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THE REALITY AND FUTURE OF RENEWABLE ENERGY SOURCES IN THE GLOBAL ENERGY MARKET

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ABSTRACT. For a long time, traditional energy sources have been spreading a great deal of safety in meeting global energy needs, but with the natural depletion of their reserves and their continued increasing consumption as global populations and many changing factors increase, uncertainty has begun to revolve around the adequacy of these sources to meet the world's current and future energy needs. In addition to the concern for environmental pollution in general, the depletion of traditional energy sources and their effects on the environment has necessitated the search for other energy sources to ensure the supply and its continuation. Therefore renewable energy sources have emerged as inexhaustible and highly available sources on the planet, and the energy generated from them is clean. Furthermore, the significant developments brought about by technology in oil and natural gas extraction techniques from non-traditional sources and the light of their vast reserves of discovered Technically, recoverable sources have led to the export of these sources with renewable sources in the global energy supply mix to take an active role in the structure of the worldwide energy balance.

JEL Classification: example D02, O17, P31

Keywords: energy, energy market, renewable energy, global energy market

Introduction

The study's significance is in understanding the variety and progression of energy production, particularly with alternative and renewable energy sources, both for the present and the foreseeable future. The ability of fossil energy sources to continue to ensure global supply security is uncertain "in light of global economic and population growth, being depleted energy sources as well as unclear the future of renewable energy sources." This will lead to pressures in increasing demand for fossil energy sources, which will necessitate more significant changes in the diversification of non-traditional and renewable energy sources to ensure the security of supplies. Fossil energy sources are questionable about their inability to continue to provide global supply security "in light of global economic and population growth. As a result, it is essential to research alternative and renewable forms of energy and their role in the international energy market. This study aims to investigate the current situation and the possible outcomes for conventional, alternative, and renewable energy sources. It also acknowledges the level of

development and progress in energy sources, as well as the extent to which non-conventional and renewable energy can ensure that the world's energy needs and role in preserving the environment and achieving sustainable balance continue to be secured. This recognition is an essential part of the agreement. The research is predicated on the premise that non-conventional and renewable energy sources will contribute to the diversification of the global energy mix and its ability to ensure the security of supplies in the global energy market. This premise is the foundation upon which the research is built.

1. Literature review

The global market for renewable energy sources

The ongoing debate over the arrival of oil at its peak and the issuance of many studies and reports warning of the depletion of known reserves of fossil fuels, especially oil, created a tense atmosphere and increased concern about the adequacy of growing energy needs, and with fluctuations in the world in oil prices as well as environmental considerations calling for reducing fossil fuel consumption and resorting to clean and environmentally friendly sources, Increased global interest in renewable energies has been seen as a necessity to ensure future energy security and renewable energy sources are playing an essential role [in global energy1] markets, so that the use of renewable energies is now the best and first option for clean energy at a competitive price, complementary to traditional energy sources, and more than 170 countries have approved renewable energy targets, Some 150 countries have developed their own energy policies to stimulate investment in their renewable energy technology[2], and each renewable energy source has its own developments in the global energy market as follows:

1. Global solar and wind market

The continued improvements in technology and technologies for exploiting energy generated from the sun have added a great deal of reliability in using solar energy, primarily to provide electricity. All solar energy technologies have evolved and emerged, including solar cell technology and wind energy, are constantly changing. Wind energy is an inherent source of energy as well as reduces environmental pollution. Development can be observed in the global production of solar PV and wind energy, as shown in the following table:

Table (1). Total global production of solar PV and wind power for 2005-2017

Years	Global production of solar PV Gigawatt	Solar added Gigawatt	Global wind production Gigawatt	Added wind power Gigawatt

([1]) Ali Rajab, the development of renewable energies and its implications for the world oil markets and member countries, Organization of Arab Petroleum Exporting Countries (OAPEC), in: Journal of Oil and Arab Cooperation, Volume 34, Issue 127, 2008AM13AM14

([2] Organization of Arab Petroleum Exporting Countries (OAPEC), Secretary-General's 44th Annual Report 2017AM157

2005	5	1+	59	12
2006	6	1+	74	15
2007	8	2+	94	20
2008	15	7+	121	27
2009	23	8+	159	38
2010	40	17+	198	39
2011	70	30+	238	40
2012	100	30+	283	45
2013	137	37+	319	36
2014	177	40+	370	51
2015	228	51+	433	63
2016	303	75+	487	54
2017	402	99+	539	52

The table of researcher numbers is based on the information contained in:
Renewable Energy Policy Network for the 21 st Century(REN21), Renewables Global Status Report, 2018, p38, p42
Renewable Energy Policy Network for the 21 st Century(REN21), Renewables Global Status Report, 2017, p66, p77

Table 1 notes that global solar PV production reached 5 GW in 2005 and grew to 40 GW in 2010, was slowly increasing from 2005 to 2010, and the energy added during this period is modest. However, it should be noted that global production of solar PV increased significantly beyond 2010 to 402 GW in 2017 with the addition of significant energy compared to previous years and that these developments in solar output have made it an important time in the global energy markets and terms of wind energy, table 5 notes that global production of wind power and the amount of fuel added has evolved significantly for the extender. For example, the world's wind power production reached 59 GW in 2005. However, it increased to 539 GW in 2017 as the world's wind energy production increased, highlighting the most significant increase in wind power added in 2015 due to China's wind power production development.
It is new to note that the solar markets and the added amounts of solar PV are concentrated in China, the United States, Japan, Germany, Italy, India, the United Kingdom, France, Australia, Spain, respectively, the top ten countries in this [(3),] as 2017 saw increased interest in the construction of solar projects in many Arab countries, including kuwait projects, The first of these projects is the Noor 4 solar power plant project in Morocco, which is expected to be operational by the end of 2018 and is one of the most important solar energy production projects in the world, while wind energy markets are concentrated in China, which is considered The largest country in wind power production followed by the United States of America, Germany and then India, and in general the manufacture of wind turbines is concentrated in China, the European Union, India and the United States of America, and on the Arab side Morocco stands out in the lead by wind power production followed by Egypt, Tunisia, Jordan, Algeria, Bahrain,

([3](Renewable Energy Policy Network for the 21 st Century(REN21), Renewables Global Status Report, 2018, p39

Syria, Kuwait, and finally Lebanon, and Arab countries are seeking to develop the production of electricity from wind [4]

2. Global Hydropower Market

Hydropower is one of the world's most important sources of electricity production. China, Brazil, the United States, Russia, and Canada are the largest countries in energy production from water sources, followed by India, Norway, Japan, France, and Turkey. In addition, it is worth mentioning that some countries generate more than half of their electricity using hydropower, including Brazil, Iceland, Nepal, and Mozambique[5]. The hydropower market is booming globally and expanding in Asia, Europe, North and South America, and Africa due to its high efficiency and sustainability. The world's hydropower capacity has evolved from 723 gigawatts in 2001 to 857 gigawatts in 2007[6]. As a result, energy production from water sources is increasing from 2008 to the present day, as evidenced by the following table:

Table (2) Total global hydropower production for 2008-2017

Years	Global production Gigawatt	Added energy Gigawatt
2008	874	_____
2009	900	26+
2010	936	36+
2011	970	34+
2012	990	20+
2013	1000	10+
2014	1055	55+
2015	1064	9+
2016	1096	32+
2017	1114	18+

The table of researcher numbers is based on the information contained in:
Renewable Energy Policy Network for the 21st Century(REN21), Renewables Global Status Report, 2011-2018

Table 6 shows that global hydropower production reached about 874 GW in 2008. Despite fluctuations in the amount of energy added between global increase and decrease, global hydropower production grew to 1,114 GW in 2017. It is worth mentioning that the production of power from water sources is directly related to the amounts of water available (abundant water, water scarcity) in the producing countries.

([4] Organization of Arab Petroleum Exporting Countries (OAPEC), Secretary-General's 44th Annual Report 2017Former source, p. 165-170
([5]) organization Diagonal Arabic Exporting Petroleum (OAPEC), report Al , Amin General Annual Forty-first. 2014AM164
([6]) And Heep Issa Nasser, Global Renewable Energy Prospects, in : High Energy MarketsMi-Variables in the Strategic Landscape, Emirates Center for Strategic Studies and Research, Abu Dhabi, 2012AM333

Hydropower is produced in many Arab countries, including Algeria, Egypt, Tunisia, Iraq, Syria, Morocco, Sudan, Lebanon, and Jordan. However, its production is very modest compared to the rest of the world since the total of 12,079 MW/year of total hydropower production in the Arab countries in 2016 was 1[7]% of the world's total hydropower production for the same year.

3. Global geothermal energy market

Geothermal energy grows modestly when compared to that other renewable energies. Its markets are regular, and despite its slow growth, the world's total installed groundwater capacity has increased from 10.3 GW in 2008 to 14.1 GW in 2017, and the energy added from geothermal in 2017 is the most significant addition to the period (2008-2017), as shown in table 7: -

Table (3). Total installed geothermal energy "produced" in the world for 2008-2017

Years	Total world Gigawatt	Added energy Gigawatt
2008	10.3	0.3
2009	10.7	0.4
2010	10.9	0.2
2011	11.0	0.1
2012	11.3	0.3
2013	11.9	0.6
2014	12.5	0.6
2015	12.8	0.3
2016	13.4	0.6
2017	14.1	0.7

The table of researcher numbers is based on the information contained in:

Organization of Arab Petroleum Exporting Countries (OAPEC), Secretary-General's annual report (various numbers), 2010-2017.

Renewable Energy Policy Network for the 21st Century(REN21), Renewables Global Status Report, 2018, p36

The use and markets of geothermal energy are concentrated in the United States of America, the Philippines, Indonesia, New Zealand, Italy, Mexico, Iceland, Kenya, Japan, and Turkey. [8] Concerning the Arab countries, the exploitation of geothermal energy is still in its infancy, and some Arab countries are working to develop and build projects to produce electricity from geothermal energy.

([7] Organization of Arab Petroleum Exporting Countries (OAPEC), 44th Annual World Secretary's Report 2017AM163

([8] The Organization of Arab Petroleum Exporting Countries (OAPEC), the Secretary-General's 42nd Annual Report, 2015AM138

4. Global Biomass Energy Market

Biomass energy is characterized by the rest of the renewable energies in its diverse uses, in addition to its use in cooking and heating buildings and producing energy in factories, and producing electricity, turning biomass into the fuel of great importance in the global energy balance mix.

The amount of electricity produced from biomass worldwide in 2016 was about 112 gigawatts, representing about 504 TWh. The United States of America led the world by generating electricity from biomass, followed by China, Germany, Japan, and India, as well as producing energy from biomass in some Arab countries, led by Qatar, followed by Jordan, Lebanon, and the United Arab Emirates (UAE[9]), the energy produced from biomass in 2017 rose only by 1 TWh from 2016, to 555 TWh in 2017.[10]

Regarding biofuels, global production increased from 19,651,000 tons of oil equivalent in 2005 to 84,121,000 tons in 2017. However, at fluctuating annual growth rates between increase and decrease due to competition due to competition other types of fuel as well as costs, prices, and conditions required by biofuels to produce economically viable quantities, and the table below shows these facts and developments in global biofuel production for the period (2005) - 2017), as shown by table (3):

Table (3). Development of global biofuel production for 2005-2017

Years	biofuels 1,000 tons of oil equivalent	Annual growth rate
2005	19651	_____
2006	25666	30.6
2007	37429	45.8
2008	50109	33.8
2009	55894	11.5
2010	63906	14.3
2011	65680	2.7
2012	66848	1.7
2013	72415	8.3
2014	80009	10.4
2015	79866	-0.1
2016	81483	2.0

([9] Organization of Arab Petroleum Exporting Countries (OAPEC), 44th Annual World Secretary's Report 2017Former source, p.171 AM172

([10](Renewable Energy Policy Network for the 21st Century(REN21), Renewables Global Status Report, 2018, p35

2017	84121	3.2

From the numbers of the researcher based on the information contained in:
BP Statistical Review of world energy, June 2018, p45
BP Statistical Review of world energy, June 2016, p39

5. Global Hydrogen Energy Market

Hydrogen energy is seen globally as a renewable component of energy in the future global energy balance mix. On the other hand, it is seen as a complement to traditional global energy supplies. Still, progress in the use of hydrogen energy takes long periods. Despite work by some countries, such as the United States of America, to develop hydrogen energy use in many areas, particularly in transportation, hydrogen continues to be used as a source of energy production in its infancy. This is very modest, as some countries believe that hydrogen will eventually become the main energy source in the transportation sector (11). In general, the exploitation of hydrogen as a source of power generation requires a lot of investment and technological development in addition to working on the development of the hydrogen storage system and focusing on the safety of the use of hydrogen with high degrees of safety is one of the most important things that concerns the developers of hydrogen energy technologies, All of this increases costs and creates obstacles to achieving the goal of producing hydrogen energy with economic feasibility. However, with the success of many experiments and the development of ways to exploit hydrogen as an energy source, the question of market-telling products that adopt hydrogen in power generation has returned from the obstacles that need more time to overcome. [12]

Increasing energy production from renewable sources will be at the expense of traditional energy sources if it reduces global demand for conventional energy sources and their contribution to global energy supplies. In return, the global market for renewable energies will increase. As a result, their contribution to global energy supplies will increase. Moreover, the leading countries exploiting renewable energy sources are gaining advantages in their energy sector. As a result, environmental pollution and emissions that would change the climate and achieve some guarantee in terms of supplies are reduced.

Fourth: - Prospects for energy sources: supply and demand

Developments like the global energy market structure from the entry of modern production methods from non-traditional sources and the expansion of the exploitation of renewable sources of power generation, in addition to international calls to reduce environmental pollution from fossil fuels, all change the nature of the global energy consumption pattern and are influential in the

([11] David Hart, Energy Future: Are we heading towards the hydrogen economy?In: Risks and uncertainty in changing global energy markets - Implications for the Arabian Gulf region, Emirates Center for Strategic Studies and Research, Abu Dhabi, i1, 2006AM89 AM90

([12] Hashim Marzuk al-Shammari and Ammar Mahmoud Hamid, Future of Oil Demand in Light of Competing Alternative Sources, Journal of the Faculty of Management and Economics for Economic Studies/University of Babylon, Iraq, Vol. 322Version1, 2009AM107 AM108

outlook for energy in the future. In general, the global energy outlook varies from one international institution to another and varies for the same institution according to the scenarios adopted by the foundation, There are many expectations from international and non-international institutions and some global companies interested in energy affairs, but the expectations of the International Energy Agency and the Organization of Arab Petroleum Exporting Countries (OPEC) are the most important and most reliable in the field of energy.

The outlook for global energy demand and supply from the International Energy Agency (IEA) and OPEC depends on many assumptions, primarily the growth of economic activity represented by GDP and changes in the global population, as well as taking into account global energy prices and the sophistication of different energy source technologies, and the interest in trying to increase reliance on alternative sources of fossil fuels and environmental concerns take up a large part in their forecast numbers.[13] As well as many variables and factors are seen in the numbers of future expectations,

Overall, the International Energy Agency (IEA) forecasts that the global economy will continue to achieve a solid average annual GDP growth rate and that the population will increase. If the economic growth rate measured by GDP is expected to be 3.7% in 2020-2030, economic activity for the following years after 2030 is expected to decrease slightly to achieve average annual GDP growth of 3.1% during the period 2030-2040. Emerging economies such as China and India are also expected to grow faster than the rest of the world. In terms of the world's population, the International Energy Agency expects to reach more than 9 million in 2040 while currently reaching 7.5 million , which is an increase in the world's population. The continued growth of the global economy is an influential factor in influencing global energy demand and supply, and these projections are reflected in global energy markets.

1. Outlook for global energy demand

The International Energy Agency (IEA) agrees with OPEC on its global energy demand projections, which assume a significant increase in global energy demand in the coming decades. These assumptions resulted from the belief of a growing population and continued strong growth of economic activity with improved living standards, which increases individual energy consumption. As a result, an increase in global energy. Much of this increase in supplies will come from non-traditional sources and alternative energies despite the continued dominance of fossil fuels on the demand and supply side, as evidenced by the following table, which shows the outlook for global energy demand under its IEA scenario:

Table (4). Global energy demand forecasts until 2040 as scenarios of the International Energy Agency (IEA) 1 million tons oil equivalent

([13]) Ahmed Jasim Jabbar Al-Yasiri, Iraqi economy and the future of depleted and renewable energy, Iraq Center for Studies, i1, 2016, p.242- Y243

Various energy sources	New policy scenario		Current policy scenario (reference)		Scenario 450	
	2025	2040	2025	2040	2025	2040
Oil*	4577	4775	4751	5402	4169	3326
Natural gas*	3390	4313	3508	4718	3292	3301
Coal	3955	4140	4361	5327	3175	2000
Nuclear Power	888	1181	865	1032	960	1590
Hydropower	420	536	414	515	429	593
Bioenergy	1633	1883	1619	1834	1733	2310
The rest of the renewable energies	478	1037	420	809	596	1759
Total	15341	17865	15938	19637	14354	14879
Fossil fuel ratio	77.9%	74%	79.1%	78.7%	74.2%	58.1%
Nuclear power ratio	5.7%	6.6%	5.5%	5.2%	6.6%	10.6%
Renewable energy ratio	16.4%	19.4%	15.4%	16.1%	19.2%	31.3%

Source: -
International Energy Agency, world energy outlook,2016, p64
* Includes traditional and non-traditional.
**Percentages extracted by the researcher according to table data

Table 4 shows that estimates of global demand for energy sources differ in IEA scenarios, each scenario assumes particular policies that will reflect on the numbers of projections, and from the current policy scenario known as the IEA reference situation scenario, which assumes the continuation of existing policies and measures that have been firmly enshrined in international legislation to lead the energy sector, Global energy demand will rise from 15,938 million tons of oil equivalent in 2025 to 19,637 million tons of oil equivalent in 2040, and oil demand is assumed to be the highest in the amount of energy demand compared to other sources, if global oil demand in 2025 is estimated at 4,751 million tons oil equivalent and is expected to rise to 54,022 1 million tons of oil equivalent, as coal is supposed to come with the most significant proportion of demand after oil and natural gas after it, and in general fossil fuels will remain dominant in global market despite a decrease in the proportion of total need for energy sources for 2025-2040 from 79.1%-78.7%, while nuclear energy assumes demand of about 865 million tons equivalent to oil in 2025 This accounts for 5.5% of total demand

for the same year, environmental problems and caution against non-peaceful exploitation, as well as global accidents such as the Fukushima accident in Japan, estimated to decrease its proportion of energy demand in 2040 to 5.2% of total global demand, and in terms of demand for renewable energy sources, this scenario assumes a modest increase in demand for all kinds of energy that continues until 2040. If most of the rise in demand for renewable sources will come from demand for solar, wind, geothermal, and hydrogen, the rise in demand for renewable sources has been estimated to have increased doubly for 2025-2040 from 420 million tons of oil equivalent to 809 million tons of oil equivalent, due to technological improvements and lower costs, especially for solar and wind power generation. The demand for hydropower will rise slightly or modestly for the period studied due to the problem of water scarcity in most countries of the world. Still, the demand for bioenergy is estimated at 1619 million tons of oil equivalent in 2025 and is supposed to increase to 1834 million tons of oil equivalent in 2040. Overall the demand for renewable energies will constitute 16.1% of total energy demand in 2040. In terms of the need for non-conventional energy sources, a high market for them is an essential part of fossil fuels and their position in the economy of OECD countries, particularly in the United States.

The International Energy Agency (IEA) also predicts that global energy demand will increase primarily in countries outside the Organization for Economic Cooperation and Development (OECD), as China and India will significantly increase the global market. In addition, the Middle East will effectively contribute to increased energy demand. At the same time, the International Energy Agency (IEA) expects demand to decline to rationalize its energy consumption pattern in OECD countries.

As for the new policy scenario, which assumes the effects of current policies taking into account the measures and actions announced by various countries to reduce environmental pollution from fossil fuel consumption, this scenario assumes a decrease in global demand for fossil fuels, estimated at 77.9% in 2025 to 74% in 2040. This decline is due to policies pursued by countries to maintain environmental balance by reducing the environmental pollution. These policies stimulate investment in alternative sources to develop their technologies and use them efficiently to meet the world's energy needs, thus projecting higher demand for alternative sources of nuclear energy is expected to reach 6.6% of total global energy demand in 2040. Renewable energy will account for about 19.4% of the total market for energy sources in 2040.

Concerning scenario 450, which assumes stricter and stricter policies to reduce emissions, with a probability of approximately 50% of global temperature increases resulting from the continued growth in fossil fuel consumption, it is therefore expected that dependence on oil, coal, and natural gas will be significantly reduced. Moreover, demand for renewable energy will double as demand for nuclear energy as alternative energy increases. As a result, the global market for fossil fuels is expected to decline from 74.2% in 2025 to 58.1% in 2040 the total

demand for energy sources. On the other hand, global demand for nuclear energy, which is expected to reach 31.6% of all types of energy demand, is expected to increase total global energy demand in 2040.

2- Prospects for the global energy supply

The International Energy Agency (IEA) expects fossil fuels to remain the most significant proportion of the world's energy supply and more than 70% of the world's total energy supply until 2040. The rest comes mostly from renewable energy, especially solar and wind power. The province of nuclear energy is expected to maintain its position in global energy supplies, especially in Japan, which will rely heavily on nuclear energy for its energy needs. In addition, shale gas and oil will contribute significantly to global energy supplies if the costs of non-conventional energy sources are expected to decline significantly, strengthening their economies and position in the global energy balance [14] .

Table (5). Global energy supply under OPEC's "benchmark scenario" forecast for 2020-2040 million tons of oil equivalent*

Various energy sources	2020	2035	2040
Oil **	4496	4830	5043
Natural gas **	3514	4435	5616
Coal	4425	5064	5631
Nuclear Power	704	881	1175
Hydropower	375	445	507
The rest of the renewable energies, including biomass.	1691	2137	2797
Total	15205	17792	20769
Fossil fuel ratio	81.7%	80.5%	78.4%
Nuclear power ratio	4.7%	5.0%	5.6%
Renewable energy ratio	13.6%	14.5%	16.0%

The table of researcher numbers is based on the information contained in:
Organization of the Petroleum Exporting Countries (OPEC), world oil outlook, 2014, p8
* The conversion from a barrel of oil/day to a ton of oil equivalent was adopted by adopting a one-ton oil equivalent equal to 7.11 barrels of oil and adopting that the year 360 days, and the researcher extracted the percentages according to the data of the table.
** Includes traditional and non-traditional.

Table 5 shows that OPEC expects global energy supplies to grow from 15,205 million tons of oil equivalent in 2020 to about 20,769 million tons in 2040 and

([14]) IEA, Global Energy Outlook Summary In the language Arabic 2016AM2-7 From the website www.iea.weo.com

expects fossil fuels to contribute about 81.7% of global energy supplies in 2020. Although its contribution to environmental and political considerations has decreased, it will remain dominant in the largest share of reserves. Suppose it accounts for 78.4% of the world's energy supply in 2040. In that case, OPEC expects to maintain nuclear energy by up to 5% of global energy supplies until 2040. Renewable energy sources contribute to global energy supplies from the world energy supply is noted in table 10. 13.6% in 2020 to 16% in 2040, and OPEC's forecasts are clearly in line with the IEA's projections for global energy supply, both believe that fossil fuels will contribute the largest share of the world's energy supply as oil and natural gas from non-conventional sources increase in reserves, and no significant change in nuclear energy is expected until the near future. They agree on the increasing share of renewable energy in supplies, importantly and significantly.

Conclusion

Fossil fuels account for the largest share of global energy demand as supplies, as it is the most significant contributor to the worldwide energy supply for the time being and shortly. Although a gradual decline is expected, it will remain dominant in the energy sector. On the other hand, the natural depletion of fossil fuels and their environmental damage, Important factors that have prompted many countries to look for inexhaustible energy alternatives that meet human energy needs, so non-traditional and renewable energy sources have emerged to take on the role of complementary sources of fossil fuels shortly. The global reserves discovered from non-conventional and economically recoverable energy sources are huge and exceed the proven reserves of traditional authorities, giving great importance to these sources, thus complementing and extending conventional oil and natural gas reserves. Furthermore, access to clean energy that will reduce environmental pollution is the generation of energy from renewable sources. Electricity generation has become a renewable source, and ways of exploiting it developed with high-efficiency technologies and has become necessary in the global energy markets. Therefore, non-conventional and renewable energy sources are essential for diversifying the international energy supply mix and are expected to play an influential and vital role in supplying the world with energy in the future.

Recommendations

1- The need to spread and realize that fossil fuels are vulnerable to depletion must reduce dependence and energy-saving measures in the future.
2- Expand scientific research on non-traditional energy sources so that their reserves can be more accurately known, and research and exploration increase in this area.
3- Work to establish markets for renewable energy technologies in an easy-to-access and deployable way.
4- The need to develop the non-traditional oil and natural gas industry in the Arab countries for what these sources will represent in the future.
5- The need for international cooperation in scientific research and transfer of technologies concerning non-traditional and renewable energy sources and work to form a unique global

agency in the field of alternative sources to support and strengthen efforts aimed at enhancing the efficiency of the investment of these sources.

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