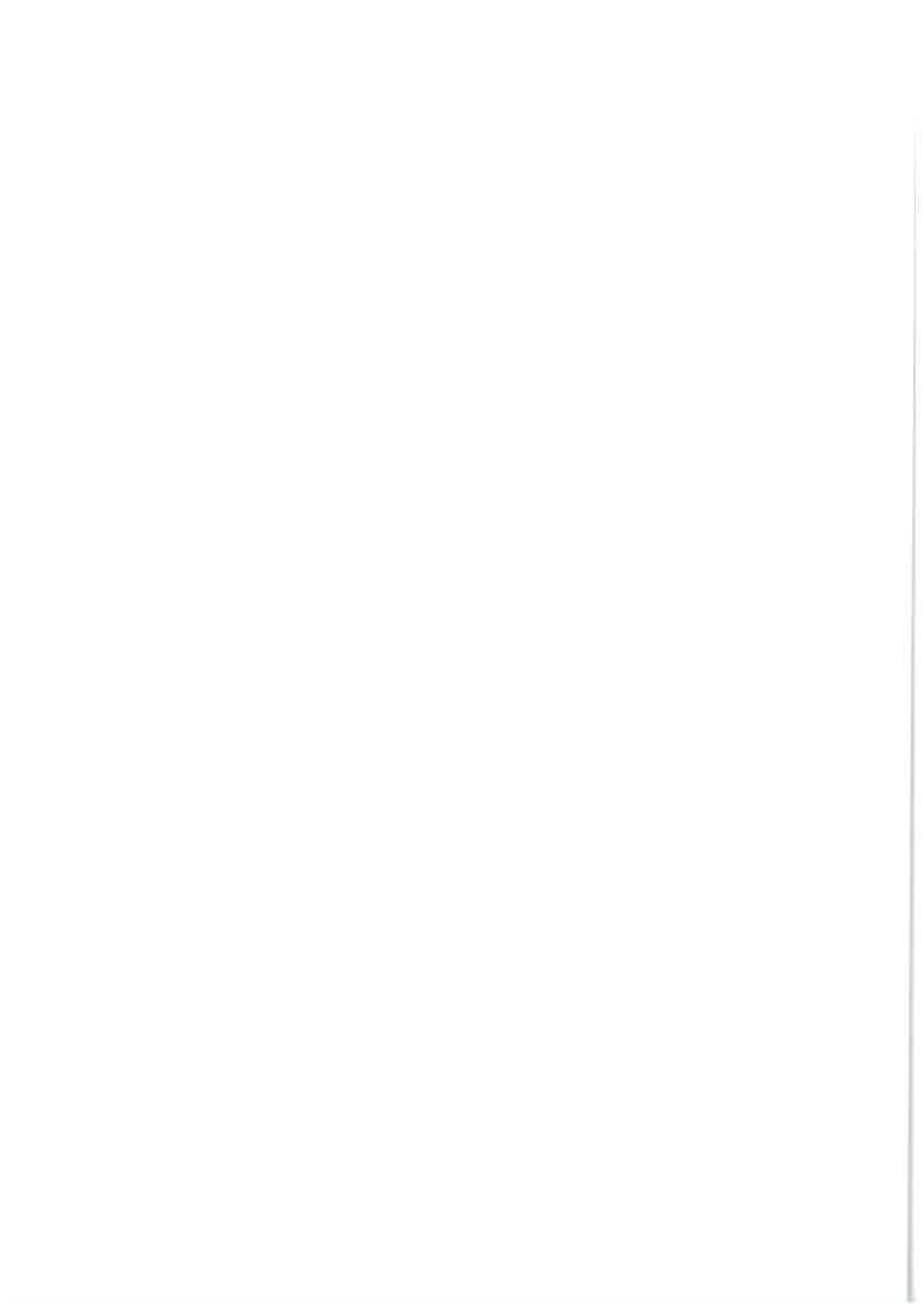
The Political Economy of Energy: The Case of United Arab Emirates

Master Thesis

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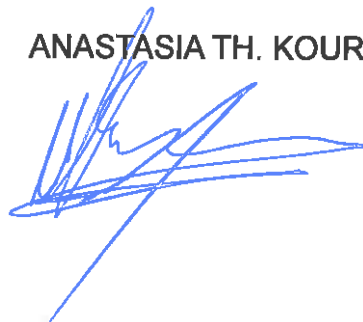
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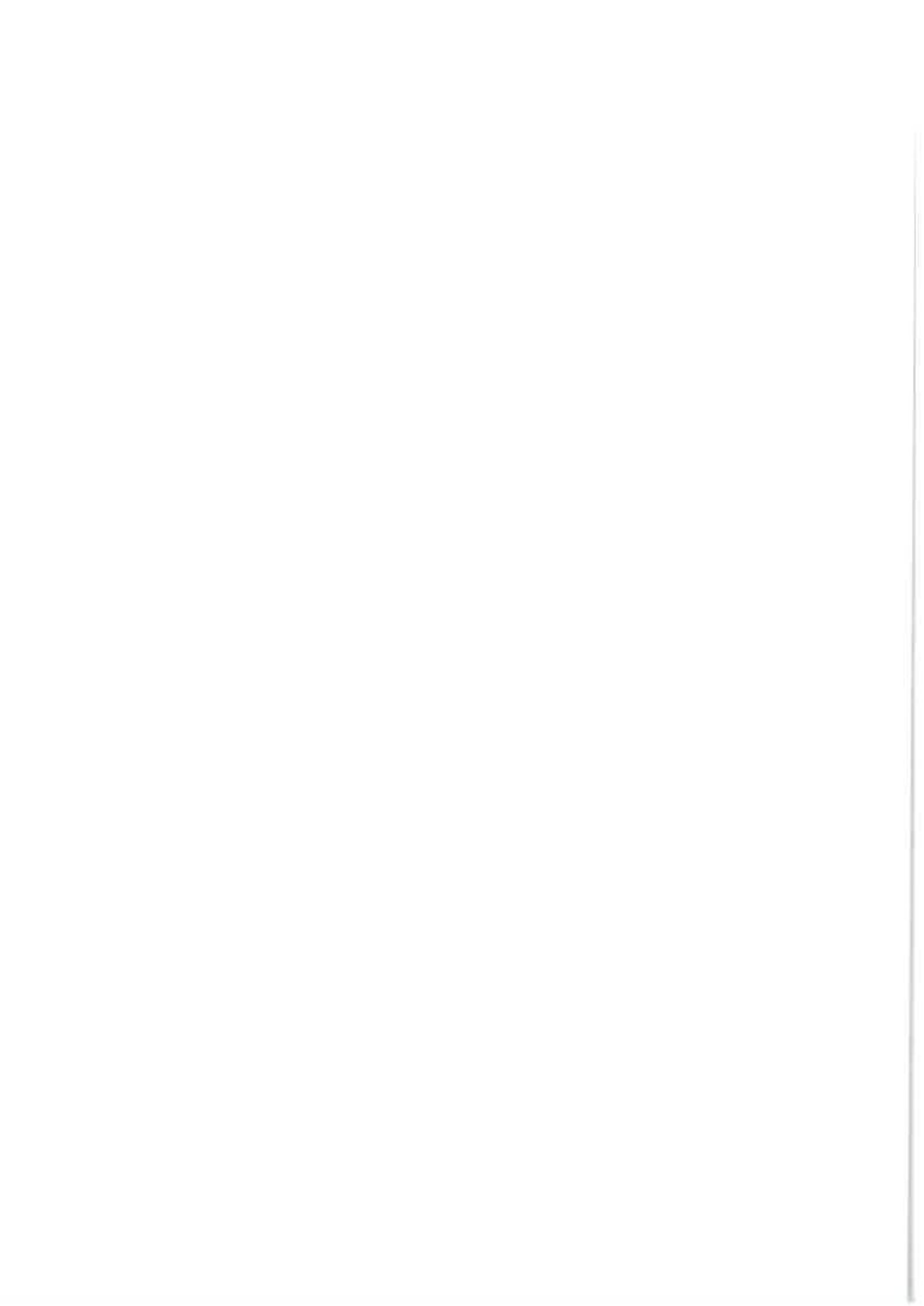


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"The Political Economy of Energy: The Case of United Arab Emirates"

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Chapter 1 Introduction

1.1 Introduction

It has been almost fifty years since the discovery of the underground treasure in the emirates of the Arabian Peninsula, which later formed a single state. Oil and natural gas were the starting point for unprecedented growth. Until then the emirates were one of the least developed areas of the planet inhabited mainly by nomads who wandered in the desert dunes, a picture that was repeated for centuries (Young, 2014).

People lived below the poverty line in a hostile natural environment and basic infrastructure was non-existent. But the discovery of hydrocarbons and their good management transformed the emirates to such an extent that there is nothing today reminiscent of their bleak past. Given the abundance of wealth-producing resources, the UAE have pursued the strategy of developing the industry that exploits these resources (IRENA, 2021). Revenues increased unexpectedly and were allocated through a strictly guided policy to the development of social and economic infrastructure that led to unprecedented economic growth in the short period between 1973 and 1982 where oil prices were particularly high (Fattouh and El-Katiri, 2015). In place of the once palm-tree houses now stand skyscrapers that reflect the permanent presence of the warm sun of the East (UAE-Yearbook, 2021).

Dirt roads gave way to large expressways and luxury cars replaced desert camels. The metro is one of the most modern in the world (Inchauste& Victor, 2017). Luxury hotels welcome millions of tourists each year who offer them a unique holiday experience that combines the comforts of the West with the mysticism of the East. State-of-the-art hospitals offer excellent quality health services. Special emphasis has been given to education which is considered to be of major importance for the present and future development of the country (Ulrichsen, 2016). The country's geostrategic position has been exploited for the development of transit trade, while the recent turmoil in the Middle East has established the country in the consciousness of investors as a safe haven for investment while enjoying reliable financial services.

This development could not, of course, be achieved without the presence of adequate human resources.

1.2 Aim of the study

The aim of this dissertation is to explore the energy policy of the United Arab Emirates, based on the principles of International Political Economy. Initially, the theoretical approach to the issue will be presented by clarifying concepts of foreign policy, political economy and international political economy in the field of energy. Theoretical approaches regarding the United Arab Emirates will be presented, while the choice of the realistic approach will be documented based on economic and also political factors, which will help to better understand the issue.

1.3 Object of the present study

The UAE today is one of the most multicultural countries in the world with a workforce of Asian descent employed mainly in the construction industry, while those from the northern developed world have key positions that drive the economy. A key point in the progress of the country is the form of its organization and administration. The federal system is solid, strong and stable and has given priority to the country's security in terms of external and internal threats (Sovacool, 2017). The UAE government seems to know very well how to play the game of international politics by identifying opportunities and threats in a timely manner, and this was shown by the assistance it provided to NATO forces in 2011 during military operations to overthrow the Gaddafi regime in Libya. Reference to the present study will be made on the following: energy issues, such as oil production, natural gas, exports, whether prices affect GDP. There will also be a reference to other sectors of production, industry, construction, tourism, agriculture, etc. and whether they are affected by their basic dependence on oil production, the issue of resource curse, sovereign funds, investments in green energy, etc. (Sgouridis et al., 2013)

1.4 Reason for choosing the topic

To identify the significance of renewable energy sources, to examine the dynamics for this country and to make a connection with its political economy and its broader strategy in these areas.

1.5 Methodology

Qualitative research is a situated activity that places the observer in the world. It consists of a set of interpretive and material practices, which make the world visible. These practices are transforming the world. They turn the world into a series of representations of the self, including field notes, interviews, conversations, photographs, recordings, and diary entries. At this level, qualitative research involves an interpretive, naturalistic approach to the world. This means that qualitative researchers study things in their natural context, trying to give meaning or interpret phenomena in terms of the meanings that people give to them (Denzin& Lincoln, 2005: 3). Given the difficulty of the subject and the need for thorough research, a qualitative research will be conducted using interviews with people that have adequate knowledge on the subject.

1.6 Structure of the study

This study consists of two parts, theoretical approach and survey and eight chapters. In the first part there are four chapters referred to literature review about the topic, discussing the presentation of the United Arab Emirates and the macroeconomic analysis of the region and the country. Finally, the energy policy and impact on the Economy are discussed.

In the research part and especially in the fifth chapter there is the methodology that was followed for the qualitative research and in the next chapter the results from the survey are given.

In the seventh chapter there are the challenges and scenarios for the future and finally there are the conclusions from all the above.

1.7 Conclusion

This work is intended to provide the impetus for more students to explore the "miracle" of the United Arab Emirates and / or the wider Persian Gulf region and the surrounding Arab oil fields located in their subsoil.

Chapter 2 Presentation and study of the United Arab Emirates

2.1 Introduction

This chapter aims to present the United Arab Emirates in terms of Natural environment, History and political conditions, Foreign policy, Demography and Social development, education and health system. The United Arab Emirates (Al Imarat al Arabiyah al Muttahidah) lies to the east of the Arabian Peninsula at 23 and 26 degrees north latitude and 55 and 60 degrees east longitude. There are seven in number: Abu Dhabi, Dubai, Sharjah, Ras al Khaimah, Fujairah, Umm al Quaiwain, Ajman .

2.2 Presentation of the country

This section presents in the form of tables the demographic characteristics of the country, its administration, its geography, its constructions and finally its economy. As shown in Table 2-1 the population extends to 8.19 million inhabitants. It is also found that the UAE does not have many seniors aged 60 and over obviously because new people are entering it as a workforce.

Table2-1Demographic data

Population: 8.19 million inhabitants					
	Age	2018		2019 (estimation)	
		Population	%	Population	%
	0-14	1.354.707	16,8	1.375.913	16,8
	15-59	6.616.027	81,9	6.719.580	81,9
	60+	102.892	1,3	104.503	1,3
	Total	8.073.626	100	8.199.996	100

Main Religion: Islam

Source: UAE 2019

As shown in Table 2-2, the political system is federal and the head of state is Sheikh Khalifa bin Zayed Al Nahyan.

Table2-2 Administration
Political System: Federal
Head of State: Sheikh Khalifa bin Zayed Al Nahyan
Head of Government: Sheikh Mohammed bin Rashid Al Maktoum
Government Structure:
1. The Supreme Federal Council
2. The President
3. The Council of Ministers
4. The National Federal Council
5. Federal Justice
Capital: Abu Dhabi
Official Languages: Arabic (English is widely used in professional and business circles)

Source: UAE 2019

As shown in Table 2-3, geographically the area of the country is 83,6000 km²

Table2-3Geography
Area: 83,600 km²
Time Zone: GMT + 4 hours
Major cities: Abu Dhabi, Dubai, Sharjah
Climatic conditions: Between October and March the temperature during the day is usually 26 degrees Celsius while at night it drops by 15 degrees. From April to September the temperature reaches 50 degrees. Also the humidity levels are quite high.

Source: UAE 2019

As shown in Table 2-4, the country has an airport and a port for trade.

Table 2-4 Infrastructure
7 Airports
15 Commercial Ports

Source: UAE 2019

Finally, as shown in Table 2-5, the main exports are made to India, Japan, Saudi Arabia, Iran, China and Switzerland and its imports from China, India, the United States, Germany and the United Kingdom

Table 2-5 Economy
GDP per capita: \$ 49,584
Main Export Destinations: India, Japan, Saudi Arabia, Iran, China, Switzerland
Main Import Sources: China, India, USA, Germany, United Kingdom
Currency: Dirham
Exchange rate: 3,67 dirhams / \$

Source: UAE 2019

Source: The Observatory of Economic Complexity platform

2.3 Natural environment

The United Arab Emirates is bordered on the west and south by Saudi Arabia, on the northwest by Qatar, on the northeast by Oman, and on the east by the Persian Gulf. The state also owns a number of islands. With the exception of the eastern country, the emirates extend into the desert. Behind the coastal zone begin the dunes of the Rub-al-Hali desert. If you look at the emirates from Abu Dhabi and specifically from the city of Al Ain, you will see that everything is on the beach. In the east, Mount Oman reaches a height of 2000 m. In the southeast, there are salt marshes that are 60 to 100 km wide. In summer they turn into huge white glittering areas which are crossed by car. The beaches in the bay are coral and sandy and have a rich division. There are points in the sea that to reach a depth of 25m there must be a distance of 100km from the coast thus complicating maritime transport. Large currents move the sand of the shores, making it difficult to determine the shorelines. With the exception

of the few oases, there is no vegetation. The climate from May to October is extremely hot and the atmosphere is suffocating from the humidity brought by the winds. Rains are rare and that is why water supply was problematic until a few years ago. With the prevailing temperatures (above 40°C) the minimum rain water evaporates. The summer wind brings with it a little coolness a large amount of dust and sand.

2.4 History and political situation

From time immemorial, the Persian Gulf has been the trade route of the various tribes that inhabited the beach and engaged first in navigation and trade and later in piracy, slave trade and arms smuggling. Islam spread in the area during the time of Muhammad, but after his death, the various tribes revolted and then the Arab caliphs intervened and imposed the Muslim faith by force. At the same time, Persian influences altered the Muslim religion to some degree. During the first years of the 16th century, the Portuguese imposed their presence and later the British East India Company appeared in the area. In the 19th century, the area of the Persian Gulf became of interest to Great Britain. When Vasco da Gama found his way to India, these shores served the pirates wonderfully as a refuge because they have sheltered coves and shallow waters. So the British gave them the name "Pirate Coast". In 1819-1820, the British launched an attack on the ports of the area and managed to fight piracy. When Britain concluded a treaty of protection with the emirates in the mid-19th century, the coastal area was renamed the "Treaty Coast". While their domestic policy was independent, foreign policy was directed from 1892 by the British government. In 1960 the Council of the Coast was formed, representing the rulers of the coastal states of the Treaty. When Great Britain withdrew from the union, six emirates formed the United Arab Emirates (December 1971). Ras al-Haymah joined in 1972. In May 1976 the seven emirates agreed to merge their military forces, but rivalries led to conflicts that continued into the 1980s since the new regime inevitably lead to ambiguities and aspirations for control over oil fields. The seven emirates faced and face territorial claims from the part of Saudi Arabia, Oman and Iran.

The UAE political system is based on the federation's first constitution of 1971 and consists of a number of governmental structures, both at the federal level

and by emirate. The Union is governed by a supreme council consisting of seven sheikhs who elect for five years their president who is also the supreme ruler. The sheikhs of Abu Dhabi and Dubai have a special place in the Supreme Council. They decide by veto in all the votes and thus determine the policy of the country. The emirates pursue a common foreign policy while each retaining its sovereignty at home (Shahbaz, et al., 2020). Political parties are not allowed in the country. Until recently, UAE leaders argued that Western-style democracy was not necessary for the country because its citizens could express their concerns directly to the leadership through traditional advisory mechanisms. The most famous of all are the open councils (Majilis) in which many leaders participate. The latter claimed that holding elections to elect a legislature or representative body would inevitably have the effect of creating divisive conflicts between races and factions, creating more radical Islamic factions. This is the main reason why political parties are banned and the authorities disperse demonstrations and public gatherings of a political nature unless they are in line with government policies. But that tactic changed in 2006 as electoral processes began to take hold in other Gulf states. Thus, realizing that they were lagging behind in this area, the UAE leaders decided to conduct a limited and controlled electoral process to elect half of the members of the Federal National Council (Majlis al-Ittihad al-Watani) of 40 seats. Thus, its 20 members are appointed by the leaders of the emirates and the other 20 are elected for a two-year term). The elections took place on 18-20 December 2006. Only the electorate had the right to vote and to run - a body of 6,689 people, including 1,189 women, appointed by the governors of the 7 emirates. A total of 456 candidates (including 65 women) claimed the 20 seats. One woman from Abu Dhabi was elected and another 8 were appointed from among the 20 appointed members (Katzman, 2012).

The process was repeated in 2011 with 129,000 voters and 468 candidates, of whom 85 were women, but the apathy of the citizens for the elections was widespread since only 25% of the electorate went to the polls. The low turnout was interpreted as the reluctance of the public to participate in the governance of the country and thus legitimized the decision of the UAE leaders not to establish a full participatory democracy in the country (Katzman 2012).

Despite the clear lack of democratic rights as perceived by the western world, the vast majority of the population is satisfied with the current political system, apparently because of the transparency, tolerance and wealth of the country. Before

the "Arab Spring", there were few signs of opposition to the country's leadership. Only Iranians of Iranian descent blame the leadership for its attitude toward Iran, but this community is not organized (Katzman 2012).

2.5 Foreign Policy

The UAE aim to live up to their commitments to their neighbors and the international community regarding regional peace, stability and security of their citizens. To achieve these goals, they actively promote dialogue and the improvement of partnerships. The guideline of the country's foreign policy is the peaceful settlement of disputes and the strong support of international institutions for the strengthening of international law and the implementation of international conventions and treaties. A key priority of the UAE is to develop closer relations with the neighboring states of the Arabian Peninsula, which are members of the Gulf Cooperation Council (UAE 2010). On most regional issues, including the Arab-Israeli conflict, the UAE do not strictly follow US policies but generally agree with most of the superpower's assessments on regional threats and support its diplomatic efforts to resolve issues. With regard to the long-running conflict between the Arab world and Israel, the UAE seek to ensure that any settlement between the Israelis and the Palestinians will be beneficial to the latter. In fact, in 2011 the UAE leaders publicly supported the recognition of the state status of the Palestinian Authority at the UN General Assembly, a move that provoked the reaction of the United States and its description as premature. The UAE have repeatedly criticized the United States for its dynamic support to Israel, but the criticism is not made public and is limited to private meetings with US officials. However, the UAE, despite taking a position in favor of the Palestinians, have done nothing more. For example, they have not submitted their own proposals for resolving the disputes as King Abdullah of Saudi Arabia did nor have they tried to mediate between Palestinian factions such as Saudi Arabia, Qatar and Egypt (Katzman 2012).

Regarding the developments in the so-called "Arab Spring", the UAE, as well as the entire Gulf region, could not remain uninvolved. Together with the rest of the countries of the Gulf Cooperation Council, first tried to keep the various uprisings and their aftermath away from their territory. They also supported revolutionary

movements in Libya and to a lesser extent in Syria. In Bahrain, they backed the al-Khalifa regime during clashes with protesters, sending a force of 500 police officers to join a force of 1,000 Saudi soldiers to protect key positions. They also helped the regime by sending financial aid and did the same in Oman, where widespread unrest broke out in 2011. The support of the Libyan rebels who finally overthrew Muammar Gaddafi in August 2011 and took power was significant. They sent a squadron of F-16 fighters and a Mirage squadron to participate in the NATO-led no-fly zone and in the bombing operations on Libyan soil (Ashour, 2020). In June 2011, the UAE formally recognized the Transitional National Council of Benghazi as the sole representative of the Libyan people and pledged financial support. A few months later, in March 2012, they announced that they would donate 58 Mirage 2000 fighter jets to the newly formed government (Katzman 2012).

Regarding the current situation in Syria, the UAE have not taken a clear position against President Assad because they fear that his fall will encourage his close ally, Ahmadinejad of Iran, to interfere in the affairs of the Gulf. However, Gulf leaders see the fall of Assad as the key to weakening Iran in the Middle East (Katzman 2012). Also, despite the long-running dispute over three Iranian-occupied islands and the concerns raised by its nuclear program, the UAE have open all channels of constructive cooperation that could lead to a peaceful resolution of all outstanding issues (Katzman 2012).

In Iraq, the UAE have been an active supporter of the government in its efforts to establish security and stability in the country. They praised the gradual withdrawal of foreign troops and the expansion of government powers throughout the country. They also contributed to its reconstruction and called for its territorial integrity and independence to be respected and for its Arab-Islamic identity to be protected from collapse. Finally, the UAE have one of the few embassies in operation in Baghdad and have decided to write off \$ 7 billion in debt, further contributing to Iraq's reconstruction efforts (UAE 2010).

Beyond the wider region of the "fertile crescent", the foreign policy of the UAE is constantly adapting to the changing global community. The country continues to build bilateral and multilateral relations with industrialized and developing countries, strengthening their ties with traditional Western allies. As the second largest Arab economy, the country's foreign policy is geared towards creating greater trade opportunities with various countries. Thus, emphasis is placed on consolidating

the expansion of trade and investment links with other countries and organizations around the world. The UAE participate in various supranational organizations such as the UN, the Arab League, the Non-Aligned Movement, the Council of the Arab League and the Organization of the Islamic Cooperation. Also, relations with third countries, especially the West, are traditionally close (UAE 2010).

2.6 Demography

The peculiarity of the emirates is that they are one of the most multicultural state entities in the world since people from 150 countries live and work there. Of a total of 8,000,000 people living in them, only 12% have Emirati citizenship, as the majority of the population is made up of immigrants. 60% of them come from South and Southeast Asia. The largest group of immigrants is Indians (about 1.75 million), followed by Pakistanis (about 1.25 million) and Bangladeshis (about 500,000). Immigrants from other parts of Asia (Philippines, Iran, China) number 1 million, while those from western countries (Europe, America) are estimated at about 500,000. The rest come from other Arab states (Ahmed, & Rafiuddin, 2018).

2.7 Social development education and health system

Education is considered one of the most important factors in increasing productivity and spreading growth. Furthermore, education is considered a key tool in developing the necessary skill levels for the economic growth and modernization of the UAE. The government offers free education to all its citizens as well as to the Arab-speaking children of expatriates employed in the public sector (Yas et al., 2020). Educational institutions in the UAE consist of public and private schools, military schools, higher education and vocational training institutions. The existing educational structure was established in the early 1970s and consists of a system of four levels which covers 14 years of education as follows: early childhood (4-5 years), primary (6-11 years), intermediate (12-14 years) and secondary education (15-17 years). For higher education (i.e. undergraduate, postgraduate and PhD studies), UAE citizens have the right to choose whether to study at the Emirates University or abroad through a generous scholarship system. Secondary education is compulsory for all

citizens (Shaya et al., 2020). Government policy follows a teacher/student ratio of 1:20 for pre-school and primary education and 1:15 for intermediate and secondary education (Gallagher, 2019).

Higher Colleges of Technology, located in various emirates, offer three-year programs in Business Administration, Accounting, Banking, Information Systems, Computers, Engineering, Aeronautical Technology and Health Sciences (Tabash, &Anagreh, 2017).

In addition to education, lifelong learning is encouraged through financial incentives, as is the case, for example, in the public sector where employees are required to attend at least one seminar on their subject each year, both inside and outside the country in order to be able to be promoted in the future (Mosteanu, 2019).

The UAE faithfully follow the assumption of a direct link between health and economic development. Development policies enhance the level of health of citizens. In turn, better health contributes to greater economic growth as it increases the quality of human resources (Ahmad, &Hussain, 2017). In the UAE, 99% of the total population has access to the healthcare system. Government policies aim to provide a range of services and to implement programs that improve those services. There are also medical care programs such as “mother and child care”, child vaccination, disease monitoring, and various health education programs. There are also children’s hospitals and health units in every school where specialized nurses provide first aidservices. Hospitals, doctors and nurses are located throughout the UAE, always in line with the dispersion of the population. In general, however, health services are evenly distributed. The private health sector has also experienced rapid growth, providing its services throughout the country. There is a large number of clinics, medical complexes, pharmacies, hospitals, while the general clinics have experienced the greatest growth (Mosteanu, &Alghaddaf, 2019).

The level of health provided by the UAE can be compared to that of developing countries and even that of some developed countries. Research on malnutrition, mortality and morbidity has shown dramatic improvement over the past two decades. Epidemics have been eliminated and diseases as a cause of death have been reduced (Fadahunsi, &Barake, 2018). Infant mortality has also been reduced and life expectancy has increased. Citizens’ health is one of the UAE’s priorities and the efforts to improve it continue unabated (Shihab, 2000).

2.8 Conclusion

The present chapter presented the United Arab Emirates in terms of Natural environment, History and political conditions, Foreign policy, Demography and Social development, education and health system. Four decades ago, the UAE was one of the least developed countries in the world. Today they have achieved such a degree of development, comparable to that of bio-industrialized countries. The UAE did not go through the so-called development stages that the developed countries seem to have experienced. This was due to the huge revenues from the exploitation of the oil fields at their disposal, which went beyond these stages and reached the stage of mass consumption directly. They also enabled them to minimize the difficult and time-consuming process of saving and accumulating capital that is necessary for the development of the economy. Given the abundance of wealth-producing resources (oil and gas), the UAE has pursued a strategy of developing the industry to exploit these resources.

Chapter 3 Macroeconomic analysis of the region and the country UAE Economic Policy and Social Stability

3.1 Introduction

Necessary for economic development was the political and social stability achieved in 1971 with the formation of the UAE. The existing political structure that responds to the racial stratification of society and the allocation of a large part of state revenues to social and economic infrastructure, high wages, a high level of social services such as health and education, have significantly improved the standard of living of citizens and consequently reduced possibility of social unrest. The UAE has also shown that it respects human rights, thus contributing more to political and social stability. The latter paved the way for investment (domestic and foreign) in industry (Shihab, 2000).

It should be noted that within a few years huge social changes took place in a society that consisted of tribes and that despite this significant turmoil the UAE society can be characterized as safe and progressive. Indicative of the prevailing trend in the country's authorities is the encouragement to the faithful through a policy introduced in 2009 to focus during Friday prayers on the social and educational role of religion and not only on religious dogma. This policy also includes various other issues such as women's rights, the way children should be raised, the importance of work and love of country.

3.2 Political and social stability

The progress of "human development" in the UAE is reflected in the United Nations Human Development Index (HDI). This indicator does not just look at GDP but extends to other aspects of human life such as life expectancy, education and a decent standard of living as measured by income. From 1980 to 2011 the index was growing at a rate of 0.72% per year from 0.629 to 0.846 ranking the UAE among the

countries with very high human development and specifically in 30th place in a total of 188 countries.

Table 3-1. Human Development Indicators for the UAE

HumanDevelopmentIndex	30th row
Health	Lifexpectancy (inyears) 76.5
Education	EducationIndex 0.741
Income	Per capita University in PPP terms \$ 59,993
Inequality	-
Poverty	Multidimensional Poverty Index (%) 0.002 Gender Inequality Index 0.234 Customized Net Savings (% AEI) -
Sex	Population (inthousands) 7,890.9
Sustainability	30th row
Demography	Lifexpectancy (inyears) 76.5

Source: United Nations Development Programme2021

Table3-6Human Development Index

	Life expectancy at birth	Expected years of schooling	Mean years of schooling	GNI per capita (2017 PPP\$)	HDI value
1990	71.9	10.3	5.6	102,433	0.723
1995	73.2	11.1	7.1	101,303	0.764
2000	74.3	10.7	8.3	104,640	0.782
2005	75.4	11.4	9.1	82,443	0.809
2010	76.3	12.2	9.9	54,911	0.820
2015	77.3	13.7	10.6	65,529	0.859
2016	77.5	13.6	10.9	66,861	0.864
2017	77.6	13.6	12.1	67,666	0.881
2018	77.8	14.3	12.1	67,195	0.898
2019	78.0	14.3	12.1	67,462	0.890

Source: United Nations Development Programme2021

Special care has been given to those social groups in need of state assistance such as the elderly, people with disabilities and the divorced. Social security benefits amount to 2.2 billion dirhams. In recent years, the social care network has expanded to include additional categories of beneficiaries and benefits have increased. Various governmental and non-governmental charitable organizations participating in social welfare programs have also been involved in important work (UAE, 2010).

The provision of free housing is an issue that has received particular interest from the state, which intends to establish entire communities to serve its citizens. 10,000 have already applied for housing and the waiting list is approaching five years. The Abu Dhabi Urban Planning Council (UPC) plans to build more than 50,000

homes over the next 20 years. In the next five years, 17,000 luxury homes will be built, the majority of which will be provided free of charge to citizens (Bakhouché, Elchaar&Emam, 2020). But in addition to providing free housing, the government, through Sheikh Zayed's housing program, provides loans and grants to those who want to build their own home in any of the seven emirates. According to the latest official figures, in 2008 a total of 4492 citizens received a loan or grant and more than 20,000 applications were approved. The minimum loan amount is \$ 163,000 (UAE, 2010).

3.3 Employment

The private sector provides the largest number of jobs in the UAE, accounting for 63% of the total workforce. The federal government employs 7.9%, the local governments 10.7%, the local ministries 4.1% and the rest are employed in diplomatic missions and at home as domestic helpers. Most working UAE nationals are employed in the public sector, which accounts for 45% of the country's local workforce. According to 2008 data, unemployment was at 4% and was higher in rural areas (6.6%) compared to urban areas (3.4%). Estimates for 2009 were negative as unemployment was expected to rise due to the economic crisis. The workforce represents 63.2% of the total population. The latter numbered 4 million people in 2008 and according to the latest estimates has doubled due to the rapid economic boom that the country is experiencing acting as a magnet for people looking for work around the world (Haider et al., 2016).

The largest percentage of employees are employed in the construction sector (48%), followed by trade with 19% and manufacturing with 11%. Due to the small participation of the local population in the country's workforce, the UAE government offers incentives and policies to reverse this situation. To this end, various organizations have been set up under the auspices of the state to try to develop the skills and abilities of nationals in order to achieve a better balance in the labor market. Such organizations are the National Human Resources Development and Employment Authority (Tanmia) (Miller, Kyriazi& Paris, 2017), the Emirates National Development Program based in Dubai (El-Temtamy, O'Neill &Midraj, 2016) and the Department of Human Resources Development at Sharjah University (Al-Ismail, Carmichael &Duberley, 2019). Every year about 800,000 new jobs are created in the

country, most of which come from the private sector. But 10% of UAE nationals quit each year citing low wages, lack of education and development opportunities, negative stereotypes and a lack of trust between employer and employee (UAE, 2010). The Ministry of Labor together with the International Labor Organization has started the process for the establishment of the "Decent Work Program" in the country.

This is a collaborative protocol that seeks to achieve its goal through four strategic approaches. First of all, an environment must be created in which the fundamental principles and rights at work are respected and, in particular, all forms of discrimination at work must be combated. Next, more employment opportunities must be created for women and men in order to improve their access to decent jobs and income through the adoption of appropriate education and training policies that meet the needs of the labor market. It is also necessary to strengthen national initiatives to strengthen and expand social protection and to support the role of social security networks in order to protect the less privileged sections of society. Finally, the social dialogue and the preventive involvement of social actors in shaping the UAE socio-economic policies should be consolidated. The government is committed to working closely with the social partners to achieve a range of goals including improving the access of men and women to decent and productive work, in an environment where the principles of freedom and justice are respected. security and dignity, and the development of human resources will be encouraged (UAE, 2010).

Following the approval of the Abu Dhabi Declaration by all major countries sending and receiving workers in Asia in 2008, the government, together with India and the Philippines, launched a pilot program to research and record best practices in the management of temporary employment. Experts from the Arab Labor Organization, the International Labor Organization and the International Organization for Migration have contributed to the development of this pilot project. The overall goal of the program is to test a series of practical measures that will serve to improve the quality of life and work of employees. The program is divided into four phases: a) creating a more meritocratic and equitable recruitment process for those wishing to immigrate to the UAE, b) creating more effective institutions to assist temporary workers during their time in the UAE, c) the identification of employees whose contracts expire and the creation of programs to prepare for their return to the country of origin; and d) the creation of policies that will assist in the effective reintegration

into their country upon their return. More specifically, the pilot project will provide the employee with a contract to sign and assess his / her health and abilities before leaving for the UAE so that it can be determined before departure if it meets the requirements of the UAE for entry and work in the country. All this will take place in the spirit of cooperation and shared responsibility. The pilot project will also benefit from the introduction of new policy guidelines and measures to ensure wage protection, the provision of adequate working and living conditions and, of course, respect for fundamental human rights. The ultimate goal of the program is to explore new and more humane ways of making proper use of the skills and efforts of temporary workers and even demonstrates that it is possible to implement reforms that will result in a fairer and more productive environment for employers and employees. (UAE, 2009).

3.4 Economic analysis

3.4.1 GDP

The UAE, as one of the world's largest oil suppliers, was not initially affected by the global recession of 2008 when oil prices soared to record lows in July (\$ 147 / barrel). However, the crisis finally hit the UAE when reduced demand for oil reduced its price to 1/3 of July 2008. This had an impact on the economy, evident in the rise in government bond spreads, in the reversal of large inflows of private capital and the sharp decline in stock indices. Also, the pillars of the country's economic development, ie the construction and real estate sectors, were hit hard. Thus, although in 2008 growth exceeded 5%, in 2009 GDP growth was significantly lower than in previous years. The finance ministry forecast 1.3% growth. In November 2009, the IMF forecast a 0.2% contraction and that the economy would return to a positive sign in 2010 with GDP growth of 2.4%. Other analysts were more optimistic. The Economist Intelligence Unit and Emirates Industrial Bank forecast growth of 3.4% and 5% respectively (UAE, 2010). Eventually, GDP shrank by 1.6% but in 2010 the economy moved in a positive direction, recording growth of 1.4% with a total product worth 977.3 billion dirhams. It is worth noting that the growth came from sectors of the economy that are not related to hydrocarbons. These sectors achieved growth of

5% offsetting the negative rate of -5.6% recorded by the hydrocarbon sector (Ministry of Economy, 2011).

Table 3-3. Contribution to UAE GDP in billion dirhams (2009-2010)

	2009	2010
GDP	963,5	977,3
Hydrocarbons	324,9	306,8
Non-Hydrocarbons	638,6	670,5
Share of Hydrocarbons in GDP	33,7	31,4
Share of Non-Hydrocarbons in GDP	66,3	68,6

Source: Ministry of Economy, Annual Economic Report 2011

Table 3-4. Contribution to the UAE GDP (2009-2010)

	AnnualGrowthRate	
	2009	2010
RealGrowthRate	1,6	1,4
Non-Hydrocarbons	4,2	5,0
Hydrocarbons	3,9	5,6

Source: Ministry of Economy, Annual Economic Report 2011

3.4.2 Commercial actions and relations

The UAE's trade balance increased in 2008 by 35.3% from 170.85 billion dirhams to 231.09 billion dirhams. This increase is due to the 33.9% increase in exports.

The value of oil exports increased by 39.7% due to the increase in the average price of oil by 27.3% from \$ 70 / barrel to \$ 90 / barrel. The same picture is shown by natural gas, whose exports increased in 2008 by 37.1%. On the other hand, the increase in domestic demand for goods due to population growth and incomes, led to an increase in the value of exports by 33.4% (Ministry of Economy, 2011). In 2009, the ten countries with the largest exports to the UAE were India, China, the USA, Germany, Japan, the United Kingdom, Italy, South Korea, France and Saudi Arabia. The value of imports was 287 billion dirhams, accounting for 64% of total imports. In contrast, India, Switzerland, Qatar, Saudi Arabia, Oman, Pakistan, Nigeria, Kuwait and Iraq were the largest recipients of exports from the UAE worth 48 billion

dirhams, representing 73% of the total of exports. The above does not include oil and gas exports.

The volume of the country's foreign trade reflects its position on the world economic and trade map as it continues to function as a vital trade hub for the wider Middle East and the rest of the world. In fact, the state has played an important role in achieving economic growth by improving the efficiency of customs while making free economic mechanisms while encouraging their role and increasing their responsibilities, thus achieving the enhancement of the competitiveness and efficiency of the economy compared to other countries in the region (UAE, 2010).

3.4.3 Inflation

Inflation in 2009 was 1.56%, significantly lower than in previous years. The decline in housing and food prices has contributed to deflationary pressures on the economy. House prices make up 40% of the consumer price index. In 2008 it was at 10.8% because increased revenues from expensive oil exports financed economic growth. At the same time the weak dollar and more expensive foreign foods made imports more expensive (Al-Shayeb&Hatemi, 2016). To protect the UAE from future price increases or product shortages, the government has made strategic plans to build stocks of staple food. In an effort to tackle inflation in the short term, annual rental price hikes have remained stable at a maximum of 5% in Dubai and Abu Dhabi while commodity price controls continue to exist (EUA, 2010). In 2010, inflation fell to even lower levels, reaching 0.9% due to lower prices in telecommunications, fuel, electricity and housing (Ministry of Economy, 2011).

3.5 Investments and investment climate

3.5.1 Infrastructure

The revenues generated by the UAE from the exploitation of oil enabled them to consolidate modern infrastructure that ranked the country at the same level as the developed countries. Public investment in infrastructure has created a favorable environment for private sector activities. Also, public investment in roads, ports,

airports, electricity and water supply, education and training of the workforce increases productivity and economic efficiency.

3.5.2 Monetary policy

The most important feature of UAE monetary policy is that it focuses primarily on maintaining currency stability by pegging the dirham to the US dollar at a fixed exchange rate of 3.67 dirhams per dollar. This exchange rate regime has been adopted since 1980 with great success due to the huge foreign exchange reserves of the country. In addition to maintaining the stability of the currency, the dirham's policy of linking it to the dollar also contributed to a low inflation rate. Both factors, stable currency and low inflation, are essential for private sector confidence. However, this policy has some drawbacks. For example, if the dollar appreciates against other currencies, the dirham will also strengthen against other currencies. Consequently, this will lead to a reduction in the prices of imported goods and will therefore help to reduce inflation, but at the same time the competitiveness of exports will be weakened. If the dollar depreciates, it will weaken the dirham against other currencies, and import prices will rise, creating inflationary pressures, especially given that most UAE imports come from countries outside the dollar zone. Regarding the money supply, the following can be observed: the money supply M1, which includes monetary circulation and sight deposits, increased by 4.2% in 2010, reaching 232.9 billion dirhams compared to 223.5 billion in 2009. The money supply M2 including M1 and time deposits increased by 6.2% from 740 billion in 2009 to 786.4 billion in 2010. The M3 money supply which includes M2 repurchase agreements (repos), money market mutual fund shares, Money market securities and two-year bonds increased by 3.9% to 985.2 billion dirhams from 947.8 billion in 2009 (Ministry of Economy, 2011). These changes are shown in the following table:

Table 3-5. Money Offer (2009-2010)

	2009	2010	%
Money Offer M1	223,5	232,9	4,2
Money Offer M2	740,6	786,4	6,2
Money Offer M3	947,8	985,2	3,9

Source: Ministry of Economy, Annual Economic Report 2011

3.5.3 Fiscal policy

Fiscal policy in the UAE has played an active role in the development of the economy, transferring wealth and promoting and supporting all sectors of the economy. The structure of the country's revenues is composed of oil sales as well as revenues from foreign reserves from old oil revenues.

There is no income tax or excise tax in the UAE. Thus, the country's fiscal performance is highly dependent on oil prices. High oil prices in the 1970s and into the early 1980s led to surpluses. But since the mid-1980s, with falling oil prices, a growing population and rising wages, the economy has suffered from budget deficits for a number of years. In fact, the budget deficit has acquired a structural character. Deficit financing arises from the use of foreign exchange reserves and the repatriation of gains arising from these foreign reserves. Therefore, the budget deficit does not have a negative impact on the UAE, such as the exclusion of the private sector. It should be noted, however, that this way of financing the deficit is not sustainable in the long run. To this end, fiscal policy should shift the focus to structural adjustments that include broadening the non-oil revenue base, privatizing public enterprises, streamlining public spending and reassessing subsidies. This policy may negatively affect economic activity but is necessary to achieve sustainable growth in the long run (Elhiraika - Hamed 2002).

3.5.4 Direct investments

The investment sector is one of the areas in which the UAE has shown determination. In recent years, the government has reviewed and strengthened the legal framework in order to support economic activity and make the country more competitive in the international market. It has also made efforts for its investment policy to increase the competitiveness of the various sectors within the country. To date, the UAE has performed effectively domestically, regionally and internationally and is recognized by the World Trade Organization as one of the top 30 countries in the trade sector, maintaining its position as the most vibrant economy in the Middle East. The same organization ranks the UAE in 18th place as a trading hub and re-export hub. The investment reform process includes various points in order to make the country more favorable for attracting foreign direct investment. The new

investment law being drafted reflects the government's foreign investment policies. Also, a number of trade-related laws are in the process of being amended to improve them in order to provide investors with a safer investment field.

The sectors of the economy that seem to attract foreign direct investment are hydrocarbons, electricity, computers, medical equipment, telecommunications and franchising. The renewable energy sector, as we will see below, is another huge investment incentive that makes the country an important player internationally. The country is ready to strengthen its cooperation with initiatives related to this sector in order to achieve the announced goal of pumping 7% of total energy from renewable energy sources. The hydrocarbon industry has been explicitly excluded because it is owned and controlled exclusively by the individual emirates while any foreign participation necessarily takes the form of a consortium. The sectors of public utility, such as electricity, gas supply and water supply, which are state monopolies, are moving in the same direction. Only recently did Abu Dhabi announce the partial privatization of electricity and water (UAE, 2009). The insurance industry is another sector that shows satisfactory growth since investments reached 5.8 billion dollars in 2008, 45% in bonds and shares, 34.2% in deposits and 12.3% in shareholder rights. The SME sector is an emerging sector that offers many opportunities for profit. The government is committed to encouraging its vital contribution to the national economy. The same applies to tourism where an effort is made to maintain the rapid growth of this industry. Some activities are reserved for UAE nationals: real estate, car rental and leasing, agriculture, forestry and fisheries services, employment services, research and security services, and passenger and freight services (UAE, 2009). The form of the tax regime is indicative of the attractive investment climate that prevails in the country.

Taxation of natural and legal persons is rare. The UAE is the only country in which such taxes are levied only in special cases such as at foreign bank branches, hotels and large oil and gas companies. The country has also signed numerous double taxation agreements. These agreements should avoid cases of taxation being imposed on a person operating simultaneously in two countries.

Finally, foreign companies with a presence in the UAE can gain a significant competitive advantage and benefits compared to their competitors abroad due to the tax regime and other incentives offered by the country to foreign investors (UAE, 2009). In 2010, the real estate sector attracted the largest share of foreign direct

investment (28.7%), followed by financial and insurance services (20.9%), construction (19.3%), retail and wholesale (10.1%), industry (8%), water supply and electricity (4.6%) and other sectors with lower percentages (Ministry of Economy, 2011).

3.5.5 Investment laws

As is well known, the existence of well-designed laws is important for creating a favorable climate for investment and the smooth operation of markets. Thus, the UAE is trying to establish a legal framework that covers all types of companies operating in the country. The most important laws in this context are the federal law on companies, the commercial law, and the law on the protection of intellectual property rights. In general, the legal framework favors local investors more than foreign ones. This is clearly seen in the following provisions of company law: a) The percentage of national participation in companies established in the UAE may not be less than 51%. Also, the shares of foreign investors in limited liability companies should not exceed 49%. b) Branches of foreign companies must have a national guarantor, unless the foreign company establishes a branch by agreement with the government. c) The law prohibits foreigners from directly holding shares in public joint stock companies but allows them to hold them through mutual funds offered by commercial banks.

Overall, however, the UAE has offered a fairly favorable investment climate for both local and foreign investors. The main features of this environment are the creation of an international class of industrial facilities and support services but also the constant updating of the legal framework so that they meet international standards thus ensuring effective protection for investors. The Jebel Ali Free Zone, for example, is one of the largest industrial complexes in the world, providing a wide range of options for investors, including 100% ownership of the investment. Finally, it should be emphasized that the country has been a member of the World Trade Organization since 1995, whose agreements will have an impact on the nature and profitability of internationally competitive investments (Elhiraika - Hamed, 2002).

3.5.6 Free Economic Zones

The first UAE free zone was established in 1980. This resulted in the successful attraction of foreign direct investment and technological know-how as well as the launch of exports. Thus, all the emirates proceeded to establish such free zones to attract investment, create jobs and contribute to the development of the economy. The main advantages are zero taxation, the freedom to repatriate capital and profits, low import duties (except for tobacco and spirits), the absence of currency restrictions and the full ownership of businesses with full control over . The comparative advantages for each zone are based on the individual areas and their facilities, the areas of specialization as well as the costs of setting up and operating the companies. Responsible for the installation and management of the economic zones is a state-owned company called the Abu Dhabi-based Senior Special Economic Zones Company. Being the largest industrial development organization in the emirate, it is reshaping the economic landscape through the implementation of the intended investment and industrialization programs. In addition to its significant contribution to the development of infrastructure in industrial complexes, this company is the licensing authority for all industrial activities in Abu Dhabi. In addition, it is responsible for the development of regulations governing the management of industrial groups, including licensing regulations, fines and fees. Finally, this company is committed to the development of industrial infrastructure in the capital, thus cultivating a favorable business climate for the development and stimulation of the diversification of the economy.

Investors can complete their business plans in the Abu Dhabi area within a few weeks thanks to state of the art facilities, innovative utilities, logistics, advanced communications infrastructure and working-class housing. The Supreme Company develops and manages the financial zone by providing customer-centric services including a non-stop shop for the faster issuance of licenses, a service center for foreign employees as well as quality accommodation for all employees. Investors can also raise large funds by creating new specialized industrial complexes with the participation of the Investment and Infrastructure Fund of the SocieteAnonyme (UAE, 2009). The Jebel Ali Emirate Free Zone is the first free zone created in the UAE in 1980. It covers an area of 48 square kilometers and is ranked among the largest and fastest growing free zones in the world. In the last years of its operation it has announced an increase of more than 320 times the number of its developing

companies from 19 in 1985 to over 6402 in 2009. It is located between the sixth largest port in the world and the largest cargo airport.

The six-lane motorway allows goods to be transported from the sea to the air in just 20 minutes. Finally, its strategically important position allows its partners to access as quickly as possible a market of two billion people in Southwest Asia, Africa and the Commonwealth of Independent States. The Sharjah Free Zone was established in 1995 and is already one of the cornerstones of UAE industrial development. It is characterized by the atmosphere of safe investment, infrastructure and modern management. The free movement of capital and the complete exemption from taxes on products and customs duties on imported raw materials destined for it, offer great opportunities to industries and businesses for success and sustainability. Also, quality-oriented, ISO certified, assures that the processes of starting a business are simple and modern. The results are particularly encouraging considering that already 4,000 investors are successfully operating in the area enjoying the special benefits it offers.

Ajman Free Zone is now recognized as an entrepreneurial paradise because of its welcoming environment. It offers full ownership of the companies by their investors, repatriation of funds and profits and zero taxation of income of individuals and legal entities. Due to the lack of advantages offered by oil and gas, the emirate has always relied on local entrepreneurship. Thus, a strong and enduring naval tradition was created that included shipbuilding, fishing, trade and the exploitation of pearls. However, with the establishment of the free zone in 1988 and its rapid expansion, the spirit of entrepreneurship was revived and began to be applied to the export-oriented industrialization of the emirate. The Ajman Belt offers all the benefits of any UAE free zone. Recognizing the need for continuous innovation, it is constantly focusing on providing a package of unsurpassed benefits, the most important of which is the endless desire to provide increasingly attractive packages for businesses. An ambitious one-million-square-kilometer project is currently underway to house more than 600 companies, which will be added to the existing 256 Ajman Free Zone plants, which account for 20% of the UAE's industrial units with an export presence in more than 64 countries. The products they produce are textiles, clothing and leather goods, food, beverages and tobacco, timber, furniture and wood products, printing and printing paper and pulp, chemicals and plastics, non-metallic

minerals, base metals and metal products, machinery and industrial equipment (UAE, 2009).

The Fujairah Free Zone offers a range of investment opportunities, combined with a package of investment facilities and a range of administrative services making it easy to set up and run a business. In addition, investors benefit from the triple advantage offered by the zone, namely accessibility, connectivity and the economic environment. Permits can be issued within one business day. Reduced installation costs and lower fixed costs make this area a very cost-effective investment proposition. It also offers unique logistics through Fujairah Airport and Port, as well as by road to the Middle East and beyond. Thus, investors benefit from the faster transactions resulting from the shortest delivery time of goods (UAE, 2009).

The Ras al Khaimah Free Zone, established in 2000, is one of the fastest growing and most productive areas in the UAE. Its strategic location is just 45 minutes from Dubai and is a world-class business hub with more than 4,000 companies, whose investors come from 106 countries, a real vehicle of industrial development. Featuring state-of-the-art technology and customer focus, it offers tailor-made customer support services in a cost-effective and flexible environment. It also offers a range of services offering legal assistance, human resources and marketing.

A unique four-legged park has been created in the free zone: business park, industrial park, technology park, academic sector, each of which offers equal advantages and benefits to investors. It is also worth noting that it was the first free zone to offer innovation and promotion centers in four parts of the UAE and set up representative offices in China, India, USA, Germany and Turkey (UAE, 2009).

3.6 Industrialization

As is well known, industrialization plays a key role in the process of economic development of a country. Industrialization is associated with the idea of stimulating all sectors of an economy and in addition increases employment.

As with all developed countries, the UAE has launched an ambitious industrialization plan to diversify its sources of national wealth in order to unleash its dependence on oil. The main obstacles that had to be overcome initially were the lack

of raw materials and the small size of the market. However, the abundance of natural mineral resources, capital adequacy, adequate infrastructure, flexible labor policy, abundant cheap energy, economic zones and various incentives provided by the legislation together with the political and social stability experienced by the country proved excellent omen for the success of the country's industrialization program (Yevdokimov et al., 2018).

The first industrial venture took place in 1950 in Dubai, when a factory for the production of steel cans and containers was built. From 1951 to 1958, no initiative was taken to set up industrial units.

However, this picture changed drastically in 1959 when oil was discovered in Abu Dhabi. Since then, the industrialization effort has intensified. 1977 was a milestone year in this effort after 84 new industrial units were inaugurated. Until then, the number of industries was growing at a positive pace. But from 1978 to 1995, the number grew at a negative rate. Industrialization had as a natural consequence the expansion of the economy as the figures show: exported industrial products amounted to 184, and the value of exports increased from 11 million dirhams in 1975 to 539 million in 1980, to 4,825 million in 1985. and to 8,070 million dirhams in 1990.

Nevertheless, industrialization has not significantly reduced the degree to which the UAE economy is dependent on mineral wealth. Today, diversification is the motto for the future development of the UAE economy as the latter seeks to reduce its dependence on oil. In 2008, non-hydrocarbon sectors accounted for 63% of the country's GDP, despite high oil and gas prices, contributing \$ 590 billion to the economy. The UAE looks forward to further reducing its hydrocarbon contribution by 20% over the next 10-15 years by promoting growth in other sectors of the economy. In 2009, Abu Dhabi presented the "Economic Vision 2030" setting out a roadmap for achieving greater economic diversification. The plan aims to reduce the emirate's dependence on oil as a source of economic activity and instead pay more attention to knowledge-intensive industries (Mosteanu, 2017).

Industry remains an important component of the country's economic reform ambitions, based on already thriving sectors such as aluminum fusion, ceramics and pharmaceuticals. In general, the UAE government is focusing on the industrial sector because it contributes significantly to the overall development of the economy and to strengthening its international competitiveness. The main goal is to turn the country into a favorite destination for investors who want to invest in heavy industry as well

as in high-tech sectors. A major step towards achieving this goal was made in 2009 with the announcement of Abu Dhabi Advanced Technology Investment Company (ATIC) plans to acquire Chartered Semiconductor Manufacturing, creating the second largest chip company in the world. When the 6.56 billion dirham acquisition is completed, Chartered Semiconductor will merge with Globalfoundries, the chip maker ATIC co-founded with US company AMD.

The UAE has recorded a large increase in the industrial and manufacturing sector with the total volume of investments reaching 77 billion dirhams in 2008. Of these, 38.6 billion were in Abu Dhabi and 16.3 in Dubai, followed by the rest of the emirates. There are a total of 4,219 industrial units in the country that employ over 318,000 people. The sector has grown by 40% and the volume of investments has more than doubled in recent years. The number of employees also increased by 40%. The state's commitment to boosting domestic industry is underscored by the granting of 12 billion dirhams in the period 2003-2008 for intermediate goods, and packaging materials as well as the creation of new competitive and productive units in the fields of energy, petrochemicals and basic metals (Malik, 2016).

Emirati governments have spent significant financial resources to diversify their economies. Initially, the industry was concerned with oil and gas intensity products such as petrochemicals, fertilizers, cement and aluminum. It then evolved rapidly to include more diversified products such as electronics and machinery. Collaborations with foreign companies, some of which are market leaders and joint ventures, have enabled industrial and manufacturing companies to take advantage of the latest technology. Thus, the industrial sector has evolved into a sector of capital intensity and high-tech products such as electronics and machinery, which are largely exported from free economic zones.

Abu Dhabi recently inaugurated new parts of the industrial area called industrial zones of a special economic nature, as well as the Al Ruwais industrial complex, which houses a number of petrochemical industries. The 14-square-kilometer Mussafah Industrial Zone consists of six zones that produce cars, machinery and spare parts, food and beverages, textiles, wood products, chemicals, plastics and petrochemicals, construction materials and high-tech products. The emirate also intended by 2015 to build a new port that will include free economic zones, while still intends but has not yet constructed. Abu Dhabi also aims to establish itself as an important aeronautical hub (Al-Fawwaz, 2018).

Mubadala started operating an aircraft manufacturing plant in 2010. It has also entered into a joint venture with the American group GE to provide commercial financing to the region. Dubai is developing a new production zone in the industrial city that will help it diversify its economy even more. The industrial city started as a landmark project and a business district to attract and support the development of the manufacturing sector within the emirate. It has been planned in great detail as a state of the art industrial infrastructure and has spread over an area of 52 square kilometers with special emphasis on the sectors of manufacturing, mechanical and mechanical equipment, metals, chemicals, minerals, food and drinks.

The aluminum sector is one of the UAE 's main industrial sectors. The Dubai Aluminum Company (DUBAL) manages one of the largest foundry in the world and contributes substantially to the UAE economy by producing 980,000 tonnes of cast aluminum each year (Al-Fawwaz, 2018).

The same industrial complex also generates 2,335 MW of electricity while there is also a coal plant, a metal foundry with an annual production of 1,270,000 tons, a desalination plant of 30,000,000 million tons of seawater per day, a port, laboratories and storage facilities. Cable manufacturing is also an important sector in Dubai and the company that has undertaken it is the leading producer in the Middle East with the best quality and the best customer service. It exports a variety of high quality cables and accessories worldwide. Today, with three cable factories, a copper rod factory and a PVC production plant, the company has the capacity to produce 110,000 tons of medium and high voltage cables per year. It has also been a major supplier to major recent projects such as the BurjKhalifa, Dubai Metro and Dubai Palm Jumeirah (Al-Fawwaz, 2018).

The steel industry contributes the most to the country's economy and is one of its heavy industries. One of the largest steel mills, Emirates Steel Industries, uses the most advanced method of producing concrete reinforcement bars for the construction industry. That's why it was founded in 2001 to meet the growing demand for quality steel products from the UAE 's fast - growing construction industry. The plant has a production capacity of 600,000 tons of armaments per year and is now fully operational, supplying local and neighboring markets, and has participated in prestigious projects such as the Emirates Palace Hotel in Abu Dhabi and the Dubai Airport expansion project (Butti Al Shamsi et al., 2018).

The concrete industry is one of the oldest in the UAE. The first plant began production in 1975 in Ras Al Khaimah, followed by other plants in the rest of the emirate but which did not contribute substantially to the country's GDP. Today there are 12 factories producing clinker (basic component of concrete), Portland concrete and white concrete with a total annual production of 11 million tons. Most of it is produced where it first started, in Ras Al Khaimah. The main raw material is the high quality limestone from the Hazar Mountains which the factories use to expand their production. These factories employ a huge number of workers representing a real investment that takes place within the country.

3.7 Wealth resources

As mentioned above many times, the UAE has large oil and gas fields, the exploitation of which generates similar revenues to the state. Since the early 1970s, the apparent growth of the UAE has relied mainly on oil extraction and exploitation. The oil and gas industries are based on "solid foundations", are effectively managed and the latest technology is used to maximize production efficiency.

Although the UAE ranks ninth in oil production (daily oil production is two million barrels with a production capacity of three million per day), it is the fifth largest oil exporter and only Russia and Saudi Arabia export significantly larger quantities. UAE oil exports are close to those of Iran, Iraq and Kuwait, countries with larger reserves. The UAE ranks sixth in the world in oil reserves after Saudi Arabia and Iraq. In fact, it is estimated that stocks will last over 100 years. A similar picture is shown by the gas reserves which will last for more than 130 years, ranking the UAE in the sixth place in the world. Therefore, these are also important contributors to long-term economic growth.

In 2009, due to compliance with OPEC recommendations to reduce production to stabilize oil markets, daily oil production fell to 2.3 million barrels per day from 2.9 million in 2008. Gas production amounted to 7 billion cubic feet per day. The new reality created by the OPEC decision has focused the UAE on securing its export markets through diplomatic efforts to strengthen political and trade relations with Asian oil-consuming countries and by investing in oil refining and storage programs in Asia. The initiatives were taken amid indications that oil demand from

the developed world is threatened by economic stagnation, while international agreements to reduce carbon dioxide emissions are likely to limit the increase in global oil demand (Ulrichsen, 2016).

Facing a number of challenges, the UAE has decided to take initiatives and adjust its oil policy to maintain a balance between international and domestic obligations. Thus, they should focus on the development of hydrocarbons with the long-term goal of maximizing revenue to finance the economy. At the same time, as a member of OPEC, they must contribute to meeting the global demand for safe and reliable oil supplies and at the same time take initiatives that will work together with other countries to save the environment. These are programs that will enhance energy efficiency and encourage energy savings.

As mentioned above, it is estimated that gas reserves will last for more than 130 years. But the UAE's weakness was focused on the lack of efficient infrastructure for gas extraction and management. That's why the Abu Dhabi National Oil Company (ADNOC) partnered in 2009 with US oil company ConocoPhillips to build a gas field southwest of Abu Dhabi at a cost of about \$ 10 billion. When the project is implemented, it will not only provide 500 million cubic meters of gas per day, but will also upgrade the emirates' capacity to exploit the deposits. Abu Dhabi will also become the main exporter of sulfur in the region (a by-product produced during gas extraction) which is used to produce fertilizers, rubber and sulfuric acid.

The emirate oscillates between the construction of the largest liquid sulfur pipeline and the creation of a railway line to transport it. Abu Dhabi's major position is shown by the fact that it holds 94% of the country's total oil reserves and 90% of its natural gas reserves. Major projects require budget planning and approval by the emirate's Supreme Oil Council, which is chaired by Sheikh Khalifa bin Zayed Al Nahyan, who is also president of the UAE, highlighting the importance of its hydrocarbon sector for all emirates. Abu Dhabi. The Supreme Council directs the emirates' energy policy and serves as the board of directors of the Abu Dhabi National Oil Company, which is responsible for submitting proposals to the Supreme Council on oil and gas projects and implementing the guidelines it receives from it (Inchauste& Victor, 2017).

The exact opposite picture is presented by Dubai. Oil production, once 50 percent of the emirate's GDP, plummeted from 410,000 barrels per day in 1991 to 80,000 barrels per day in 2007. As a result, Dubai, the UAE's second largest emirate,

was transformed. from exporter to importer of oil. It consumes more oil than it produces and its dependence on imports is constantly increasing to cover the difference. As for gas, Dubai buys millions of cubic meters of gas every day from Dolphin Energy, an Abu Dhabi company that imports gas through a pipeline from Qatar (Griffiths & Mills, 2016).

Nevertheless, Dubai remains a strong player in trade as a focal point in the trade of oil and energy services. The port of Jebel Ali, located 35 kilometers southwest of Dubai, handles much of the UAE's oil refining trade and can accommodate 80,000 tonne tankers. In 2008, the Dubai Multipurpose Center (DMCC) signed an agreement with individuals for a \$ 200 million project to build an oil storage facility in Jebel Ali to strengthen Dubai's role as a regional hub for petroleum trading. . A number of multinational oil companies also have offices in Dubai, as is the case with the major energy companies. In 2007, the American company Halliburton opened its offices there with the aim of operating in the wider area, while a year later Mubadala Development and Petrofac also opened their offices in Dubai (Griffiths & Mills, 2016).

Four more emirates produce, albeit in small quantities, oil and gas. Crescent Petroleum, a private company in the Emirate of Sharjah, is extracting oil from the Mubarak field in the Gulf, near Abu Musa Island, but production is falling. Crescent and Dana Gas are exploiting a gas field located in the territorial waters between Sharjah and Ajman. Finally, Dana and Emarat from Dubai built a gas pipeline to meet the needs of Dubai and Sharjah. The Emirate of Fujairah does not produce hydrocarbons but a research project is already underway to find them. Also in this emirate is the second largest refueling port in the world. Its port, located in the Arabian Sea, every month about 1 million tons of fuel and other petroleum products intended for maritime transport. In 2008, the import of gas through the Dolphin Energy pipeline from Qatar facilitated the development of the emirate's water and energy and boosted local industry.

In addition to a strong domestic presence in the hydrocarbon sector, the UAE is also active abroad through three companies, Mubadala, Taqa and IPIC. The latter is active in oil refining and petrochemicals in North America, Europe and Asia. It is a strategic partner of the Austrian OMV and participates in the construction of a liquefied natural gas pipeline in Papua New Guinea. Mabudala produces oil in Oman but also in many countries in Southeast Asia as well as natural gas in Qatar. He is also

working with ConocoPhillips on oil in the Caspian Sea in Kazakhstan. In 2009, together with Occidental Petroleum, it agreed with Bahrain to increase the country's oil production. Taqa mines oil in the North Sea of the United Kingdom, in western Canada and in the Dutch North Sea. He is also interested in the construction of pipelines, platforms and gas storage facilities in these areas while leading a project to build a large gas plant in the Netherlands that will serve the whole of Western Europe. ENOC, holding 52% of Dragon Oil shares, also invests abroad, for example in Turkmenistan. Al Thani Corporation conducts oil and gas exploration in several African countries such as Egypt, Libya and Sudan (Alshamsi&Azam, 2015).

Crescent Petroleum and Dana Gas are working together on natural gas in Iraqi Kurdistan. Dana also produces oil and gas in Egypt. Finally, RAK Petroleum produces hydrocarbons in Oman and is a shareholder in Heritage Oil, a Canadian company that discovered a large oil field in Kurdistan. The UAE, following international concerns about the greenhouse effect, has made progress by promoting a number of measures to reduce the environmental burden on the hydrocarbon industry. For example, the Abu Dhabi National Oil Company (ADNOC) is already on track to reduce gas combustion by implementing rational management. By reducing the combustion of waste gas consumed unnecessarily in production facilities and refineries, the company not only reduces carbon dioxide emissions but also saves valuable energy resources. ADNOC is also involved in an ambitious project to develop an exhaust capture and storage network. The plan envisions collecting carbon dioxide emissions from large Abu Dhabi industrial plants and piping them to oil fields for use in improved projects.

Finally, the UAE will soon be faced with long-term agreements expiring in 2014 and 2018 concerning the concession of large deposits to foreign companies for their exploitation. Details of the talks have not been made public, but senior government officials as well as ADNOC officials have indicated that they appreciate Abu Dhabi's partnerships with international energy companies and continue these alliances (Joseph, 2018).

The UAE has other mineral resources to be exploited which are divided into three categories: stones, sand - soil, metals. Stones and sand occupy the main place. Stones and gravel are used in the construction industry. Limestone, sand, soil and gypsum are used to make concrete. Chromite ore is also mined on a small scale in the Emirate of Fujairah (Joseph, 2018).

3.8 Sectors of the economy

3.8.1 Telecommunications

The telecommunications sector is one of the most advanced in the world. Its promotion is an important part of government strategy based on the belief that communication is a key component of public infrastructure and an essential element in a knowledge-based economy. Today the telecommunications sector throughout UAE is fast and efficient. Fixed and mobile telephony networks as well as the internet are among the best in the world making the country an ideal digital hub for the region. In recent years, the telecommunications sector has experienced rapid growth with the penetration of mobile telephony in the market. Internet penetration reached 68.3% of the population, one of the highest rates in the Middle East, meaning that one in two use broadband services (Al-Fawwaz, 2018).

The government has taken various initiatives, mainly legislative, to accelerate the development of this sector, starting with the legislative initiative of 2003 with which the process of liberalization of telecommunications was initiated and the competent Independent Regulatory Authority was established. The revision of this law in 2008 authorized the Regulatory Authority to issue regulations that ensure competition in the telecommunications sector while strengthening its powers to control the sector. Also, in order for the country to maintain its leading position in the Middle East, the Authority has established an Information and Communications Technology Development Fund, which is funded by telecommunications providers. Its aim is to encourage research and development (R&D) in the field.

There are two providers, Etisalat and Du, and they have shown remarkable resilience in the difficult macroeconomic climate. The government holds a majority stake of their shares. Etisalat has been investing in telecommunications infrastructure since 1976 and provides a full range of fixed and mobile telephony services, fixed and wireless internet access and cable TV. The company operated as a monopoly until 2007 when Du entered the field of mobile telephony. Nevertheless, it remains the largest provider in the country and is expanding internationally. Today it is the 16th largest telecommunications company in the world and its international subscriber base

in the wider region reaches 100,000,000 with actions covering almost 2 billion people in 18 markets worldwide. Despite the financial crisis of recent years, the company's impressive revenue has financially helped its strategy to expand into services and infrastructure such as the Abu Dhabi fiber optic network, which was completed in 2011, making the capital the first city in the world to be connected in this way (Alshamsi and Azam, 2015).

Du, which operates in mobile telephony and internet and television services, focuses mainly on increasing its customer base in the domestic market and continues to show a steady increase in revenue and subscribers. The company quickly gained 32% of the mobile market due to the change in strategy, now targeting more lucrative subscribers using new generation devices, leaving behind subscribers who spent little money on mobile telephony. While Etisalat has focused on expanding its core business internationally, Du has followed another tactic by promoting digital services.

3.8.2 Shipping

The UAE have developed as a regional center for maritime transport. The UAE ports handle large inflows of products to and from the region, and the construction of ships and boats is characterized as a strategically important investment for the economy. The development of maritime transport to and from the UAE has largely come from the development of the Jebel Ali Port in Dubai. The port allowed the development of large shipping activities, as well as the shipbuilding industry, repairs and maintenance services. The UAE has been a member of the International Maritime Organization since 1974. The merchant fleet consists of shipping companies based in the UAE and where at least 51% are state-owned. In order for ships with a foreign flag to sail in UAE waters they must have a contract with the country's authorities and cannot carry out transport on their own behalf. This has been decided so as to encourage local companies to register their ships under the flag of the United Arab Emirates. Crews working on ships sailing in territorial waters must have a residence permit. In the case of foreign shipping companies, they must obtain approval by obtaining the relevant license before starting their activities.

The United Arab Emirates is the largest cargo carrier to and from the Middle East. It was co-founded by the six Gulf Cooperation Council (GCC) states in July

1976. The UAE has a share of 16.5%. A number of other domestic shipping companies are wholly or partly owned by the government. The Shipping and Freight Forwarding Organization of the UAE includes numerous companies. GAC is based in the UAE and is one of the largest shipping companies in the world. The company also supplies ships worldwide with spare parts and various services (Al-Shayeb and Hatemi-J, 2016).

The UAE have 15 major commercial ports (including oil terminals) with a total capacity of over 70 million tonnes. Dubai's Jebel Ali Port, which handles mainly the industrial material of the country's free zone, is the largest artificial port in the world. The UAE ports mainly export oil and gas but also raw materials and finished products. Imports include intermediate and consumer goods as well as a significant re-export of products to other economies in the Gulf region, East Africa and India. Finally, the UAE rank in the top five places in the world in terms of refueling ships while shipbuilding and shipbuilding facilities are developing rapidly. The services offered by the ports are regulated at the level of the emirates. Freight services such as loading and unloading, lifting, and storage of goods are provided exclusively by the port authorities of each emirate.

3.8.3 Tourism

Tourism is one of the most important sectors for the present and the future of the UAE economy. According to a report by the World Economic Forum on Travel and Tourism, the UAE rank first in the Middle East and Africa in terms of tourism competitiveness based on the following criteria: safety, health and hygiene, infrastructure information and communication technology, price competitiveness, human resources, natural and cultural resources.

Overall, the tourism industry is making an increasing contribution to the country's total GDP and this contribution is set to increase in the future. In addition, the positive impact of the tourism sector on the UAE economy is reflected in the fact that 8.5% of jobs are related to travel and tourism and are expected to increase by 9.1% by 2016. Also in terms of exports a 10.4% is related to travel and tourism. The UAE is now beginning to reap the benefits of its investment in tourism, a policy that began with the establishment of the Dubai Department of Tourism and Marketing in

1997, followed by the establishment of a wealth of hotels, resorts and leisure facilities.

Abu Dhabi is the driving force behind tourism in the region, with more than \$10 billion to be invested in the sector over the next decade. Abu Dhabi hotels earned €8.6 billion in 2006 from 1.35 million visitors taking advantage of the UAE's warm shallow seas, rich marine life, long sandy beaches and a climate that is very warm most of the time. Excellent airport and port infrastructure, shopping malls, leisure and sports facilities, culture, friendly and hospitable people contribute to the development of this area. The country attracts a total of about 11.2 million tourists a year as a result of its efforts to boost investment in the tourism industry (Bakhouche, Elchaar&Emam, 2020).

Abu Dhabi continues to make steady progress in implementing the Abu Dhabi Plan 2030, a roadmap that seeks to triple the capital's population employed in new industries, cultural attractions, hotels, schools and hospitals being built. The plan seeks to strike a balance between managing development, promoting tourism and trade, while preserving the city's cultural heritage and natural environment. In Dubai, tourism contributes 18% directly and 30% indirectly to the emirate's GDP, the hotel facilities of which accommodate 6.5 million tourists a year, mostly Europeans. Dubai tourism is constantly active due to the many events taking place in the emirate such as the annual retail festival or the classic desert golf tournament. The Emirate of Sharjah holds a special place in the tourism industry of the wider Gulf region, focusing on cultural events and attracting more families than the cosmopolitan tourism chosen by neighboring Dubai. But in addition to the exploitation of culture, the emirate offers a number of natural wonders such as pristine beaches, dunes and parks that specialize in agritourism. The emirate authorities have taken advantage of these natural beauties by inspiring initiatives such as the Desert Park and the Center for the Reproduction of Endangered Wildlife. Conferences, meetings and exhibitions are especially important for Emirati tourism as business travelers tend to spend more money than regular tourists. Sharjah is actively promoting its tourism services abroad and China and Scandinavia are considered to be the main countries of origin of tourists for the future.

Ajman with its beautiful beaches, transport infrastructure and a warm and welcoming culture seeks to create an image of luxury and senses by highlighting the emirate as an ideal place for a vacation. A number of five-star hotels are being built in the emirate while the "Al Zora" project in Ajman Bay to provide a complete tourist

destination. In general, it can be said that Ajman has become the ideal destination for tourists looking for luxury and comfort. In the Emirate of Ras Al Khaimah, local authorities have set a target to increase visitors to 2.5 million, taking advantage of the cultural heritage and natural landscape. Various tourism projects worth of \$5 billion are currently underway to boost the sector. Emphasis is also placed on ecotourism because related activities have little negative impact on the environment and can help the economic development of local communities. Finally, it is worth noting that the quality of tourist services offered in Ras Al Khaimah is comparable to that of other emirates and occupancy levels in hotels range between 90% and 95%. The 7th emirate, Fujairah on the east coast of the UAE is probably the most beautiful of all the emirates (Elhiraika and Hamed, 2002).

In addition to the sandy beaches, Fujairah is home to the Hajar Mountains and old castles, making it a tourist destination for UAE residents and in recent years there has been an increasing flow of tourists from Europe, mainly from Germany and Russia. The Emirati government has allocated about three billion dirhams for the development of its tourism over the next five years and three major projects are already underway. One of them is the “Mina Al Fajer Resort” costing 600 million dirhams. It is essentially a seaside community with marinas, villas, apartments and a five star hotel.

3.8.4 Agriculture

Arable and forest area accounts for less than 1.5% of the UAE’s total area. Therefore, the contribution of agriculture to the country’s GDP is small. However, the limited agricultural land with unsuitable soils, the problem with water scarcity and harsh climate were not an obstacle to the development of agriculture.

Efforts have been made over the last 30 years to increase arable land following the Government’s decision to focus on rural development through the provision of specific incentives: a) free farms are provided to every UAE citizens; b) land is leveled and mechanically prepared also free of charge; c) seeds, fertilizers and insecticides are provided at half price; d) drilling is provided free of charge; e) various technical services such as the installation of water pumps are provided free of charge; f) growers are protected from foreign competition state policy which undertakes to

buy agricultural products at preferential prices. Thus, the agricultural sector has experienced a remarkable boom in the last 20 years, but there is still a need to increase the production of vegetables, fruits and cereals, many of which have to be imported from other countries (El-Temtamy, O'Neill & Midraj, 2016).

3.9 Conclusion

Prior to the discovery of oil in Abu Dhabi in 1958 and Dubai in 1966, economic activity in the seven emirates was based mainly on fishing and the exploitation of pearls, providing employment to 70% of the population. The remaining 30% of the population was employed in agriculture, animal husbandry and handicrafts. There was almost no sector of industrial production other than the construction of wooden boats and simple handicrafts. However, the revenues from the exploitation of oil transformed the country's economy rapidly. This allowed the country to move from a state of survival to a modern country with a high per capita income. Economic growth can be attributed to four key factors: First, huge public investment in physical and social infrastructure has helped boost economic activity in general and private investment in particular. Second, the stable macroeconomic environment characterized by low inflation rates and volatile exchange rates has played a catalytic role in strengthening the economy.

Thirdly, the availability of funds and the absence of restrictions on their movement combined with a high degree of transparency have opened the door to significant growth in foreign trade. The fourth factor is the availability of cheap labor coming from neighboring Arab states and India. However, like the rest of the Arab world, which has rich oil reserves in the Middle East and North Africa, the UAE has until recently relied on oil exports. With wide fluctuations and generally declining oil prices and revenues over the last two decades, the country has made significant efforts to achieve economic diversification.

These efforts have led to continued investment in areas other than oil, in particular in the processing industry, but also in other areas where private capital is increasingly dominant. Eventually, exports (excluding oil) and the country's GDP exceeded oil exports, making the UAE the most diversified country in the Gulf region

with an average GDP growth rate of around 5% for the period 1975- 1999. This growth rate is well above the average of -2.2% for the MEN15 countries exporting oil between 1971 and 1998. Also, the UAE economy has been very stable in terms of inflation and exchange rate fluctuations but also exchange rates. and open regarding labor, capital, goods and services movements.

Chapter 4 Energy Policy and Impact on the Economy

4.1 Introduction

The Ministry of Environment and Energy actively participates in the formulation of EU policies in its areas of responsibility, promoting our country's positions in the Councils of Ministers of Environment and Energy and in the respective Working Groups of the EU Council and the European Commission. The Working Groups of the Council and Coreper I (Committee of the Permanent Representatives of the Governments of the Member States to the European Union, article 240(1) of the Treaty on the Functioning of the EU) regularly and frequently examine issues of the two sectors, while the corresponding meetings are attended by the Deputy Permanent Representative of UAE to the EU and the respective representative of the Ministry of Environment or Energy to the Permanent Representation of UAE to the EU. Representatives of the relevant services of the Ministry participate in the Working Groups of the EU Commission, depending on the content and the agenda of the meetings. The Council of Environment Ministers is responsible for EU environmental policy. As a policy-maker, it has the power to adopt, together with the European Parliament, ambitious environmental legislation, while taking due account of environmental aspects in other EU policies (Dudin et al., 2017).

4.2 Energy policy of the European Union

At international level, the EU and its Member States strive to ensure that EU environmental standards are taken into account in international agreements on the environment and climate change. In this context, the Council is responsible for preparing the EU's positions for relevant international conferences and negotiations.

The Council of Environment Ministers normally holds four Regular Meetings per year (two per semester - Presidency), as well as two Informal Meetings (Mormann, 2021).

In the field of energy, the Council, together with the European Parliament, is responsible for adopting legislation on the functioning of energy markets in order to ensure energy supply and to promote energy efficiency, new and renewable energy sources and the interconnection of energy networks. The Council of Energy Ministers usually meets three times a year, depending on the agenda of the rotating EU Presidencies. There are usually two Councils of Ministers in the first half of the year (one in Brussels in February or March and one in Luxembourg in June) and one in the second half of the year (in Brussels in December). An informal Council of Energy Ministers is also held every six months in a city chosen by the respective EU Presidency.

Priority areas

a) European Green Agreement

The European Green Agreement, presented by the European Commission on 11 December 2019, is a new development strategy aimed at transforming the EU into a just and prosperous society, with a modern, competitive and resource-efficient economy, in which by 2050 net greenhouse gas emissions will have been zero. It also aims to protect, preserve and strengthen the EU 's natural capital, as well as to protect the health and well - being of its citizens from risks and effects related to the environment. At the same time, it stipulates that this transition must be fair and inclusive.

The proposed policies could be categorized into four groups: the first includes policies that will bring profound transformation, the second those that aim to integrate sustainability into all EU policies, and the third those that aim to make the EU a world leader and in the fourth, policies aimed at maximizing public involvement in the decision-making and policy implementation process (Gawlik, & Mirowski, 2020)

This Communication from the Commission is accompanied by an initial roadmap of the key policies and measures needed to reach the Europe Green Agreement, as well as indicative timetables. The roadmap will be updated as needs evolve and policies are shaped. At the same time, it must be ensured that all EU actions and policies contribute to achieving the objectives of the Europe Green Agreement.

In this context, the European Commission has already presented legislative proposals, strategies and action plans including:

- Proposal for a Regulation on the European Climate Law

The European Climate Law aims to establish a Union regulatory framework for achieving climate neutrality by 2050. As part of the steps needed to achieve the 2050 target, the European Commission has proposed as a new EU target for 2030 the reduction of greenhouse gas emissions by at least 55% compared to 1990 levels.

- European Climate Pact

The European Climate Pact aims to mobilize citizens, local governments and organizations in all sectors of society and the economy to take action on climate and the environment.

- EU 2030 Biodiversity Strategy

The Biodiversity Strategy aims to ensure that Europe 's biodiversity is recovering by 2030. Key elements of the Strategy are the effective management of protected areas as well as the restoration of degraded ecosystems on land and at sea (Khartukov, 2019).

- New Action Plan for the Circular Economy

The Action Plan for the Circular Economy presents a set of interlinked initiatives to establish a coherent policy framework that will make sustainable products, sustainable services and sustainable business models a common practice and transform consumer patterns.

b) Energy and Climate Strategies and Policies in the EU i) 2015-2019 and ii) 2020-2030.

In the period 2015 - 2019, the EU energy and climate policies were structured around the Energy Union Strategy, which is based on the three defined objectives of the EU energy policy: a. security of energy supply, b. sustainability and c. the competitiveness of the economy. To achieve these goals, the EU Energy Union strategy focuses on five mutually reinforcing dimensions: 1. security of energy supply, 2. solidarity and trust, 3. internal energy market, 4. energy efficiency to mitigate energy demand , carbon sequestration, 5. research, innovation and competitiveness. Pursuant to the Energy Union Strategy until 2019, the EU has

adopted the following legislative texts: Directive 2018/2002 / EU energy efficiency, Directive 2018/844 / EU energy efficiency of buildings, Regulation 2017/1369 / EU energy labeling, Directive 2018/2001 / EU renewable energy sources, Directive 2015/1513 quality of petrol and diesel fuels, Directive 2019/944 / EU electricity, Regulation 2019/943 / EU electricity, Regulation 2019/1941 / EU Risk preparation, Regulation 2019/942 for the European Union Agency for Energy Regulators (ACER), Regulation 2018/1999 / EU on the Governance of the Energy Union, Regulation 2017/1938 / EU on security of supply of natural gas, Directive 2019/629 / EU on natural gas, Decision 2017/684 / EU establishing a mechanism for the exchange of information on intergovernmental agreements in the field of energy, Regulation 2020/740 on the energy labeling of tires, new Regulation on Facilitation of Financing - CEF. The above legislative texts set the Union's targets for renewable energy sources (hereinafter RES), energy efficiency and the reduction of greenhouse gases by 2030, as well as the framework for the distribution of the national effort of the MS to achieve objectives. In application of all the above, the MS submitted (with some overdue exceptions) by the end of 2019 the Integrated National Action Plans for Energy and Climate, which describe the MS strategy towards 2030. (Kettner, et al., 2020).

c) National Plan for Energy and Climate

The EU Member States are obliged, under the new Regulation (EU) 2018/1999 on the Governance of the Energy Union, to draw up a ten-year National Energy and Climate Plan (ESEC – Economic Social and Environmental Council) for the period from 2021 to in 2030. The MS submitted in early 2019 the draft ESECs, which were subsequently thoroughly evaluated by the Commission, which in June 2019, made Recommendations to the MS to amend their drafts, with aim to increase their level of ambition. Subsequently, the MSs had until 31.12.2019 to submit the revised ESECs taking into account the recommendations of the European Commission (Popescu, et al., 2018).

4.3 Energy issues in the area under consideration

The United Arab Emirates (UAE: Abu Dhabi, Ajman, Dubai, Umm al-Qayyan, Ras al-Qaima, Sharia, Fujairah) is a federal state of seven emirates located at the southeastern tip of the Arabian Peninsula. Persian Gulf to the north, Oman to the

east, and Saudi Arabia to the south and west. The federation was formally established on December 2, 1971, and the capital of the UAE is Abu Dhabi. Arabic is the official language of the United Arab Emirates, and the currency is the Dirham (AED) (Emir, & Bekun, 2019).

With one of the highest gross domestic product (GDP) percentages of the Gulf Cooperation Council (GCC), the UAE prioritizes the economic development and policy of the Gulf Cooperation Council. It is also one of the best examples in the region of an economy that has moved away from a dependence on the energy sector. Initially driven by Dubai, and more recently by Abu Dhabi, a significant percentage of GDP comes from non-oil revenues.

Dubai is part of the seven United Arab Emirates. From relative obscurity, this emirate has evolved into a huge regional power. The country is 16 meters above sea level, with Sharjah to the northeast, Abu Dhabi to the south and the Sultanate of Oman to the southeast. It is also the largest city, the main port and commercial center of the federation (Pregger. et al., 2020).

As mentioned above, while many believe that Dubai's economy is completely dependent on oil and gas, this sector comprises only 6% of the country's economy. In fact, the share of gas revenues in the UAE is only about 2%. Nevertheless, low energy costs are a driving force for other business activities. According to official data from the IMF, in 2016 domestic GDP increased by about 3%, while in 2017 the growth was marginal and amounted to 0.8%. UAE GDP growth is estimated at 2.5-3% for the coming years (Tagliapietra, et al., 2019).

4.4 The Dubai crisis

The oil-rich emirate has not escaped the great financial crisis that plagues international markets. The Dubai Stock Exchange has fallen 7.6% in 2018 to its lowest point in 18 months during the world economic crisis. Overall, the general index has fallen by 14%, dragging the real estate market. O'Donnell, the CEO of Nakheel which is the world's leading property developer, stressed that Nakheel's new project would have a psychological impact on the real estate market, but denied that this was the reason for starting the project. "We have been working on this plan for six years

and the foundations have already been laid", the president of the company emphasizes and adds: "The plan will go through two or three economic cycles. When you work in a company you can not just stop in the middle of a project. We believe in what we do, even in difficult times". Nakheel has built some of Dubai's most magnificent works, such as the Palm Tree Islands and The World - a cluster of 300 islands that map the Earth - off the coast sea of the city. Other ambitious multibillion-dollar projects are still underway, including a submarine pipeline and Dubailand, a Disney Land-related entertainment program (Salah, 2010).

The global financial crisis did not leave Dubai unscathed either. The country's financial giants are drowning in debt and proceeding with layoffs while the paradise of real estate and tourism, the state investment company Dubai World, can not pay its obligations. The emirate government is asking for a six-month freeze on its debt repayments, as the collapse of property prices and the international recession have burdened it with debts of \$ 59 billion. At the forefront of the economic downturn is Dubai's economic, developmental and ultimately tourist paradise in the United Arab Emirates. The Emirate, which with its constructions and golden life became a model of development for the whole world overnight, is unable to repay the unbearable debt of 60 to 80 billion dollars. Two of Dubai's top groups have said they are unable to repay their debt and have asked their creditors to be patient, at least until next May. From this announcement alone, the global investment climate has been negatively affected, with indicators in major markets under severe pressure, which is why city-state development has shifted to trade and tourism financing to make up for the gradual shortage of oil wealth. But the biggest economic crisis in decades has changed that. Property prices in Dubai fell by about 50% in one year, which plunged the major construction sector. The redundancies were the first measure of support for companies that continue to falter. Hopes are now in the central federal government (Goby & Nickerson, (2015).

Dubai is one of the seven self-governing Emirates that make up the United Arab Emirates. He escaped from the Middle Eastern way of life thanks to the vision of Sheikh Maktoum Bin Rashid al Maktoum. Within a few years he changed the way of thinking in the Middle East with the construction of famous artificial islands of luxury hotels of the tallest building in the world, the first indoor ski slope. But the global credit crunch and recession bring it to the brink of bankruptcy.

Investors in Asia have been left out of risky Asian stocks and collapsing shares as concerns are raised, that Dubai's failure to meet its obligations could rekindle the financial turmoil caused by the credit crunch. Shares in Tokyo and Hong Kong have been shaken by suspicions that investors may have been exposed to Dubai World and Nakheel, a Dubai-based company that built palm-shaped islands in the Persian Gulf and designed cities from Pakistan to Africa. The emirate, which has emerged from obscurity and become a global commercial and tourist destination, will ask the state-owned company's creditors to agree to freeze billions in debt as a first step towards reconstruction. The news for the company's earnings shook the markets recovering from the collapse of the US housing market and the toxins that threatened to dismantle the global financial system last year. Analysts expect financial support from Abu Dhabi, which, like Dubai, is a member of the United Arab Emirates and produces most of the UAE's oil, but is confident that Dubai should abandon its heavy investment model in real estate and foreign capital and labor inflows. According to an analyst of Asian banks, the crisis in Dubai could have a "significant impact" on banks across Asia. At the same time, builders from Seoul to Sydney are worried that the money they expected from Dubai's grand construction projects, including the tallest building in the world, will not be paid. Australian construction company Leighton Holdings said it was confident it would get the money it owed from some construction projects in Dubai, but its share fell more than 3.5%. The Emirates's debt problems are a result of the real estate bubble that erupted when the financial crisis derailed its plans to become a magnet for tourism and a regional haven for everything from financial services to media and entertainment. It is estimated that if creditors reject proposals to suspend short-term debt until May 2010, the Dubai government will be forced to hammer out international real estate (Reisz, 2010).

The demand for a cessation of payments has led to the downgrading of several Dubai state-owned companies. Dubai has been in the spotlight since state-owned investment firm Dubai World asked its creditors to "freeze" \$ 59 billion in debt by May next year, announcing at the same time restructuring plan. The company was due to repay \$ 3.5 billion of its debt next month, which was impossible due to the global crisis and the economic downturn. The debt "freeze" also applies to Dubai World subsidiary Nakheel, which operates in the real estate sector. DP World, the world's fourth largest port management group controlled by 77% by Dubai World, will be

exempt from debt "freezing". The call for a moratorium has led major rating agencies to downgrade several state-owned companies in the emirate amid worries about whether Dubai will be able to repay its debt. A negative development could lead to a larger debt default after the Argentine crisis. Analysts estimate that Dubai has paid the price for an impressive economic model based on foreign capital and large construction projects. This development is a reminder of how vulnerable the global economy remains as the bursts of the financial crisis continue to be felt, causing a rift in the international stock markets but also in the European banking sector and companies around the world with large shareholders in the Middle East, such as the stock market and several German banks are facing potential losses of \$ 40 billion since opening in Dubai, which has pushed the DJ Stoxx , recording losses of 5%. Among the biggest losers are HSBC, Royal Bank of Scotland, Lloyds Banking Group and ING, whose shares fell more than 4%. These banks are among the nine that took out a syndicated loan to Dubai World in June 2008, according to Thomson Reuters. Dubai's economic crisis and the downturn in its stock market, which continues unabated, are causing concern in the international financial market (Huang &Xiong, 2010).

4.5 Dependence on oil production

The rapid increase in the earth's population and the relative improvement in the standard of living of man, especially after the end of the industrial revolution, resulted in an increase in total energy consumption. Oil remains to this day the main energy source worldwide, while together with coal, which fell sharply in 2018, and natural gas, which has a steady upward trend, serve more than 80% of global energy needs (Tiwari, Aet all. 2021). Hydrocarbons have been used by mankind since ancient times for various uses. It is worth noting that China, although the second country in consumption, with about 13 million barrels of oil per day, ranks 9th in the corresponding consumption ranking per capita, due to its extremely large population. The largest oil production in the world is taking place in the Middle East region, at a time when maximum consumption is related to the constantly and rapidly growing economy of Asia. It is worth mentioning that only drilling can finally certify a hydrocarbon deposit. Geological, geophysical and seismic methods are used by companies in order to find suitable drilling targets and identify potential oil fields.

Very often potential deposits, ie resources that have not yet been certified by any drilling, are referred to as deposits incorrectly, as the possibility that they do not exist is real. The uncertainty factor significantly affects the exploration of global hydrocarbon deposits (Hasanli, & Ismayilova, 2017).

4.6 Conclusion

Dubai is the second largest city after Abu Dhabi. In 1822 its population numbered just over 1000 inhabitants, most of whom lived below the poverty line. By 1905, Dubai, under the rule of the Al Maktoum family, had been transformed into a shopping mall powered by the bean industry. The Great Depression, however, devastated the economy of the emirate, and the Japanese scientists who found a way to cultivate the pearls gave it a shot in the arm. By 1959 electricity generation was virtually non-existent, making the city almost invisible to passing Gulf ships at night. However, the discovery of oil radically transformed Dubai, as it did in the other Gulf states. In 1966, the Dubai Oil Company discovered four offshore oil fields and exports of Gold began three years later. New oil and gas fields were soon discovered, and by 1976 hydrocarbons accounted for two-thirds of GDP. However, Dubai's reserves were limited. In 1991, oil production amounted to 410,000 barrels per day and by 2006 the sector's contribution to the country's total GDP was only 5.1%. The Maktoum family used the proceeds from the exploitation of oil in a series of projects aimed at making Dubai a regional trading center. The excellent geographical location of the emirate was the key to the development of transit trade. Goods from Asia could be transported by sea to Europe and vice versa.

Thus, the impetus was given for the construction of titans for the era and the area of infrastructure projects such as the ports of Rashid and Jebel Ali. The last with an area of 52 sq.m. is the largest port in the world, capable of accommodating the largest ships and often serves the US Navy. In 1985, the Free Economic Zone was formed next to the port of Jebel Ali. Dubai soon expanded its Free Zone activities to include supply. Financial Services from the Dubai International Financial Center. Until 2009, the Center housed 450 financial services companies and 300 ancillary companies. In addition, the emirate created Dubai Media City for companies focusing on media, marketing services, publishing, music, filmmaking, the internet, video

games and entertainment. The same attention that was given to maritime transport was given to air transport. Emirates Airlines was founded in 1985 and by 2007 the company's fleet numbered 119 aircraft flying to 61 countries. Air transport has given a big boost to Dubai's tourism development. It is indicative that of the total number of visitors to the Dubai Mall in 2007, which is the fourth largest in the world, 34% came from European tourists and 27% from tourists from the Middle East.

To attract even more tourists, the emirate has built the world's first seven-star hotel and, among other attractions, a giant indoor ski slope. Real estate prices skyrocketed until the end of 2008 when the global crisis that began in the United States made a strong appearance here as well. It was the period when ambitious projects took shape, such as the construction of the tallest buildings in the world at the famous Burj Dubai and the construction of the Largest Artificial Islands. However, the implementation of these projects was the result of excessive lending. The rapid decline in demand for luxury housing and tourism services has crashed the local economy. As a result of the recession in the construction sector, financial institutions found themselves in a difficult position. Property prices fell by an average of 40%, sales fell and profits were zero.

According to official announcements by the Eilat government, GDP grew by 6% in 2008 to 1% in 2009 compared to the IMF, while other analysts were more pessimistic, citing a recession of as much as 5%. In February 2009, Morgan Stanley announced that \$ 263 billion worth of construction projects had been canceled or delayed and that Dubai had been turned into a forest of cranes and dead construction sites. In the same year, he sold a debt of 10 billion to the UAE Central Bank, which used to support the debts of the state-owned companies Dubai Holding, Dubai World and Investment Corporation of Dubai. However, this effort did not succeed. In September, Dubai World began talks with trading banks to restructure part of its \$ 12 billion debt. In October, it laid off 10,000 low-income workers in a bid to save \$ 800 million over three years.

The crisis culminated on November 25, 2009 when Dubai World borrowed \$ 5 billion from two state-owned banks and at the same time issued a statement urging creditors to extend the debt repayment period to May 30, 2010, putting the global financial system causing a fall in the stock markets. No one knew which banks or other financial institutions were exposed to Dubai World credit risk. The situation was complicated by the fact of the non-issuance of consolidated financial statements by

Dubai World. The IMF estimated that the debt freeze totaled \$ 22 billion, of which 12 were syndicated loans, 7.5 were private loans and 2.5 billion were bonds. The recession translated into a sharp decline in the population by 9% in 2009. A law gave the unemployed foreigners 30 days to leave the country. The law of escape was reinforced by laws that demanded the imprisonment of those who could not pay their debts. Reports reported thousands of cars being abandoned at Dubai airports. The Indian embassy said that in March 2010 employers in Dubai booked 20,000 seats for flights to India. Fortunately, it was immediately realized that if the root of the problem was not addressed, the crisis would spread throughout the UAE, threatening even their cohesion.

The Abu Dhabi government and the UAE Central Bank have offered Dubai World a \$ 10 billion bailout package to relieve it of some \$ 59 billion in debt. The announcement of the Dubai rescue reassured investors, creditors and ordinary citizens by assuring them that the government would always act to support the market and internationally accepted business practices. Stock markets rallied, the dollar rose against the yen, the euro against both and Asian's swaps intensified. The reaction was stronger in the West as the Dubai "bubble" was largely financed by foreign investment funds, especially from European banks such as RBS and Standard Chartered. In contrast, developing countries did not show much concern because their banks' exposure to Dubai's risks was limited. Of the \$ 10 billion, \$ 4.1 billion was used to pay off the company's Sukuk debt obligations, on which the famous palm-shaped artificial islands were built. The remaining \$ 5.9 billion Billion dollars were spent on repaying the company's commercial creditors and contractors (UAE-Yearbook, 2019).

Chapter 5 Methodology

5.1 Introduction

This chapter describes the methodology used in this research. Describes in detail the purpose of the research, the research questions, the research tool and its sample.

5.2 Aim of the study

This research aims to study the political economy of energy in the United Arab Emirates

5.3 Research questions

The research questions are as follows :

1. How important is RE to the specific country energy future?
2. How important is it that the Federal government invests in renewable energy power?
3. Participants had to choose between the alternatives: increased exploration and mining for fossil fuels or increased development of renewable energy such as wind and geothermal for electricity and wood waste to turn into fuel for cars and other vehicles to provide electricity and transport fuel in NZ
4. Do you support or oppose the use of renewable energy for providing our electricity, fuel and heat?
5. What importance do you attribute to the increased use and expansion of renewable energy?
6. Which are your three preferred sources of energy beyond 2025 for the country?
7. Which energy sources should be promoted for the production of heat and electricity?
8. What do you think is important for country future energy policy?
9. Do you think that the country has neglected other sectors of the economy due to energy growth?

10. How does the country utilize resources and how does it manage state funds at the energy and political economic level?

5.4 Research tool

The structured interview was a research tool. All respondents answered the same questions in the same order.

5.5 Research sample

The sample of the research consisted of 5 respondents who were suitable to answer the questions asked by the research participant. The respondents are active professionals in the field of energy under the following capacities:

Participant 1: Wind Energy Engineer – Provides technical support and assists in the development of the electrical and civil engineering design criteria.

Participant 2: Environmental Compliance Officer - Researches, develops, and prepares recommendations and technical reports related to regulatory issues and environmental management

Participant 3: Electrical engineer - conducts detailed installation documents in terms of electrical and construction

Participant 4: Environmental Consultant - conducts research, environmental management planning and site surveys

Participant 5: Energy Analyst – works in on-site renewable energy feasibility assessments

5.5 Conclusion

This chapter describes the methodology used in this research. He presented in detail the purpose of the research, the research questions, the research tool and its sample. The next chapter analyzes the results of the study

Chapter 6 Results

6.1 Introduction

This chapter analyzes the interviews conducted in the context of this study in order to answer the following research questions:

1. How important is RE to the specific country energy future?
2. How important is it that the Federal government invests in renewable energy power?
3. Participants had to choose between the alternatives: increased exploration and mining for fossil fuels or increased development of renewable energy such as wind and geothermal for electricity and wood waste to turn into fuel for cars and other vehicles to provide electricity and transport fuel in NZ
4. Do you support or oppose the use of renewable energy for providing our electricity, fuel and heat?
5. What importance do you attribute to the increased use and expansion of renewable energy?
6. Which are your three preferred sources of energy beyond 2025 for the country?
7. Which energy sources should be promoted for the production of heat and electricity?
8. What do you think is important for country future energy policy?

6.2 Analysis

The present survey was conducted through the answers of the aforementioned five respondents under their described capacities to the above ten questions. Through their answers, conclusions about the research were made. The first question was: How important is RE to the specific country energy future. The first respondent answered that the importance of renewable energy should not even be part of a question. But, in this case, the answer can be pretty simple and complex, too. Without it, we would soon run out of ways to access energy. Also, the level of importance is high for two main reasons: it is estimated that within the next 200 years we would run out of fossil

fuels and, in the meantime, renewable energy sources can slow and reverse climate change. So, it's not a matter concerning only the United Arab Emirates, but the planet as a whole.

The second respondent stated characteristically: *"As our planet is on track for depletion of finite materials, that is currently significantly dependent on them, alternative energy sources are the only solution, especially for a country that its economy is extremely dependent on them. So, it's not only about their importance, but also about the urgency to adapt to them for an autonomous future in terms of energy needs."*

The third participant said that water, land and energy are precious resources in a global scale, but their exploitation has contributed to climate change and has led to the form of a new way of thinking about the energy future. In other words, the mitigation of renewable energy sources and the adaptation to new sustainable energy strategies can provide the required consistency to the planet, as well as the avoidance of future shortages. So, such integration to new energy policies is of high importance in a country dependent to renewable energy sources, as it would make it less vulnerable to inefficient resource management.

The fourth respondent stated that the United Arab Emirates has already adopted policies that support the independence of renewable resources and this gesture is extremely important if someone considers that natural resources are being replenished as fast as they are used. This means that renewable energy sources have enough quality and indefinite quantity and all power generation could rely on them. In the meantime, the harmful environmental consequences and the fear of shortage can be removed as part of this equation.

The fifth and final respondent stated that today, energy production stands for a significant use of renewable energy sources and this is the main question of the future of the energy, that it only needs two steps to reimagine it: reduce and reuse. These two words are synonyms to renewable energy sources, that can not only contribute to climate neutrality, but can also provide a new way of thinking to energy production and the techniques/policies around it. In this way, the United Arab Emirates can reimagine a future that harmful emissions and energy waste will have been minimized and will have been replaced by renewable energy resources.

The second question was: How important is it that the Federal government invests in renewable energy power. The first respondent answered that Federal energy policies can be the vital initial steps to a new, holistic approach to energy production, as they can provide competitive options compared to the current renewable ones. For example, since 2010, there is a rise in natural gas prices in the United Arab Emirates, but, at the same time, technology costs for renewable energy harvesting methods are falling. This fact by itself is not only a competitive option, but also a financial reason for the country to accelerate its renewable energy adaptation and tender its power-sector regulations.

The second respondent stated characteristically : *"According to my point of view, the great dependence of the country in renewable resources is acknowledged by the Federal government, as it has already been prepared for upcoming shortages of fossil fuels. Such eventuality would have destructive effects for the country's economy and, for this reason, there is a number of programs on the table that could reduce the dependence on finite materials and emerge alternative ways for energy power."*

The third participant said that the importance to renewable energy power investment has become more than an option, as it part of the United Arab Emirates' National Energy Strategy 2050 goals, which ensures that by then 50% of electricity will be generated from clean sources. This gesture is vital as fossil fuels alone cannot act indefinitely as the economy's primary catalyst.

The fourth respondent stated that renewable energy is in the forefront not only as an environmental topic, but also as a political and economic one. So, apart from the benefits to the environment, that are given, renewable energy can offer a new, more reliable way to invest in, as well as it can provide new tools for the United Arab Emirates' economy diversification and modernization. They can provide a new prospect for new and more high-paying jobs for the citizens and act as an instrumental strategy for the attraction of foreign investments, too.

The fifth and final respondent stated that the United Arab Emirates is a country of high prosperity, but due to its dependence to oil as the main economic driving force. So, the turn to alternative and renewable energy power is a strategic option for the promotion of the country's economic well-being, as it can not only meet the growing demands for power, but it can also reduce the country's dependence

on natural gas imports and preserve its lucrative oil exports and thereby preserve its economic success.

Afterward Participants had to choose between the alternatives: increased exploration and mining for fossil fuels or increased development of renewable energy such as wind and geothermal for electricity and wood waste to turn into fuel for cars and other vehicles to provide electricity and transport fuel in NZ

The first respondent said that the first thought of most people is that mining and use of fossil fuels is one of the top factors that contribute to climate change and, despite their reliability, their supply is finite. But we should take into consideration that we are on a transitional period that fossil fuels cannot become obsolete, as the energy they provide is hard to replace and the technology regarding to their extract is constantly improving, making them an even more competitive option. But I firmly believe that it is crucial that we move toward a low-carbon future, that renewable energy will be the only supply to energy needs.

The second respondent characteristically : *"I can think of plenty reasons why the increased development of renewable energy, is not only a sustainable, but a vital solution for the future of the energy supply, but there are two main reasons why the turn to clean sources is more crucial than ever. Renewable energy cannot only alleviate pollution and global warming, but it also can survive longer than fossil fuels. Even though in terms of reliability renewables cannot reach a high level, they have so many perspectives to enhance dramatically the quality of everyday lives and to ensure a sustainable future".*

The third participant said that Even though renewable energy is considered to depend on expensive technologies and fossil fuels are currently cheaper and easier to ship and store, there are major aspects in renewable energy that make it the only solution for the future electricity provision. First of all, some sources like solar and wind power are totally clean sources and can be harnessed from inexhaustible natural processes. Also, if we take into consideration that the technology on renewable energy is constantly improving its reliability and its efficiency, I cannot think of any reason why fossil fuels could stand as a choice against renewable energy sources.

The fourth respondent said that even though that fossil fuels are the main source of energy, their exploration, use and mining processes emit huge

concentrations of CO² into the atmosphere, which contributes in an irreversible damage to the environment, as well as in the global warming. Also, it is estimated that in 200 years fossil fuels will cease to exist. So, a better advantage of renewable sources of energy will not only reverse the above effect, but will drive the world into a more sustainable future.

The fifth and final respondent stated that renewable energy and especially solar and wind energy are the only choice to a sustainable development, as they are both clean, inexhaustible and can move towards a healthier and greener planet. Also, even though biomass can emit a considerable number of pollutants, it is thought that it won't contribute to climate change. Also, it is cheaper, it can minimize the overdependence on fossil fuels and will always be available.

To the next question, the survey participants were asked to answer the following: Do you support or oppose the use of renewable energy for providing our electricity, fuel and heat?

The first respondent answered that it is not only important, but vital that we support renewable energy sources as their significant potential can render fossil fuels obsolete. Even though the research for new methods to use renewable sources, like solar power or geothermal, for electricity, fuel or heat is ongoing it has already underscored its competitiveness regarding to traditional generation technologies.

The second respondent stated characteristically : *"To my point of view, the use of renewable energy is quite important in a country that its population and the demand for energy increases constantly and the current source of fossil fuels is about to be limited. In other words, it is necessary that renewable energy resources are explored, as with proper utilization and planning can provide a sustainable solution for the United Arab Emirate's energy needs."*

The third participant stated characteristically: *"Personally, I consider that the turn to renewable energy is the only way for the country to find the golden ratio between its economic needs and its environmental goals. Though, as we speak for a country with high consumption of electricity, 13.2 MWh/capita, I have to admit that there still work to be done for this golden ratio to be achieved."*

The fourth respondent stated that there are several reasons that make the use of renewable energy an attractive option to meet the United Arab Emirate's electricity,

fuel and heat needs. For example, we refer to a country that receives almost 10 hours of sunlight per day, for almost 90% of the days per year. This by itself is promising, as clean sources and can cover a remarkable percentage of residential and buildings sector's energy needs.

The fifth and final respondent stated characteristically :*" I think that in an ideal plan would be that renewable energy could not only cover the needs that you mentioned, but also has the potential to insulate the country from the dependency on power produced by fossil fuels. So, I firmly believe that investments in technologies about renewable sources of energy should continue in order for these needs to be covered as much as possible."*

The next question was :What importance do you attribute to the increased use and expansion of renewable energy?

The first respondent answered that renewable energy may not have gained so much popularity if it wasn't the is the key factor to the turn into a green economy and sustainability, which are extremely important in an environment of constant economic and urban development, that has to take into account climatic considerations, too.

The second respondent stated characteristically: *" i think that from a political point of view, domestic renewable capacity is one kind of reassurance that unforeseen circumstances, such as geopolitical issues, will be eliminated and domestic energy needs won't be an issue of foreign policy. What is more, from an economic point of view, renewable technologies can be used as a means to strengthen economic relationships abroad, as they can generate major new export revenues"*

The third participant saidthat one of the main reasons of increased use of renewable energy is the need to create an environment of long-term sustainability to the economic sector, as it cannot only render the country the leader in developing environmental strategies, but it can also help to the creation of approximately three times more jobs.

The fourth respondent stated that taking advantage of renewable sources is the minimum commitment in terms of environmental issues. But, the most important characteristic is that clean technologies encourage is the great opportunity they offer. They guarantee a sustainable growth, that is vital for a country that seeks to diversify its sources in a profitable way.

The fifth and final respondent stated that the main idea beyond renewable energy usage and expansion is that it can offer the solution to three main challenges: the reduction of carbon footprint, the sustainable growth of the economic sector and the disengagement from finite fossil fuel resources.

Respondents were then asked to answer the following :Which are your three preferred sources of energy beyond 2025 for the country?

The first respondent answered that now, that fossil energy sources are about to play a secondary role, my three preferred future sources of energy are solar power, due to its significant abundance, waste-to-energy, as it minimizes the environmental footprint and wind power, due to its great efficiency potential.

The second respondent stated characteristically: *"I consider that solar power, nuclear energy and the conversion of waste into energy are three sources, which are reliable, environment-friendly and economically feasible."*

The third participant said characteristically :*"I tend to support renewable sources of energy, but I also support that reliability is the key to a viable sustainability as well. So, three sources that meet such requirements are solar, wind and geothermal energy"*

The fourth respondent stated characteristically: *To my point of view, nuclear energy and solar power are two of the main options that outweigh in terms of efficiency, as they characterized by high and consistent production capacity. Another one valuable addition these two sources of energy would be the wind power which can significantly contribute to electrical energy needs"*

The fifth and final respondent stated that there are plenty of energy sources that could be used instead of fossil fuels, but I think that three of the most important are solar power, power generation through waste and nuclear power. All three of them stand out as alternatives because they not only ensure the country's energy security for the future, but also, they converge to environment-friendly approach.

Then the question was which energy sources should be promoted for the production of heat and electricity?

The first respondent said that even though that all the three above sources of energy are acknowledged as efficient enough, waste-to-energy method doesn't seem

to be the preferred one for the United Arab Emirate's policies, as there are currently insufficient investments for this method. But it is believed that future incremental gas prices will revert this situation and this method will gain more popularity. Also, I think that apart from the energy obtained by the sun, geothermal energy has a great potential, too.

The second respondent stated characteristically: *"I think that the epicenter in this question is the environment, so two of the most promising energy supplies that should be promoted is nuclear energy and biomass, as they can both reduce effectively the overreliance of fossil fuels and be the answer to energy gap, while nuclear energy has an extremely small carbon footprint"*

The third participant said characteristically " *As I mentioned before, geothermal energy is a reliable source, which is currently not that widespread as an idea in the particular country. Though, it should be promoted as it is considered to be even more reliable than the nuclear power. Also, due to current research, geothermal plants in the particular area can produce around 1,000 megawatts of electricity"*

The fourth respondent said :*"I firmly believe that the key to energy sources that produce heat and electricity is a more widespread implementation of clean energy production. In other words, solar or wind energy not only minimize the risk of environmental disasters and preserve natural resources, but they can also enhance power supply reliability. "*

The fifth and final respondent stated characteristically:*" To my perspective, two of the energy sources that might still be questionable, but have great opportunities, are nuclear power and the conversion of waste into power, as they both have no impact to the environment, they have small land footprint, as well as they are cost-effective and reliable."*

Then the question was: What do you think is important for country future energy policy?

The first respondent answered that the transition from fossil fuels to a sustainable energy mix requires an actionable plan and a comprehensive long-term policy that will ensure an economic development along with the preservation of the well-being of the country's population. In other words, energy policy can be divided into many more aspects such as concurrent financial, socio-economic and

environmental benefits. So, any policy cannot should not face only the economic direction, but it should be executed with commitment and provide tangible perspectives to other sectors, too. In this way, the benefits of each policy can be maximized.

The second respondent stated that as we refer to a transitional regime, that its domestic consumption is currently mainly based on fossil fuels and is about to shift this dependency into renewable energy, it would be a missed opportunity if the country didn't grab the opportunity to establish its leadership on the prospects of undergoing regional trade in renewables sector. Close cooperation with other countries and the extensive investments in the pursuit of alternative means of energy production can render UAE as the key partner to this international effort.

The third participant said characteristically: *"I think that any future energy policy cannot be 100% successful, unless there is a shift to the perception and culture of energy consumption. The high rates of building construction and infrastructures cannot only be translated into a fast-growing economy, but also into high levels of consumption needs. In the ideal case that all these needs are satisfied by renewable sources of energy there is still the question of what happens with the environmental impact due to the footprint of massive infrastructures. "*

The fourth respondent stated that the diversification of energy sources has a projection to future energy needs, which involves a part of uncertainty, if someone considers that they are related to a parallel progress of global policies, technologies and economics. In other words, the growth rate of renewables in a global scale should not be underestimated. Instead, it should be perceived decisively as a motivational aspect for an efficient growth of renewable energy sources, as the establishment of the transition to new energy demands.

The fifth and final respondent stated that a future energy policy that aims to a more extended use of renewable sources should create economic opportunities only in a condition that domestic consumption needs have been taken into account. The diversification of the energy resources away from fossil fuels can be proved quite beneficial in many ways, such as the achievement of political good will internationally or the reduction of the carbon footprint, but domestic energy needs and

the strengthening of local economy, is quite important, too. In other words, any policy for the future should provide decisive planning for any scale that may affect.

Next question was: Do you think that the country has neglected other sectors of the economy due to energy growth?

The first respondent answered characteristically :*"In this case, I don't think energy growth affected in a negative way any other sector of the economy, as economic growth is the driving force to the form of energy policies. Of course, there have been implemented taxation tweaks, readjustments and structural changes, but this doesn't mean a negative impact on the economy, but a long-term shift to strong economic pillars that are not oil-dependent. "*

The second respondent stated that energy growth not only prevents neglectation of economic sectors, but also makes sure that they are going to be well-equipped and resilient in future challenges to come. In other words, the new technology and the new way of life that energy growth can bring with, can act as a defense mechanism to any possible fallout of key industries, such as aviation, tourism, logistics, etc. Under this hypothesis, all energy policies, even conservative ones, aim on a maximized growth in other sectors of the economy, too.

The third participant said characteristically :*" I consider that there is a feedback and a bidirectional relationship between energy growth and the economy, as the one takes the other forward on equal terms. So, if energy growth didn't meet the current or the future needs of the economy, then some sectors would indeed be neglected. And, if economy couldn't support energy growth, then finite fossil fuel dependency would be a major problem."*

The fourth respondent stated that in the debate on the relationship between economic growth and energy growth, the answer is diversification and promotion of novel policies that would facilitate energy growth, as this can fortify and facilitate future economic investments. This happens because economy cannot be based on unpredictable sources of income. So, beyond energy growth there are plenty of preventative and reactionary policies, with which upcoming economic challenges can be confronted and oversaturation in any sector of the economy can be prevented. In this case, prevention predominates neglectation.

The fifth and final respondent stated that it is believed that a long-term growth can be powered both by a sustainable energy strategy and a policy framework that promotes energy efficiency, renewable energy and environmental protection. Though, it is still not clear if such strategies take into account other economic sectors and, in the meantime, there are not still solid proofs that there is a causal relationship between them. So, even though government revenue streams can offer a level of flexibility in order for volatile periods to be managed, a decisive plan should also include how energy growth can benefit others sectors, that contribute to the gross domestic product. For example, aviation and tourism that go in with it by 13%, a percentage that cannot be ignored.

In the last question the participants were asked a question was:How does the country utilize resources and how does it manage state funds at the energy and political economic level?

The first respondent answered that the United Arab Emirates has an ambitious strategy for renewable energy that has been set as a priority both in a political and in an economical level. According to UAE Energy Strategy 2050, the main target is the achievement of an energy mix clean and renewable energy sources, as well as nuclear power, that will be able to cover economic and environmental requirements. Also, it is estimated that the country could save almost Dh705 billion only by this sector.

The second respondent stated that based on the hypothesis that the focus on energy sector investments will inevitably cause economic growth, it makes sense that are invested Dh600 billion to meet the demands for energy sources' diversification. It is actually a move that will save Dh700 billion and will ensure a sustainable economic growth to the country.

The third participant said that by the announcement of the United Arab Emirates' Energy Strategy for 2050, the country made clear that its target is to fortify the comfortable economic environment and the growth across its sectors through strategic policies that focus on the energy sector. The country recognized a great economic potential in renewable energy and for this reason, it was mentioned in the UAE State of Energy Report 2015 that the power generated from fossil fuels will drop to less than 76% in 2021 due to the growth of energy efficiency. This gesture lays on

decisive political actions, which not only increase awareness of energy consumption in the future, but also ensure a sustainable economic growth.

The fourth respondent stated that despite the country's investments in various economic sectors, energy is a valuable weapon to its economy. So, a major part of the political and the economic forces aims at the achievement of an energy mix that will meet the Emirates' economic requirements and its commitments in terms of environment. According to this strategy, it is estimated that by 2050 the energy will come by 38% from natural gas, by 12% from coal, by 44% by clean energy and by 6% by nuclear power. The achievement of such a goal is quite challenging if someone considers that currently the power generated from natural gas is almost 98% and the proposed diversification requires almost Dh600 billions of state funds.

The fifth and final respondent stated that the United Arab Emirates is currently working on the Energy Strategy for 2050, which can be seen as a major economic investment of Dh600 billion that is expected to bring upon a 6% annual growth and to transform the contribution of clean energy from 25% to 50% by 2050. This is the first energy strategy in the country, that is based on a model of demand and supply, which has long-term targets, such as the acceleration of efficient consumption of energy, the minimization of carbon footprint, as well as a global influence for country's economies.

6.3 Conclusion

The analysis of the interviews showed that alternative energy sources are very important for the United Arab Emirates and that is why such an investment should be a priority for the government. All respondents chose increased development of renewable energy sources, such as wind and geothermal. Also do all respondents support the use of renewable energy sources to supply electricity, fuel and heat? They consider the increased use and expansion of renewable energy sources very important. Regarding the three preferred energy sources for the country, most respondents agree on the following three: solar, wind and geothermal energy. Regarding the energy sources that should be promoted for the production of heat and electricity, the respondents mention nuclear energy and biomass, as they can both effectively reduce

the excessive ratio of fossil fuels and respond to the energy gap. Finally, it is concluded that a future energy policy aimed at a more extensive use of renewable sources should create economic opportunities only provided that the needs of domestic consumption are taken into account.

Chapter 7 Challenges and scenarios for the future

7.1 Introduction

Since the beginning of the century, the UAE, taking advantage of the large increase in oil prices, has been experiencing a 7% increase in their GDP every year. However, a significant percentage of the state's profits are reinvested in the economy, both federally and locally, in an effort to develop an economy that is not based on the country's mineral wealth. Such reinvestments take the form of public-private partnerships and investments in infrastructure and various schemes to support programs such as education and training. However, the country and the region as a whole continue to face significant political, economic, social and environmental challenges. Externally, there is a growing threat of geopolitical instability including unresolved national and intercultural relations that have the potential to influence the economic and social structure of the UAE. Similarly, a number of global economic risks threaten the UAE's rapid international expansion, both in terms of volatility in regional and international markets and the potential for increased protectionism in the global trading system. Domestically, the UAE faces challenges in resolving social and political inequalities, including unemployment and income distortions. Finally, environmental pressures threaten the water resources, marine areas and clean air necessary for the growing population of the UAE and the flourishing of the tourism industry. Exploring the long-term effects of the challenges and opportunities facing the country, the World Economic Forum has developed a series of scenarios covering the period up to 2025. This chapter will cover the challenges and scenarios for the UAE

7.2 Challenges

The UAE faces many challenges in its quest for survival development. The main efforts that are moving in this direction are:

Institutional reform is called upon to address labor market distortions created by overworked labor in the public sector and to increase demand for low-wage and low-income private workers. Classification of the labor market on the basis of skills, nationality or the public vis a vis the private sector is an obstacle to achieving sustainable growth and increased economic efficiency. Given the rapid expansion of higher education, the relative shortage of work and the abundance of capital, the UAE can well be compared to the Singapore model, which has successfully moved from low-skilled to high-skilled industries. Investment in human capital should continue to focus on improving people's skills as a means of achieving sustainable economic growth.

Reducing exposure to external factors should be achieved through efforts to diversify the economy, which should be expanded by encouraging domestic investment, especially in the private sector, and expanding markets both regionally and internationally. In addition, to diversifying the economic base for tackling fluctuations in oil prices, increased investment in non-oil sectors may ultimately contribute to increased factor productivity. Economic diversification and sustainable development can be achieved by expanding the domestic financial system in such a way as to be able to finance the growth of real domestic investment. In particular, the development of a diversified stock market should be seen as an important opportunity to encourage the return on investment in the country, the wider participation of domestic investors and the encouragement of foreign investors who introduce new technologies in the country.

Finally, government deficits need to be addressed in a context that takes into account future fiscal sustainability as a precondition for sustainable growth in the long run. Fiscal policy should shift the focus from financing the economy to structural adjustment, which includes broadening the base of non-oil revenues, privatizing public enterprises and re-balancing grants and incentives.

7.3 Scenarios

Scenarios explore how the UAE can make better use of the resources at its disposal to offer opportunities to all citizens and continue to be the region's economic leader. The scripting process raised two key questions that could change the fate of

the country over the next two decades: Will UAE leaders be able to implement the necessary economic and political reforms and enforce the rule of law both in private as well as in the public sector? Will the UAE be able to maintain internal order and stability, especially within the uncertain and complex situation in the wider Gulf region? These primary questions are the structure of the scripts but the ideas that can be drawn from examining what they entail are even more vital. Thus, there are two issues that have emerged as of paramount importance for the future of the UAE:

Education and innovation: One of the key challenges facing the country is to ensure that its education system provides its citizens with the skills needed by the rapidly growing private sector, thus helping to diversify and rehabilitate the biosphere industry in the workforce. The scenarios show that ensuring the high qualification of citizens, as is the case in innovative economies, is vital for the country both in terms of utilizing its wealth-producing resources and in terms of achieving the goals of long-term economic stability.

Leadership and governance: The country's leadership and governance structures are key factors for its future development. While reforms have taken place at both federal and local levels in line with international standards, there is still room for improvement in the management of bureaucracy and the transparency of government structures. Scenarios show that this will have a significant impact on increasing the efficiency and effectiveness of government work and will help strengthen the country's ability to attract foreign investors.

Scenario 1. Will the UAE be able to use the wealth it has and the relations it has developed with the other Gulf countries, continuing its upward trajectory as a diversified and knowledge-based economy? In the "Oasis" scenario, the UAE utilizes regional integration to minimize instability in the region while upgrading human resources to engage the local population in a strong, but centrally planned, economy.

Scenario 2. Will UAE leaders allow regional violence to spread in the country, creating uncertainty for investors and thwarting reforms? "Storm" is a scenario where the existence of dramatic regional events puts the UAE in a difficult situation that only the country's leaders can actively manage. Reforms are at stake and increased spending does not lead to long-term solutions to demographic and economic problems

Scenario 3. Does the UAE Government intend to achieve the market-oriented goals of developing a market-driven international economy class by leveraging a stable regional environment and increased access to international markets to attract local and foreign investment in the private sector? The "Fertile Gulf" is a scenario in which the UAE consolidates its role as a global economic power by transforming into a center of innovation and industry and with investment and prosperity spreading to all seven regions.

7.4 Conclusion

The importance of renewable energy should not even be part of a question. But, in this case, the answer can be very simple and complex, too. As our planet is on a trajectory of finite material depletion, which today depends heavily on them, alternative energy sources are the only solution, especially for a country whose economy is highly dependent on them. Thus, it concerns not only their importance, but also the urgent need to adapt to them for an autonomous future in terms of energy needs. It was also said that water, land and energy are valuable resources on a global scale, but their exploitation has contributed to climate change and led to the formation of a new way of thinking about the energy future. In other words, mitigating renewable energy sources and adapting to new sustainable energy strategies can provide the required consistency on the planet, as well as avoid future shortages. Today, energy production represents a significant use of renewable energy sources and this is the main question for the future of energy, that it only takes two steps to rethink it: reduction and reuse. The United Arab Emirates is a country of high prosperity, because of its dependence on oil as the main economic driving force.

Chapter 8 Conclusions

The UAE is undoubtedly an extremely interesting country, from any point of view (social, economic, political) one observes it, because it always has new surprises in store. The UAE is really the definition of the rational and sound management of public revenues that are reinvested in the country itself, supporting and encouraging private initiative while continuously upgrading public services, from public services to infrastructure. It is commonplace that almost nothing that has been achieved so far would have been accomplished without the exploitation of the rich mineral wealth. Of course, this does not mean that oil alone is a panacea. In the UAE, however, oil and gas revenues have transformed this hostile region of the planet into a real oasis in the desert of the Arabian Peninsula, setting a standard for other landlocked countries. The homeland that, even though slowly, is now taking its first steps in this direction. There was nothing, everything had to be done from the beginning and today the UAE is an example of how a country should be built. It has been recognized internationally as an economic power and all this in less than four decades. Every year thousands of people from all over the world enter the country who dream of building their future on solid foundations such as the foundations of the UAE.

One of the key factors in the success of the UAE is the identity of the country which has not been altered despite the range of Immigrants who have entered the country. It is a proud Gulf Arab state, with the difference that it has built bridges of communication and friendship in the rest of the world, unlike some states in the wider Gulf region where conflicts and conflicts prevail. Peace, along with internal security, is therefore the building block of the UAE, and the country itself is one of the Arab world's best ambassadors to the rest of the world. It is surprising that plans for the future never stop.

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Appendix

Questionnaire

1. How important is RE to the specific country energy future?
2. How important is it that the Federal government invests in renewable energy power?
3. Participants had to choose between the alternatives: increased exploration and mining for fossil fuels or increased development of renewable energy such as wind and geothermal for electricity and wood waste to turn into fuel for cars and other vehicles to provide electricity and transport fuel in NZ
4. Do you support or oppose the use of renewable energy for providing our electricity, fuel and heat?
5. What importance do you attribute to the increased use and expansion of renewable energy?
6. Which are your three preferred sources of energy beyond 2025 for the country?
7. Which energy sources should be promoted for the production of heat and electricity?
8. What do you think is important for country future energy policy?
9. Do you think that the country has neglected other sectors of the economy due to energy growth?
10. How does the country utilize resources and how does it manage state funds at the energy and political economic level?