Green investment is a development alternative outside the hydrocarbon sector in Algeria - presentation of the solar energy projectt SSB in Algeria.

الاستثمار الأخضر بديل تنموي خارج قطاع المحروقات في الجزائر – عرض مشروع الطاقة الشمسية SSB

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Abstract:

Algeria's increasing interest in renewable energies is embodied in undertaking a number of measures in light of reliance on a strategic national program that extends to the horizon of 2030, which includes pioneering projects, especially in the field of solar energy and wind energy, and supporting it with regulatory and legal methods that encourage the development of renewable energy because of its great importance in achieving Sustainable development, which is what was highlighted through this paper by highlighting the most important projects in this field, where the role assigned to energies is mainly to meet the demand for energy in isolated places and far from renewable electricity and gas networks within the framework of the national energy policy at the present time in the natural Which makes the efforts made in this field far from hoped for.

Algeria's move towards a green economy is a strategic energy choice that contributes to preparing the country for the transition to a new and sustainable economy for current and future generations, similar to renewable energies that support the transition towards a sustainable formula for the Algerian economy.

Key words: Energy, renewable, investment, green, Algeria

الملخص:

يتجسد اهتمام الجزائر المتزايد بالطاقات المتجددة في القيام بجملة من التدابير في ظل الاعتماد على برنامج وطني استراتيجي يمتد إلى أفق 2030، وهو يتضمن مشاريع رائدة خاصةً في مجال الطاقة الشمسية وطاقة الرياح، ودعمه بأساليب تنظيمية وقانونية تشجيعية لتطوير الطاقة المتجددة لما لها من أهمية بالغة في تحقيق التنمية المستدامة، وهو ما تم إبرازه من خلال هذه الورقة وذلك بتسليط الضوء على أهم المشاريع في هذا المجال، حيث يتمثل الدور المخول للطاقات أساساً تلبية الطلب على الطاقة في الأماكن المعزولة والبعيدة عن شبكات الكهرباء والغاز المتجددة في إطار السياسة الطاقوية الوطنية في الوقت الراهن في الطبيعي، ما يجعل من الجهود المبذولة في هذا المجال بعيدة عن المأمول.

إن توجه الجزائر نحو الاقتصاد الأخضر يعد خيارا طاقويا استراتيجيا، يسهم في تحضير البلاد للانتقال إلى اقتصاد جديد ومستدام للأجيال الحالية والمستقبلية، على غرار الطاقات المتجددة التي تدعم الانتقال نحو الصيغة المستدامة للاقتصاد الجزائري.

الكلمات المفتاحية: طاقة؛ المتجددة؛ الاستثمار؛ الأخضر؛ الجزائر.

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1. INTRODUCTION:

Energy security has become a source of serious concern in all countries of the world as a result of a sharp increase in demand and lack of diversification. The global energy system currently depends on fossil fuels to meet global demand, and almost all global economies are vulnerable to fluctuations in global oil markets, in addition to the imminent depletion of oil, as it is an insignificant natural resource. Renewable energy, which led to accelerating the adoption of long-term global, regional and national strategies to increase energy efficiency, reduce waste and excessive consumption, and reduce environmental pollution.

Renewable energy is considered one of the strategic sectors of the green economy. It is environmentally friendly energy and has renewable resources, which has made it the focus of great attention. Investment in renewable energies represents one of the most important environmental investments that many countries in the world have turned to because of its importance in enhancing energy security and preserving the environment. .

Therefore, moving towards an economy that is predominantly green, reduces carbon, preserves the environment, and invests in natural capital, or the so-called green economy, will bring multiple benefits to countries of the world to confront various global crises, especially crises. Undefined Energy and will ultimately lead to achieving sustainable development.

The trend of the Arab oil-producing countries, especially Algeria, towards investing in renewable energies would achieve sustainable economic and energy diversification on the one hand, and on the other hand, the transition to a green economy, which will give equal weight to economic development, social justice and environmental sustainability, which in turn contributes to confronting all the challenges that arise. The Arab oil countries face it in all fields, whether social, economic, or political... considering that the green economy is an economy that has a pivotal role in preserving the balance of oil resources, reducing their depletion, and using them in a sustainable way that would raise the levels of economic, social, and environmental development. The green economy represents the path towards achieving sustainable development and is not an alternative to it.

In this context, Algeria is trying to adopt many policies and strategies related to investment in renewable energies, and is making great efforts to achieve this type of investment and activate it because of its huge and diverse returns in all fields.

The problem: Addressing a research topic about investing in renewable energies as a strategic option in light of the responsibility to protect the environment and to achieve the requirements of energy diversification in the economy requires answering a problem centered around the following main question: To what extent can investing in renewable energies in Algeria achieve a qualitative shift towards a green economy and rationalize the exploitation of available oil resources?

Sub questions: The following sub-questions fall under the main problem:

1- What are the most important foundations on which green investment depends, and how can green investment help meet current and future global economic challenges in a world suffering from resource scarcity?

2- Why should renewable energy sources be developed in regions with large fossil fuel reserves, such as Algeria?

3- How can Algeria change its image from a country that relies only on traditional energy resources, to a country that relies on renewable energy resources that allow building a strong

economic structure that reflects positively on development, and how will Algeria impose itself within the framework of the new energy market?

research assumes: To answer these questions, a set of hypotheses were developed as follows:

1- Investing in renewable energy is an economic luxury and not an absolute necessity, and this shows the ineffectiveness of investing in these energies.

2- The tendency of countries to invest in renewable energy has become a strategic option, in light of the hypothesis of depletion of traditional energy sources and the fluctuation in energy prices at the global level.

3- Algeria's shift towards reliance on renewable energy alternatives is an inevitable necessity, due to the inevitability of depleting fossil energies.

research importance: The importance of the research is to highlight the benefits and added values obtained by countries as a result of the development of renewable energy resources, in line with the goals of green investment, through investment in renewable energies. In addition to demonstrating the main advantages of renewable energies in terms of being inexhaustible, clean and environmentally friendly sources of energy, reducing the rates of traditional energy use, and preserving it as a strategic reserve for future generations.

The importance of the research also stems from clarifying the aspects of renewable energies and their dimensions, as a new attempt to know the added value that Algeria can obtain as a result of the development of renewable energy sources as a measure that enables it to achieve its energy security as well as achieve real sustainable development.

research aims: The main objective of the study is the extent of the contribution and effectiveness of investment in renewable energy in order to preserve this accessible energy resources on the one hand, and to achieve the requirements of green investment transformation.

There are also other objectives of this study:

1- Reducing dependence on traditional energy sources, which are threatened with extinction, and confronting environmental threats. The increasing rates of thermal emissions due to climate change, which are becoming more dangerous day by day.

2- Renewable energy sources are clean sources that do not affect the environment, so using these sources helps reduce the emission of gases resulting from the production of electrical energy using traditional sources that cause environmental pollution.

3- Providing energy services is a basic and essential condition for any development process to occur. However, what distinguishes the sources approved today is that they are subject to depletion in a way that threatens their sustainability. Therefore, we tried to find out the relationship between the green economy and renewable energy.

4- Explaining the importance of renewable energies as an alternative and complementary energy source to fossil energy to achieve real sustainable development.

We will try to answer the previous problem through the following elements:

- Possibilities of green investment in renewable energies in Algeria.

- The National Program for Investment in Renewable Energies in Algeria 2011-2030

- Challenges facing investment in renewable energies in Algeria and ways to address them.

2. Possibilities of green investment in renewable energies in Algeria:

Through the energy model, which is based on sustainable energy supply, Algeria seeks to develop the possibilities of using renewable energy, one of the bets of the coming period, as the world will witness a shift in the energy formula towards environmentally safe energy, and within the framework of simulating this reality, Algeria is working to improve the efficiency of use of renewable energy. And its applications, to seize opportunities that support economic sustainability gains, and support efforts to achieve the Millennium Goals.

Algeria is one of the countries in the world that possesses many wealth in the field of renewable energy sources, which only needs political will and economic management to maximize the benefit from them during the coming period, which gives it an advantage that allows it to enter the stage of comprehensive industrialization and compete with the largest economies if it exploits this energy well by Strong strategy.

2.1 solar energy:

Algeria has enormous potential for solar energy due to its vast area on the one hand and its geographical location on the other hand, as it is considered one of the richest solar fields in the world due to the amount of energy supplied per square meter, estimated at 05 kilowatt-hours/m² over most parts of the national territory and sometimes reaching to 07 kWh/m² (Khellaf & Boudris, 2003, p. 74)This allows annual radiation exceeding 3,000 kilowatt-hours per square meter over an area estimated at 2,381,745 km².

The desert makes up 5/4 of its land area. Solar capacity is considered the most important in Algeria, and it is even the most important in the Mediterranean basin region.169,440 TWh/year(Ministry of Energy and Mines, 2007, p.13).

5000 times the Algerian consumption of electricity.

60 times the fifteen (15) European consumption estimated at 3000 TWh/year. 04 times the global energy consumption Ministry of Energy and Mines(Ministry of Energy and Mines, Advantages of Solar Energy, Energy and Mines Magazine, Issue 08, 2008, p. 133).

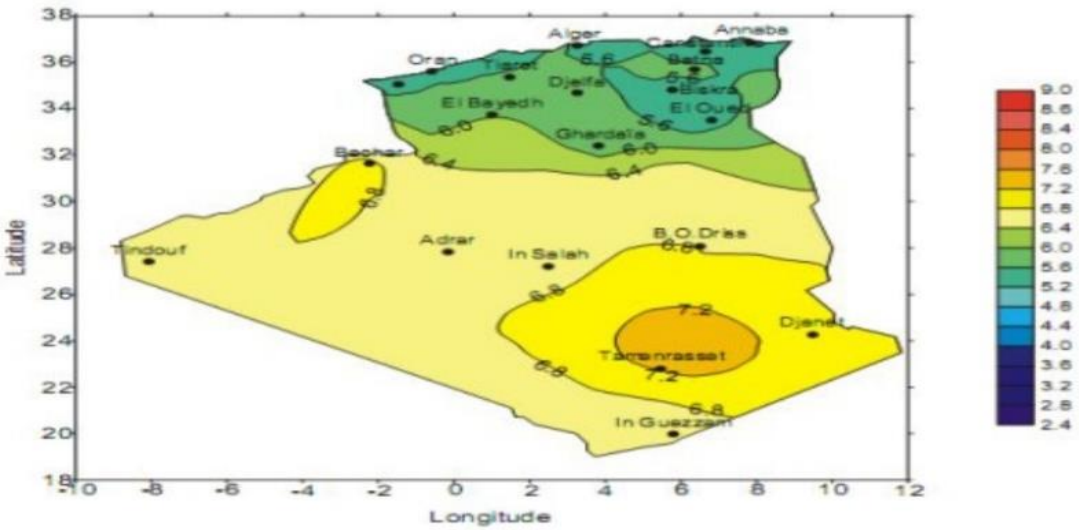
Table No. 01 shows solar energy capabilities by regions in Algeria as follows: Table No. 01: Solar energy capabilities by regions in Algeria

the desert	**High plateaus**	**Coastal areas**	**Regions**
86	10	4	Space%
3500	3000	2650	Average duration of sunshine (hours/year)
2650	1900	1700	Average Energy Gained (kWh/m²/year)

Source: *(Ministry of Energy and Mines, Renewable Energy Directory, 2012, p. 39)*.

Thus, Algeria, through its geographical location, enjoys large amounts of solar radiation, which makes it an important source of sustainable energy, as illustrated by Figure 01:

Figure No. 01: The annual average solar radiation intensity in different regions of the country (kilowatts/hour/m² per day).



Source: *(Evaluation of solar energy efficiency: renewable energy bulletin, CDER, 2002, p. 12)*

It is clear from the figure that Algeria enjoys a significant amount of solar radiation that can qualify it to adopt solar energy mainly within the framework of development, especially the part related to ending isolation from remote areas, by raising human development indicators in it and providing sustainable and least expensive energy supply, and Table No. 02 shows The uses of solar energy in Algeria are as follows:

Table No. 02: Uses of solar energy in Algeria

photovoltaic field	**thermal field**
Public electricity and housing	Heating healthy water
photovoltaic field	water filter
Pumping using photovoltaic rays	Concentration and solar dilution
Photovoltaic electrical stations	Production in the field of solar cooling

Source: *Prepared by Omar Sharif (2007, p. 322).*

The first efforts to exploit solar energy in Algeria began with the establishment of the first new energy governorate in the 1980s, and the adoption of the Southern Plan in 1988, with the equipping of major cities with equipment to develop solar energy. Despite the legal arsenal adopted between 1999 and 2001, the share of solar energy is still limited in Algeria.

2.2 Wind Energy: Algeria has significant wind energy potential, as winds blow through Algeria carrying a lot of humid marine and continental desert air, with an average speed exceeding 7 m/s, especially in coastal areas, which provides the possibility of generating annual energy estimated at 673 million watt-hours if In stalling a wind turbine at a height of 30 meters in case of wind speeds of 5.1 m/s, which is an energy that allows the supply of energy to 1,008 homes. Adrar is one of the most important areas with strong wind gusts.

The wind resource in Algeria changes from one place to another as a result of the topography and the diversity of the climate, as Algeria is divided into two geographical regions, the north which

is bordered by the Mediterranean Sea and is characterized by a coast extending over 1200 km and a mountainous terrain represented by the two chains of the Atlas and the Desert. Between these two chains there are the high plateaus and plains with a continental and moderate climate In the north, it is not very high(Alqamah and Kataf, 2008, p. 831)And the south region is characterized by a greater wind speed than the north, especially in the southwest, at a speed of 04 m/s and exceeding 06 m/s in the Adrar region. Therefore, it can be said that the wind speed in Algeria ranges between 02 and 08 m/s, which is an appropriate energy. For pumping water, especially in the high plains(Boachir, 2011, p. 192).

The development of a map of wind speed and the energy capacity of wind-generated energy available in Algeria has made it possible to identify eight areas with strong winds that can host wind energy generation equipment: two areas on the coastal strip, three areas in the high plateaus, and three other locations in the desert. The technical capacity of wind-generated energy in these areas is about 172 terawatt-hours per year, of which 37 terawatt-hours per year are exploitable from an economic perspective, which is equivalent to 75% (Noor Magazine) NOOR, March 2010, pp. 83-84). Through the developments, it was decided to build the first wind farm in Algeria, with an estimated capacity of 10 megawatts, in Adrar. It was temporarily assigned to the joint CEGELEC complex between France and Algeria, as it proposed the best offer in the open tender regarding the project. (international L'Actuel, février 2011, p. 17).

2.3 Geothermal Energy: Most of the geothermal energy capabilities of the Earth's interior are concentrated in all of Africa in the western side, and the Jurassic limestone in the north of Algeria constitutes an important reserve for the geothermal heat, and leads to the presence of more hot mineral water sources mainly concentrated in the north-east and northwest of the homeland, and these sources are found in temperatures It often exceeds 40 ° C, and the hottest source is the source of Hammam al-Maskhuteen, 98 ° C, and can reach 118 ° C in Biskra, which allows the establishment of power plants (S. OUALI, 2008, p. 16)

Algeria also has an alpine layer that is exploited through excavations of more than 4 m / sec. The water temperature of this layer reaches 57 ° C. If we collect the flow resulting from the exploitation of this alpine layer and the total flow of hot mineral water sources, this represents the level of capacity. More than 700 megawatts.
The thermal waters of the Alpine water basin can be used for the following:

Table No. 03 The use of thermal waters of the Alpine water basin

Usage possibilities	**Water temperature (°C)**
cooling (minimum)	70
Aquatic animal husbandry	60
fungus cultivation	50
urban heating (minimum)	40
fermenting	30
Fish breeding	20

Source: *(Ministry of Energy and Mines, 2007, p. 43)*

2.4 Hydropower: Algeria has great potential, as significant amounts of precipitation fall on the national soil annually, estimated at about 65 billion m, but only a small part of it is exploited, estimated at about 52007(Hania Amardgia Adnani, 2007, p. 109)In contrast to European countries, which exploit this resource to generate hydroelectric energy at a rate of 70% as a result of its

concentration in specific areas, and part of it evaporates or flows quickly into the sea or into groundwater fields, the amount of rain exploited is currently estimated at 25 billion m2, two-thirds of this amount being surface water (103 (A completed dam, 50 are in the process of completion, and the rest are underground. The share of the hydroelectric production facility in Algeria amounts to a capacity of 286 megawatts. This weak capacity is due to the insufficient number of hydroelectric production sites and the inefficiency of the existing sites being exploited. Water energy contributed to the production of a capacity of 228 megawatts. of hydroelectric power in Algeria in 2009 (United Nations Economic Commission for Africa, 2012, p. 12).

As for the production of electricity based on hydropower, it does not exceed 3%, which is a small percentage compared to the water capabilities that Algeria has. Table No. 04 shows the hydroelectric power plants in Algeria as follows::

Table No. 04: Hydroelectric power plants in Algeria

Installed power (MW)	**stations**	**Installed power (MW)**	**stations**
7,000	Arab	71.5	Darqina
6.425	koriat	24	Egil Amda
5,700	Bouhanifa	100	Mansouriya
15,600	Wadi Fawda	16	Insomnia
3,500	sloppy brown	8.085	Friday market
4.228	begging	4.458	Tizi is condemned
286	**the total**	2.712	Igniscub

Source:*(Ministre de l'Energie et des Mines, 2007, p. 48)*

2.5 Biomass energy: Algeria's potential remains small when compared to other types, first because the forest area represents only 10% of the total area of the country, while the energy sources from urban and agricultural waste are estimated at about 5 million tons of oil equivalent, and the total capacity of the forest resource in Algeria is estimated at about 37 megatons. Petroleum equivalent. Also, with regard to forest capabilities, Algeria is divided into two regions: the tropical forest region, which occupies an area of approximately 25 million hectares, slightly more than the total area of the country, and the barren desert region, of the total area, where the maritime pine and eucalyptus represent two important plants. In energy use, which covers more than 90%

Currently, these two species occupy only 5% of the Algerian forest, and the valorization of organic waste, especially animal waste, in order to produce biogas, can be considered an economic and ecological solution that will lead to sustainable development in rural areas.(Ministry of Energy and Mines, 2007, pg. 47)

3. The National Program for Investment in Renewable Energy in Algeria2011-2030

The renewable energy program from 2011 to 2020 includes the completion of (60) solar photovoltaic and solar thermal stations, wind energy fields and mixed stations. The completion of renewable energy projects to produce electricity for the national market will be in three phases

The first phase: between 2011 and 2013, and is devoted to the completion of pioneering projects (exemplary for the selection of the various available technologies.

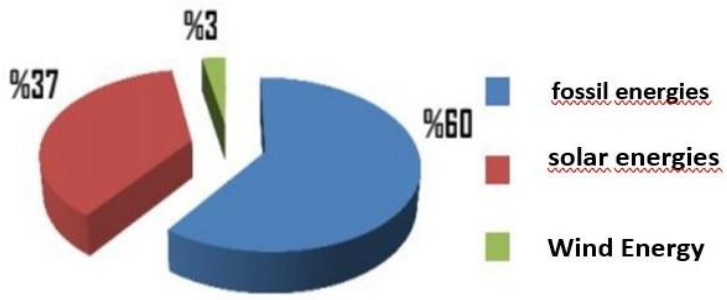
The second phase: between 2014 and 2015, will be marked by the initiation of program deployment.

The third stage: between 2016 and 2020, and it will be for publishing on a large scale.

These stages embody Algeria's strategy, which aims to seriously develop a real industry for solar energy, accompanied by a training program and the collection of knowledge that allows the exploitation of local Algerian skills and the consolidation of actual efficiency. Fossil, and this strategic choice is considered motivated by the general potential of solar energy, as the latter constitutes the main focus of the program harnessing solar thermal and photovoltaic energy as a significant share. Solar energy production will reach in the year 2030 more than 37% of the total national production of electricity, despite the weak capabilities

The program does not exclude wind energy, which constitutes the second axis of development, and whose share should approach 03% of the total national electricity production in the year 2030.(Ministry of Energy and Mines, Renewable Energy and Energy Efficiency Program, March 2011, p. 54), as shown in Figure 2.

Figure No. 02: Expected energy production by source in 2030.



Source: *Prepared with the approval of the Ministry of Energy and Mines, "Renewable Energy and Energy Efficiency Program" (March 2011).*

It is clear from this figure that the national program for the development of renewable energies, which was approved by the government on February 3, 2011, stipulates the generation of 40% of electricity by 2030 from non-fossil sources, and the largest percentage will be from solar energy, due to the interest Algeria attaches to this source. Given the solar capacity that Algeria enjoys, which is the most important in the Mediterranean basin, this strategy will allow Algeria to be an effective position in this field and a major supplier of green electricity to the European market. Algeria also intends to establish some small experimental units with the aim of testing various technologies in different energy fields. The current and future trends in the contribution of renewable energies to the supply structure in Algeria can be illustrated in Figure 03.

Figure No. 03: Penetration of renewable energies in national production (terawatt-hours)

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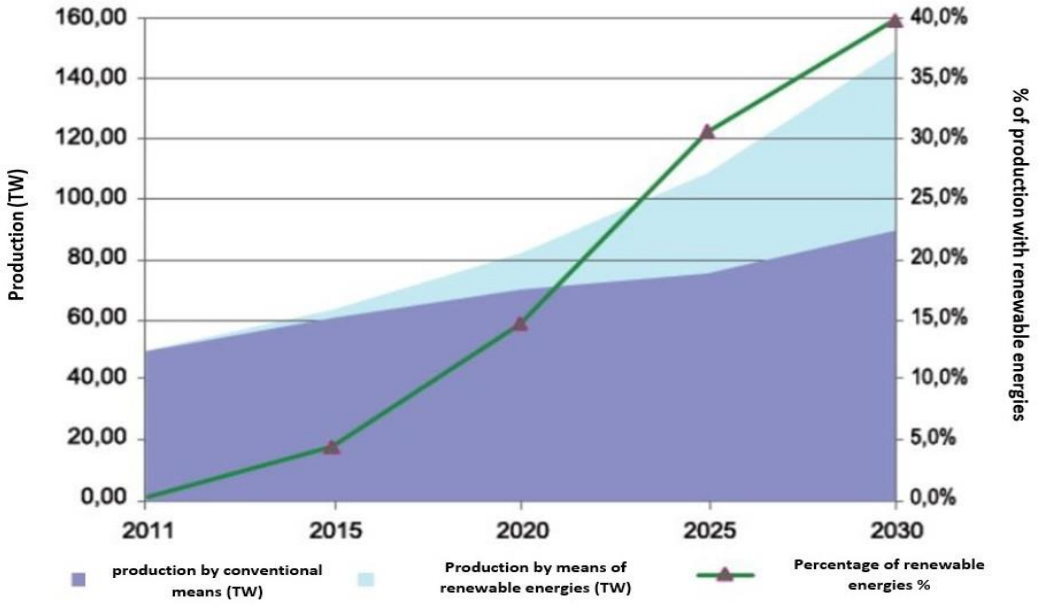


Source: *(Ministry of energy and mines, March 2011, p. 09)*

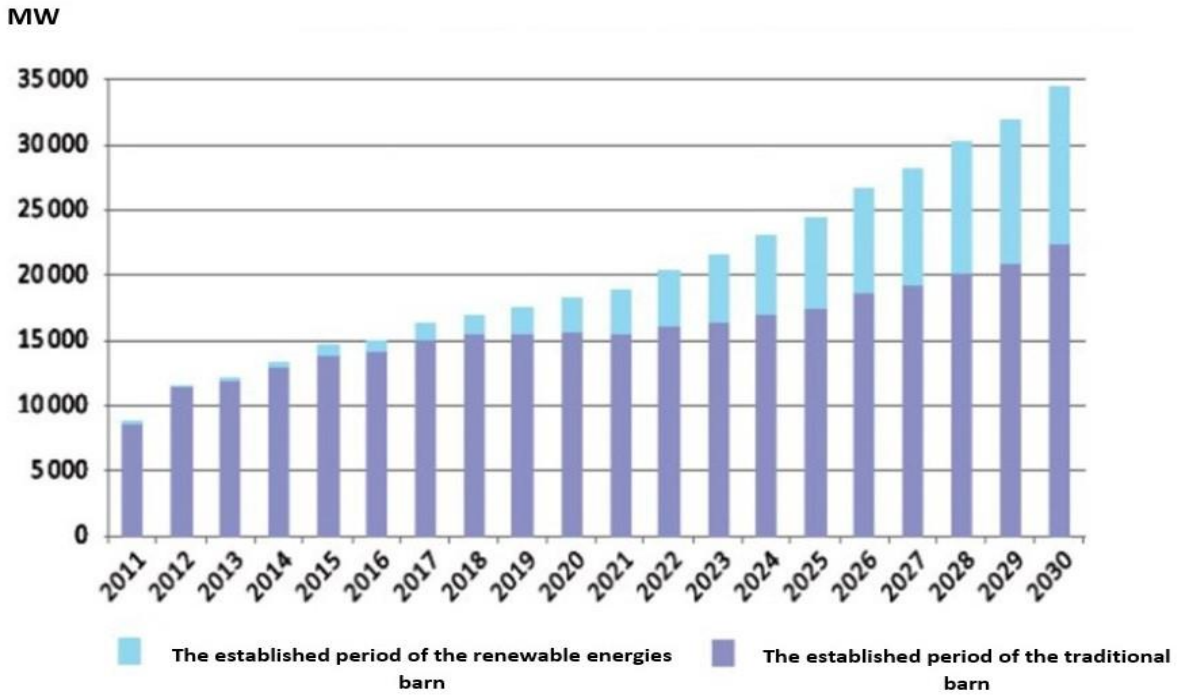
The figure shows that traditional energies represent the most important proportion of the supply structure within the production process. However, this does not mean that the proportion of dependence on renewable energies has not developed, as Algeria is adopting an energy strategy that includes several branches of production, and the renewable energies program in Algeria is known as the following stages: In the year 2013 It is expected to establish a total capacity estimated at 110 megawatts.

In 2015, a total capacity of approximately 650 MW is established.

Horizon 2020: It is expected to establish a total capacity of about 2,600 MW and the possibility of exporting about 2,000 MW.

By 2030, it is expected to establish a capacity estimated at approximately 12,000 megawatts for the national market, and it is possible to export approximately 10,000 megawatts, and this is what Figure No. 04 shows:

Figure No. 04: Structuring the national production pool for conventional and renewable energies (MW).



Source: *(Ministry of energy and mines, March 2011, p. 09)*

The Renewable Energy Program has focused on developing solar energy, both photovoltaic and thermal, as well as wind energy, as shown in Table No. 05.

Table No. 05: Solar energy and wind energy under the renewable energy program in Algeria

Years from 2021-2030		**Years from 2011-2020**		**Power type**
MW200	Completion of projects estimated at:	MW800	Completion of projects estimated at:	Photovoltaic solar energy
2021-2023		2011-2015		Solar thermal energy
500MW	Completion of projects estimated at:	15MW for each one	Completed two projects with storage	
		150MW of which 25 MW is from solar energy	Completion of a mixed solar gas station project in Hassi R'Mel	
2024-2030		216-2020		
600MW	Completion of projects estimated at:	1200MW	Completed 4 stations with storage	
2016-2030		2011-2013		Wind Energy
1700MW	Completion of projects estimated at:	10MW	Establishing the first wind farm in Adrar	
		2014-2015		
		20MW per unit	Completion of two aeroponic farms	

Source: Prepared based on the Ministry of Energy and Mines (March 2011) "Renewable Energy and Energy Efficiency Programme".

Aware of the energy and environmental challenges associated with diversifying the energy mix, and the will of the major economies of the world to reduce further and greater use of fossil energies, Algeria has committed to a promising program for developing renewable energies, in line with economic and political realities and in parallel with redirecting the global pattern of energy consumption towards new alternative solutions that respond to global needs. Therefore, the Algerian program for developing renewable energies is a solution to exploit endless solar and wind resources with the aim of contributing to taking care of the internal demand for electricity and exporting part of this energy to European countries:

3.1 Allocating $120 billion to develop renewable energies:

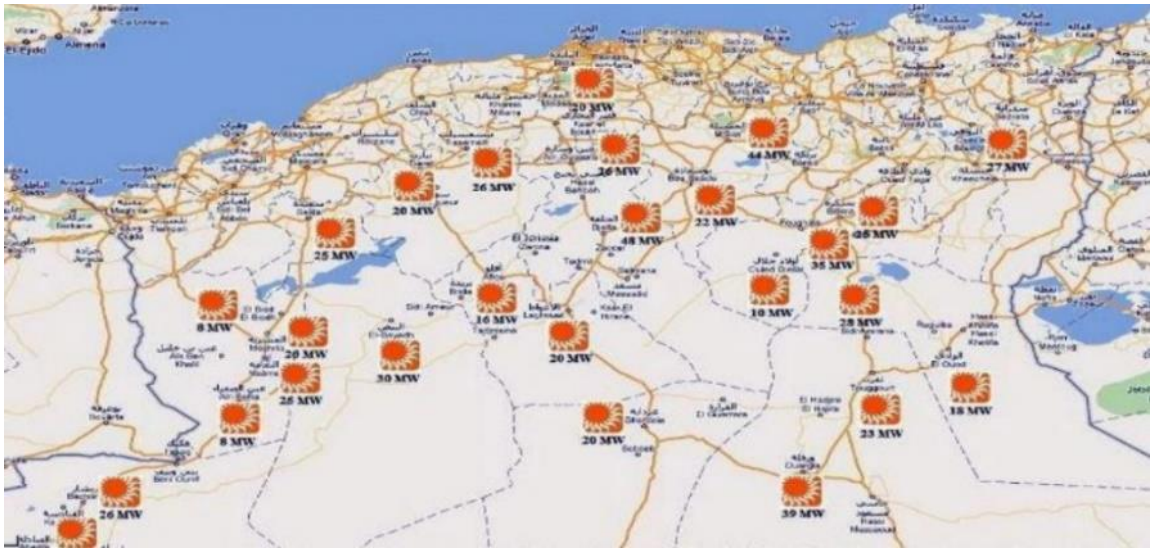
Investments worth $120 billion have been allocated in order to achieve the goal of 40% of electricity production by 2030. It is also expected that private and foreign investments will be exploited to implement this program. With the approval of this important program, Algeria has embarked on a promising transitional path towards alternative and clean energies. This will was explicitly expressed by the President of the Republic, Mr. Abdelaziz Bouteflika, who stressed the need to pay attention to diversifying the country's energy supply sources by implementing a national program for renewable energies. In addition to responding to energy needs, this program constitutes a factor in developing a national renewable energy industry based on the available Algerian capabilities, while valuing efforts in the fields of research and development in various fields related to this industry. The new energy policy will also be accompanied by state efforts to support the development of a local handling industry, which will allow the establishment of unprecedented Less than 100,000 jobs(Omar and Boulaid, May 2013, pages 411-412).

3.2 Completion and construction of 67 projects to achieve Algeria's transition towards the era of renewable energies: Given the awareness of the importance of developing renewable energies in preserving non-renewable fossil energy resources and protecting the environment, renewable energy has become one of the most important axes of energy and environmental policy in Algeria. In this context, and in order to promote renewable energy production, the Electricity and Gas Control Commission revealed that the National Program for the Development of Renewable Energies in the period between2011 - 2030 67 projects will be completed in the next nine years with a capacity of 2,357 megawatts, which is a challenge to Algeria's transition towards the era of clean energies. Projects for the completion of stations have been divided between 20 states in the south and north of the country, as well as in the high plateaus, where they have been grouped into four branches for solar thermal, wind and hybrid energy. Between fuel gas, gas turbines and solar energy, as stated in the latest issue of the Electricity and Gas Control Committee's bulletin, the solar energy and photovoltaic branch has 27 projects with a capacity of 638 megawatts, and the most important of these stations will be completed in the state of Djelfa with a capacity of 48 megawatts, while the station will be completed Which has a minimum power of 5 megawatts(Bourouj, 2012, pp. 63-64)

The same number of stations will be completed to generate electricity with hybrid energy between solar, diesel and gas turbines, directed to the regions of the south that are not connected to the national distribution network, as the total energy allocated to this branch is estimated at 109 megawatts, where the largest station will be completed from the same branch ((20 megawatts) in the Wilayat of Adrar, the smallest of which is 0.02 megawatts in Beitin El Kom in the Wilayat of Illizi. The six stations to be completed in the thermal solar energy branch have a capacity of 1,350 megawatts. The capacity of the most important station is 400 megawatts, and the smallest one is 150 megawatts (the wilaya of Bechar). As for the wind power branch So he allocated a power of 260 megawatts, the most important station in it got 50 megawatts and the smallest one got 20 megawatts, as the sites that will host these stations have not yet been determined, but it seems that they will be

completed in the state of Adrar, and these projects will also be completed in three phases from now until 2020, the first pilot projects will be completed in the period between2011-2013To carry out experiments on the various available technologies. The second phase is between2014-2015It will be marked by the beginning of the deployment of the program, while the third program will undertake a comprehensive expansion of the program and parallel to the projects included in the National Program for the Development of Renewable Energies.(Q. I. Wag, September 2011, p. 09)Figure No. 06 shows some of the projects that have been completed in the field of renewable energies before 2020, as follows:

Figure 06 is a map showing some of the projects that have been implemented in the field of renewable energies.



Source: *(disagreement, browsed on 01/12/2020)*

4. Challenges facing investment in renewable energies in Algeria and ways to address them:

Through this component, we will try to show the various challenges facing the exploitation of renewable energies in Algeria and what are the ways to address them, as follows:

4.1 Challenges facing investment in renewable energies in Algeria:

It can be limited to:

Algeria is considered one of the countries rich in fossil energy, and it is one of the factors that can mitigate the officials' rush towards renewable energy, for fear of causing a negative impact on the oil production system and its prices. This has become apparent in Algeria's move towards exploiting shale gas in the 2030s, as Algeria has It is the third largest reserve in the world, with reserves estimated at about 20,000 billion cubic meters, as a substitute for the oil that is expected to run out over the next two decades, which maintains the dominance of the rentier sector over the national economy. The increase in capital required for renewable energy projects, and the return on investment requires a longer time from sources of energy. Fossil energy, Algeria must partner with foreign investment or external grants linked to clean development funds.

The large areas of land that must be allocated to wind and solar energy projects, which requires clear policies and programs for land use and ownership by the state, and despite the huge area that Algeria enjoys, it suffers from difficulty in the availability of real estate resources.(Pribesh and Ayad, 2014, p.11).

Limited local manufacturing capabilities for renewable energy production equipment and the inability to compete with international companies, as a result of insufficient national technical human resources, which forces the authorities to seek assistance from international consulting offices, in addition to the weak financial allocations for scientific research and development of renewable energy equipment.

The production and use of advanced technologies in the production of solar energy, wind energy and biofuels requires the combined efforts of many partners, including manufacturing companies, users, relevant legislative and executive authorities, scientific research, etc., as well as roles and implementation plans and the development of an integrated administrative system for coordination between these parties in order to Access to energy production from renewable sources, which lacks coordination and suffers from difficulty in storage.

The lack of interest in using renewable sources to produce energy and the misunderstanding of the nature of the work and applications of renewable energy technologies on the part of concerned parties and society as a whole constitutes a major obstacle to relying on renewable sources in energy production. Here, the role of media and awareness emerges to push individuals and society towards a correct concept of producing energy from clean sources. And environmentally friendly, which helps to illustrate the environmental and technical friendly in these areas(Ben Al-Sheikh and Bin Abdel-Rahman, 2012, pg. 07).

Ways to address the problems facing investment in renewable energies in Algeria: Algeria is suffering from a quarterly economy built on oil and gas, and it is in a new phase in which a new regional market is forming between Europe and North Africa in which Algeria does not occupy the same position as in the fuel market due to the importance of competing players in In the field of renewable energies, led by Morocco, it is therefore necessary for Algeria to take a set of steps in order to avoid the transformation from an oil rent to a solar quarter, through:

To meet internal demand in light of the high national consumption of energy, especially since Algeria recorded a new historical rate of national consumption of electrical energy, which amounted to more than 10 gigawatts between July 26-27, 2013, which led to power outages in many states, and the demand for electricity is expected to increase. About 25,000 megawatts in the horizons of 2030, and an estimated consumption of 150 terawatt-hours.(Brebesh and Ayyad, 2014, p. 13)The local market takes precedence over the international market in the event of an inability to meet domestic demand.

Anticipating the steps of competitors: The new market for renewable energies includes new competitors in addition to traditional competitors, such as Morocco, especially since the comparative advantages in the fossil energy market are not available in the new market, but are quite close, especially with regard to energy, which requires acquiring new comparative advantages through a comprehensive vision. It combines the economic and political dimensions(Mustafa, 2012, p. 179)

Market-based pricing Algeria needs, at the beginning of the stage, to follow the example of Germany by granting very preferential prices to energy producers to encourage the spread of solar panels.

Launching an industrial fabric specialized in renewable energies: it includes the materials market, the services market, and the labor market(Mostafa, European Algeria, "Desertek: Is the scene of an economy based on rent recurring?", Articles in the Algerian Economy, 2012, p. 166)

Stimulating technological innovation by evaluating national creative work for effective participation in economic plans and not just annual days or days.

In which all countries of the world, including Algeria, are required to develop and develop renewable energy sources, if they wish to achieve sustainable development with achieved dimensions (the economic, social and environmental dimensions), especially the protection of environmental assets, which has become one of the necessary options for development and the transition to a green economy.

search:

1. Renewable energies play an important role in translating the dimensions of economic diversification, as their development projects contribute to achieving economic gains, improving social conditions and preserving the environmental heritage for future generations, since renewable energy and raising the efficiency of energy use are the main pillars of energy diversification of the Algerian economy..
2. There is an increase in investment in renewable energies as a result of many factors, including the world's capabilities available from these sources, the steady rise in economic growth, especially in developing countries, the rise in population growth, technological development, and others. It also shows us that it is possible to plan to introduce renewable energies into the future energy supply system through A package of institutional and legislative procedures and measures that require intensified and combined efforts of the countries of the North and South in order to ensure the security of the future supply of energy sources, preserve the environmental heritage, and achieve social well-being..
3. In light of countries seeking to move towards renewable energy through the energy model that is based on sustainable energy supply, the economies of the countries of the world are working hard to develop the possibilities of using renewable energy, as one of the bets for the coming period, as the world is witnessing a shift in the energy formula towards environmentally safe energy, Investment in renewable energy will contribute to increasing employment rates by more than 20% by 2050.
4. The future of renewable energy and its contribution to securing energy sources depends on two main factors, one of which is progress in energy technologies and reducing its cost, and the other is related to environmental matters, the increasing taxes imposed on fossil fuels, and financial and legislative support for renewable energy. However, these factors will not hinder countries' efforts to Adopting a renewable energy strategy.
5. Renewable energies are considered one of the most important future energy sources, which can increase the geo-strategic position of Algeria in the region, and it is the focus of interest for various international companies, as Algeria occupies an important position in the regional and international arena, especially with regard to solar energy, which is an opportunity and engine for economic and social development. Since Algeria enjoys large amounts of solar radiation exceeding 3,500 hours per year, with an average energy obtained of more than 2,650 kWh/m/year..
6. Algeria is considered one of the most important countries that possess important and diverse energy potentials between fossil energies, whether traditional or unconventional, as well as renewable energies, but it does not have many arbitral axes in the field of policies related to energy production, especially after the start of the countdown to fossil energy reserves. The prospective results of the situation of this energy in Algeria indicate that energy security has become threatened

despite the available capabilities, and it does not include the elements of sustainability, especially in light of the increasing use to finance development programs and meet human needs that involve unsustainable consumer behaviors, not to mention the deterioration. Climate and negative impacts on the environment.

7. Algeria's orientation towards renewable energies is a strategic energy choice, and an endless solution to the problem of responding to the growing national demand for energy, better than the orientation towards the exploitation of shale gas, with its environmental impacts on the one hand, and it will not contribute to preparing the country for the transition to a new and sustainable economy for current and future generations. Like the renewable energies that support the transition towards a sustainable formula for the Algerian economy.

8. Algeria has great potential in the field of exploiting renewable energies, although the cost of using them is still relatively high. Therefore, Algeria remains among the most prominent countries nominated by energy experts in the world to play a major and important role in the energy equation, given its possession of enormous natural resources in the field of alternative energy sources. Fossil energy is on the path to depletion, but Algeria must look beyond the construction process, as the use of renewable energy will reduce the operating and productivity costs of any project that relies on this type of renewable and inexhaustible energy, thus providing sustainable and environmentally friendly energy in addition to providing the money.

Recommendations:

In light of the results and observations obtained, we came up with a set of recommendations in a way that encourages the development of investment in renewable energies, through the necessity of being familiar with the following suggestions:

Strengthening the role of international governance, as international environmental agreements facilitate and stimulate the transition to green investment by establishing legal and institutional frameworks to address global environmental challenges..

In addition to encouraging research and development, promoting scientific research and raising the budget allocated for upgrading modern technologies in the field of renewable energies,

Taking the initiative to open up the Algerian university to institutions and economic sectors to benefit from the research and results reached.

The need to activate laws and legislation to encourage the use of renewable and clean energy by issuing laws stipulating the necessity of exemption from fees and taxes on all renewable energy equipment and machines, which in turn contributes to the adoption of renewable energy sources as an integral part of the national energy strategy.

Encouraging joint work between the government and the private sector, and taking into account the existence of global trends towards maximizing the role of the private sector, as it is one of the basic pillars for the future development of renewable energy systems.

Algeria should reduce the dominance of oil in the national economy by gradually integrating renewable energy into energy production.

Solar energy is the largest source of renewable energy in Algeria, so its use must be expanded in several areas such as construction and urbanization, and this significantly reduces costs..

Expansion of training and awareness-raising courses that include various institutions and sectors, in addition to opening specializations in the field of energy and upgrading its use efficiency,

and training human cadres capable of developing and qualifying this sector within the framework of sustainability requirements.

The need to take advantage of renewable energy sources, especially solar ones, to reach permanent growth, which allows for raising the standard of living.

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