

---

# Developing Renewable Energies as an Economic Alternative in Light of Achieving Sustainable Development in Algeria

Mouzaoui Aicha<sup>\*</sup>

Medea University - Algeria

[mouzaoui.aicha@univ-medea.dz](mailto:mouzaoui.aicha@univ-medea.dz)

Received:10/06/2023

Accepted: 02/10/2023

Published:2024/01/22

---

## Abstract:

This study aims to show the developments witnessed by the global energy sector in recent years, as it was characterized by a sharp decline in oil and gas prices and an increasing dependence on other sources such as renewable energy of all kinds as an economic alternative to oil and gas, in addition to the trends taken by many countries and blocs in changing the energy mix used, reducing dependence on fossil energy sources and diversifying economic sources, which contributed significantly to achieving a greater decline in oil prices and the consequent One of the fundamental economic consequences has prompted many countries to reconsider the future structure of the economic system, the main global engine which is energy, the latter is an essential element to meet all the needs of humanity, and it also plays an important role in achieving the social, economic and environmental aspects of sustainable development.

**Keywords:** renewable energies, economic alternative, sustainable development, fossil energy.

**Jel Classification Codes:** p28, Q01, Q43, Q42.

---

<sup>\*</sup>Corresponding author.

# Developing Renewable Energies as an Economic Alternative in Light of Achieving Sustainable Development in Algeria.

---

## 1. Introduction:

Renewable energy is an essential input to achieve sustainable economic and social development, especially with regard to poverty reduction and changing patterns of production and unsustainable consumption, and at the same time it is related to issues of preserving and protecting resources in the service of sustainable development, since the renewable energy achieves many economic goals, perhaps the most important one is environmental protection. This prompted many countries to pay attention to developing this source of energy and set it as a goal that they seek to achieve, as it is an important alternative and an essential source to diversify the economy and increase its income.

### 1.1. The main problem:

- Is the trend towards developing renewable energies as an economic alternative an inevitable necessity in light of achieving sustainable development in Algeria?
- To answer this problem, the concepts of renewable energy and sustainable development must be clarified, and what is their importance in Algeria as an economic alternative?

### 1.2. Previous studies:

#### - Study by: Mohamed Sahel, Mohamed Talbi:

An article presented in the researcher's magazine entitled: "The importance of renewable energy in protecting the environment for sustainable development - Presentation of Germany's experience - a scientifically refereed journal issued by the University of KasdiMerbah in Bouargla, No. 06, year 2008.

The two researchers tried to crystallize the importance of renewable energy in protecting the environment for sustainable development, and presented the experience of Germany, which could benefit the economies of Arab countries. And they reached the critical importance in protecting the environment, as it is clean and non-polluting energy, and its use is being expanded, and thus reducing the use of traditional energy, especially since the cost of providing electricity is decreasing, and from it the possibility of achieving sustainable development.

In light of the complexity of the environmental problem in Germany, the German government seeks to solve these problems by resorting to renewable energies, especially since Germany is witnessing great growth in the field of renewable energies, including reducing traditional energies and reducing harmful gas emissions of carbon dioxide, nitrogen and sulfur.

#### - Study: Basil Al-Yousifi, Ali Al-Qaragholi:

Economic and environmental feasibility of using renewable energy in the Arab region, an article published in conjunction with the "Environment and Development" magazine, March 2007 issue.

And they concluded that the future is promising for producing electricity from concentrated solar thermal

energy (CSP) and photovoltaic (PV) systems because the solar radiation falling across the region is higher than the required rate. Although CSP can be exploited at lower rates, it has been assumed that 1800 kWh per square meter of annual direct natural brightness (DNI) is appropriate to determine the overall technical potential of this energy. Economic potential was considered to be in the order of 2,000 kWh of direct brightness per square meter per year, which is an adequate level to make solar energy costs in the medium term competitive with other conventional and renewable energy sources for electricity generation. Statistics indicate that all countries in the Middle East and North Africa are eligible for this technology, as its rates exceed 1800 kilowatt-hours per square meter per year.

**- Adel Kaduda's study:**

Economic analysis of water resources, an article published in the Journal of Contemporary Economics - a scientific journal, six-year, court issued by the Institute of Economic Sciences and Management Sciences - University Center Khemis Miliana / Algeria, Issue: April 03-2008.

Where he dealt with a resource of renewable resources, explaining its economic importance, citing fisheries, and he concluded through this study that water is a renewable resource and is found everywhere, but it is limited and several geological, climatic and human factors are destroyed for each.

**1.3 Through the above, we divided our research into the following sections:**

- The First Section: The Theoretical Framework for Renewable Energies.
- The Second Section: Concepts of Sustainable Development.
- The Third Section: Developing Renewable Energies Within the Framework of Sustainable Development in Algeria.
- Conclusion.

**2. Main Title: The Theoretical Framework for Renewable Energies:**

Energy is the other side of the non-living things of the universe. Inanimate things are inherently insufficient to change their state without an external influence, and this external influence is energy. Energy is the stimuli exchanged by the physical bodies to change its state, for example to move a static object we push it, so we give it kinetic energy, and to heat an object we give it thermal energy, To make the object visible, we shed light on it and give it light energy, and so on

**2.1. The Concept of Energy and its Historical Development:**

The prevailing definition of energy is "the ability to do something," (Shawky El-Sayed. 200) .

Whatever the work is intellectual or muscular requires an appropriate amount of energy to be accomplished. Energy sources have been evolved with the development of the means of work that have been invented by man to meet his various needs (material and moral) over his long history.

## Developing Renewable Energies as an Economic Alternative in Light of Achieving Sustainable Development in Algeria. Sustainable Development in Algeria

---

In the beginning, man relied on his muscular strength to accomplish his daily work, then he used animal energy and took advantage of wind movement to stir ships and manage some windmills, and he also relied on waterfalls to manage some primitive machines. And he knew coal since he discovered fire, so man used it as an energy source in managing the steam engine, and then discovered oil, natural gas and other modern energy sources. Nowadays, and with the great development that the means of production have witnessed, the energy sources in the world have become multiple and varied, including depleted (traditional) sources and others renewable or permanent sources.

Energy can be defined as the ability to carry out an activity, and there are many forms of energy, the most important ones ; are heat, light and sound, and there is also mechanical energy generated by machines, and chemical energy that results from the occurrence of chemical reactions, and there is electrical energy, hydroelectric energy, kinetic, radiation, and dynamic. It is also possible to convert energy from one form to another, from chemical energy to light energy, for example, and electrical energy to kinetic.

The amount of energy in the world is always constant, because energy does not perish and is not renovated but it is transformed from one form to another, and for this we find that energy is the ability of matter to do work (motion), so the energy that accompanies a movement is called kinetic energy, and the energy that is related to the situation is called Inner energy.

### 2.2. Energy Classifications and its Sources:

There is a classification of energy and its sources based on the possibility of its renewal and its continuance of that energy, and this classification includes:

**2.2.1 Conventional or Depleted Energy:**It includes: coal, petroleum, minerals, natural gas and chemicals. They are depleted because they cannot be made again or replaced again in a short time.

**2.2.2 Renewable, Clean or Alternative Energy:**It includes wind, air, solar energy, water energy or waves, underground energy and biomass energy, which are inexhaustible.

### 2.3. the Concept of Renewable Energy and its Sources:

Renewable energy sources are characterized by the ability to be exploited continuously without leading to the depletion of their source. Renewable energy is that which we obtain through energy streams that re-exist in nature automatically and periodically.( Zarzour Ibrahim. 2006. p06).

We also mean by "renewable energy" the electricity that is generated from the sun, wind, biomass, geothermal and water heat, as well as biofuels and hydrogen extracted from renewable sources.(Hani Obaid. 2000. p205).The most important forms and sources of renewable energy are:

**2.3.1 Water Energy:** The history of dependence on water as a source of energy goes back to before the discovery of steam power in the eighteenth century. Until that time; man used the water of river to operate some of the water wheels that were used to run flour mills, weaving machines and sawmills. However today, after the entrance of man to the Electricity era; water began to be used to generate electric power, as we witness this in many countries such as Norway, Sweden, Canada and Brazil, and for this purpose, power plants are built on riverbeds, dams and artificial lakes are built to provide large quantities of water to ensure the operation of these Stations permanently. Future expectations point that this power will increase five times the current power by 2020.( Hani Obaid. 2000. p 220).

Hydropower comes from the energy of the flow of water or its fall in the case of waterfalls (waterfalls), or from the collision of waves in the seas, where the waves arise as a result of the movement of winds and their action on the waters of the seas, oceans and lakes, and from this wave movement energy arises, can be exploited and converted into electrical energy, as the waves produce energy in normal conditions estimated between 10 to 100 kilowatts per meter from the shore in areas of medium distance from the equator.

It is also possible to take advantage of the energy generated by the tidal movements in the water, and finally, the difference in temperatures between the upper and lower layers of water can be taken advantage of, which can reach a difference of 10 degrees Celsius.

**2.3.1 Biomass energy:** The importance of biomass energy lies in the fact that it ranks the fourth in terms of energy sources at the present time, as it constitutes 14% of the energy needs in the world, and the importance of this energy increases in developing countries as this percentage increases to about 35% of the energy needs in those countries, especially in rural areas.( Hani Obaid. 2000. p 219).

The energy of biomass, or as it is sometimes called, bio-energy is basically an organic matter such as wood, agricultural crops and animal waste, and this energy is a renewable energy because it converts the energy of the sun into energy stored in plants through the process of photosynthesis, as long as there are green plants there is Solar energy stored in it, and hence we have biomass energy that you can get in different ways from these plants. As for the sources of biomass at the present time they are: forest residues and agricultural residues, deliberate exploitation (cutting) of forest timber, city waste, crops that are specially grown for the purpose of obtaining energy from them. Bio-energy is energy that is derived from organic materials such as burning plants, animal bones and residues, waste and agricultural residues. The plants used in the production of biomass energy can be fast-growing trees, grains, vegetable oils, or agricultural residues, and there are different methods of treating bio-fuels, including:

- **Direct Burning:** It is used for cooking, heating and steam production, but this process has a low heat return.
- **Indirect Burning:** To produce charcoal (without oxygen).

## Developing Renewable Energies as an Economic Alternative in Light of Achieving Sustainable Development in Algeria. Sustainable Development in Algeria

---

- **Fermentation Methods:** To produce methane gas, which is used in household chores such as heating, cooking and lighting.

**2.3.2 Thermal solution and distillation:** Each of the previous methods produces its own products such as methane, alcohol, steam and chemical fertilizers. Ethanol is one of the best fuels extracted from biomass and it is extracted mainly from corn crops and sugar cane.

**2.3.3 Underground energy:** It is the energy of geothermal heat, as the high temperature in the ground is used by extracting this energy and converting it to other forms, and in some faults and fissures the groundwater seeps through the cracks and fissures to great depths so that it touches very hot areas and heats up and rises to the top of a hot sparkling, and some of these The springs erupt and subside several times an hour, and some of them flow continuously and smoothly, carrying with it the dissolved minerals from the deep layers of rocks, and thus the so-called hot springs appear, and people mean this type of springs for healing, in addition to the fact that there are projects based on exploiting the heat of water released from the ground in the generation of electricity .

**2.3.4 Wind Energy:** It is the energy generated from moving large panels fixed in high places by the action of the air, and the electrical energy is produced from the wind by motors (or turbines) with three rotating arms carried on a shaft that convert the kinetic energy of the wind into electrical energy. When the wind passes over the arms, it creates a dynamic air impulse that causes its spin, and this rotation drives the turbine to produce electrical energy.

In other words, wind energy is the energy derived from the movement of air and wind, and wind energy has been used since ancient times, whether in running sailing ships, managing windmills to grind the harvest and grain, or raising water from wells, and wind units are used to convert wind energy into mechanical energy which is used directly or converted into electrical energy through generators. (Muhammad Sahel, Muhammad Talibi. 2008, p204).

Today, the concept of this energy is related to its use in generating electricity by "windmills" and generating stations that are established in a specific place and the needy areas are supplied via electrical wires. According to the World Standards Organization estimates; 20 million megawatts of this source can be generated on a global scale, which is twice the capacity of hydropower. (Shawky El-Sayed. 2008) .

The amount of energy produced from a wind turbine depends on the wind speed and the diameter of the arm, so the turbines that are used to operate factories or for lighting are placed above towers, because the wind speed increases with the height above the ground, and these turbines are placed in large numbers on large areas of land to produce the largest amount of electricity, and it is worth noting that wind energy is also used in the propulsion of boats and sailing ships.

**2.3.4 Solar Energy:** The sun is one of the largest sources of light and heat on earth, and this energy - generated from nuclear fusion reactions inside the sun - is distributed over parts of the earth according to its proximity to the equator, and this line is the area that has the largest share of that energy, and the thermal energy generated by the sun's rays is used by converting it into (electrical energy) by (solar cells).

There are two ways to collect solar energy. The first, by focusing the sun's rays on a collector via convex mirrors. The collector usually consists of a number of tubes containing water or air. The sun's heat warms up the air or turns water into steam. However, in the second method ; a flat plate collector absorbs the sun's heat which is used to produce hot air or steam.

The use of the sun as an energy source is among the alternative sources of oil on which future hopes are held, as it is clean and inexhaustible energy. Therefore, we find many countries interested in developing this source and setting it as a goal that they seek to achieve. Solar energy is currently used in domestic water heating, swimming pools, heating and cooling; as it is in Europe and America, while in third world countries it is used to run water pumps in dried desert areas. Serious attempts are being made to use this energy in the future in desalination and electricity production in a large scale. Solar photovoltaic energy is a global industry, attracting 12 \$ billion of fund. It is the main source of renewable energy that is actually distributed (consumers who generate the needed thermal or electrical energy for their needs and then return the surplus electrical energy to the electricity companies). (Michael Eckhart. 2006).

Finally, there is a trend in various developed and developing countries of the world aiming to develop policies of benefit from and invest in renewable energy forms, as a way to preserve the environment. On the other hand, finding other sources and forms of energy that have the potential for continuity and renewal, and availability at lower costs, in confronting the economic growth ; this would improve the quality of life of the poor while also improving the global and local environment.

### **3. Concepts of Sustainable Development:**

The oppressive use of natural resources, depletion of land resources and the steady increase in population have led the world to pay attention to the importance of studying these possibilities and how they will meet the growing needs in the future.

From this logic, the alarm was sounded at the end of the last century to pay attention to the danger threatening the world from the possibilities of running out or parsimony of these resources, therefore the United Nations organizations made a call to discuss the earth issues and how to preserve the resources of nature from running out to serve the present and future generations.

Governments have begun to adopt the concept of sustainable development, and it has become a must to translate this concept into practical reality through development in operational plans and preparing

## **Developing Renewable Energies as an Economic Alternative in Light of Achieving Sustainable Development in Algeria. Sustainable Development in Algeria**

---

development projects that are adopted by countries.

The term sustainable development became popularly used by the World Commission on Environment and Development (Portland Commission) 1987, as the committee called for development that meets the needs of the present generation without compromising the needs of future generations. Its report highlighted the need to address both development and environmental needs simultaneously. Since then, it has been viewed with great effort in an attempt to define the practical implications of the concept of sustainable development at various regional, national and international levels.

### **3.1 The Concept of Sustainable Development:**

The Rio de Janeiro Conference of 1992 clearly shed light on it, as the third and fourth principles that the conference came up with the definition of the sustainable development as (the necessity to realize the right in the development so that is equally fulfilled and the developmental and environmental needs of present and future generations). (P. Douglas Muschet. 2000, p63)

In another words (the development process that meets the aspirations and needs of the attendees without jeopardizing the ability of future generations to meet the needs), it also pointed out that (to achieve the sustainable development; environmental protection should be an integral part of the development process, and it is not possible to think in isolation from it).

These two principles, which have been recognized as part of the agenda of the 21st United Nations Conference, have some very profound implications for the use and management of natural resources, the ecosystem and the environment.

From the above, we have to ask what is meant (so that the developmental and environmental needs of present and future generations are equally fulfilled), i.e. achieving justice in meeting the needs of all people of the current generation, justice in meeting the needs of future generations and present generations while achieving a balance between development (in its various aspects) and maintaining the environment.

Thus, sustainable development is a set of means and methods to create economic growth that preserves the environment and reduces poverty levels without destroying natural resources and their capacity in the short term at the expense of long-term development.

### **3.2 The Necessity of Sustainable Development:**

The Earth Conference was a signal to the entire world that after decades of viewing the environment as the antithesis of economic growth. Politicians eventually came to realize the crucial link and the enduring complementarity of the two.



Humanity must learn to live within the limits of the natural environment as it is a provider of various wastes and a recipient of all garbage alike, and we must admit that even if environmental degradation does not reach to threatening levels of life, it may result in a significant decline in the quality of the world that we live in it, hence the necessity of sustainable development came.

**3.2.1 Food Production:** The United Nations development experts believe that the world population is currently estimated at 5.5 billion people and it is increasing globally by an average of 1.7%, and will reach 8.5 billion people by 2025, which ultimately leads to the population reaching 11.5 billion people in the year 2150. These numbers have great implications for today's population, and critically important to future generations. Accordingly, food consumption will double, even though the growth rate for required food production is 1.6% per year, and it is always estimated that it will be less than the 2% rate achieved at the end of the twentieth century.

Therefore, agricultural scientists agree that the task is more difficult, because many of the previous growth sources are no longer available at the present time. Now, there are two main options:

- Intensification of agricultural production on lands that are actually used.
- Expansion into new areas.

By the end of the twentieth century, the option of intensifying production was dominant, and it was the reason for more than 90% of agricultural growth. Now it is difficult for a new green revolution to be repeated in the huge attainments made in obtaining goods. The challenge will not be to increase production, but rather how to achieve this in a way that is less harmful than in the past.

The existing environmental problems resulting from the intensification of production (transfer of chemicals through water and animals, the rise of water in the Algerian deserts, the rise of salinity proportion etc) have reached serious limits in some regions of the world and will deteriorate further if better policies are not followed.

(Smail Serageldin, 1993, p6).

**3.2.2 Pollution:** It means every qualitative quantitative change in the components of the living and non-living environment, the environment is not able to absorb it without disturbing its balance, such as the presence of any substance or energy that is out of place, time and appropriate quantity.

Since water is considered a pollutant if it is added to the soil in quantities that replace the air in it, and salts when they accumulate in agricultural lands due to insufficient drainage systems are considered pollutants, and oil is a component of the environment, but it becomes a pollutant when it seeps into seawater and oceans. (Fathi Dardar, 2002, p 77). There are many pollutants, including: (chemical pollutants, physical pollutants, noise pollution, and intangible pollution).

## **Developing Renewable Energies as an Economic Alternative in Light of Achieving Sustainable Development in Algeria. Sustainable Development in Algeria**

---

### **3.3 The Aims of the Sustainable Development:**

It aims to secure economic growth, achieve equality and social justice, and protect the environment. Although these goals may have contradictions and differences between them, they can coexist and harmonize, as sustainable development aims to find a balance between economic, social and environmental needs, allowing for a decent life for us and for future generations.

It relies on a comprehensive and long-term approach to developing and achieving healthy societies that deal with the economic, social and environmental aspects without depleting the natural and basic resources. (Raik Kamel, Moayad Mehyar).

### **4. Developing Renewable Energies as an Economic Alternative within the Framework of Sustainable Development:**

The development of renewable energies in Algeria knows a growing interest as an important economic alternative, and this is shown through the following:

#### **4.1 Renewable Energy Development within the Framework of the National Energy Policy:**

These are the inexhaustible natural resources that are available in nature in a renewable way, and they are clean which result in environmental pollution. (Mansour Qassoum, jaziratmieizi, 2021, p513).

The interest in developing renewable energies in Algeria goes back to the first years of independence with the establishment of the Solar Energy Institute in 1962. The development of renewable energies is one of the main options included in the Energy Control Law of 1999 due to its social, economic and environmental advantages, and as one of the tributaries of sustainable national development.

Great importance has been attached to the development of these resources, and the issuance of Law No. 09-04 on the development of renewable energy within the framework of sustainable development. In addition to Executive Decree 09-04 related to generating electricity from renewable energy sources.

The interest in developing renewable energy in Algeria aims to achieve two main goals, namely:

- Providing the necessary energy services to the isolated areas far from the power distribution networks.
- Contributing to the preservation of hydrocarbon reserves by exploiting the fields of renewable resources that Algeria has, especially solar energy.

#### **4.2. Programs and Projects for Developing Renewable Energies:**

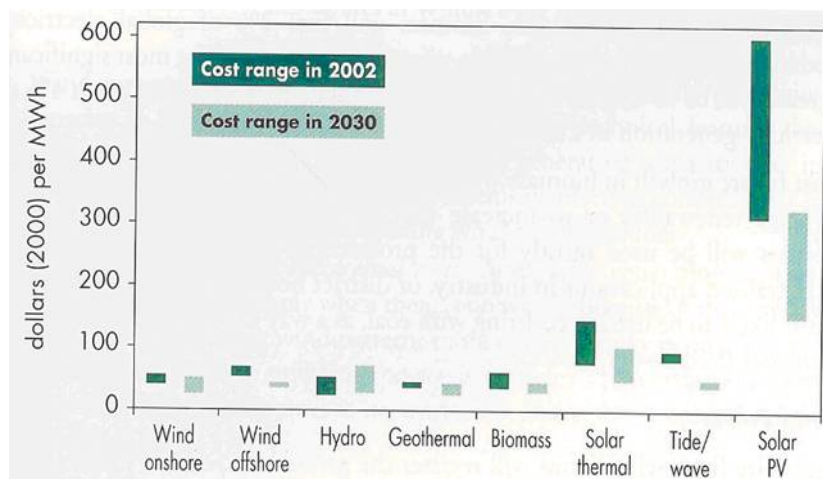
Algeria has important capabilities in renewable energies, especially solar energy, which qualifies it to play an important role in the production and export of electricity from renewable energy sources. The latter is still at the beginning of its course in Algeria compared to other countries, and this delay in developing renewable energies is due to the dependence on the abundance of energy unless for the necessity and low cost.

**Table N°1: The installed capacities of renewable energies between 2015-2030**

	The first stage	The second Stage	Total
Solar cells	3000	10575	13575
Wind	1010	4000	5010
Solar heat	-	2000	2000
cogeneration	190	250	440
Biomass	360	640	1000
Geothermal heat	05	10	15
<b>total</b>	<b>4525</b>	<b>17475</b>	<b>22000</b>

Source: Renewable Energy and Energy Efficiency Development Program, January 2016, p.8.

Through the previous table the focus in the energy mix for generating electricity was on solar photovoltaic (PV) energy, with installed capacities exceeding 10,000 MW, followed by wind energy with 4000 MW, and then solar thermal energy CSP with 2000 MW.

**Fig N° 1: Production costs range from renewable energy sources (2002 and 2030)**

Source: (WEO) World Economic Outlook 2004.

The following figure shows the range of production costs from renewable energy with various technologies as it is in 2002 and is expected to be in 2030. It is clear from this figure that the expected costs will decrease during the next twenty-five years, but with all this progress, renewable energy will remain It suffers from its high cost and intermittent nature, which will limit its contribution to energy sources even in the medium and long future.

Based on 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, and in this context and in order to promote renewable energy production, a different company called (New ErevyAlgeria) was established between the national company of Sonatrach, the national company Sonelgaz and the SIM complex for the production of foodstuffs in 2002.

## Developing Renewable Energies as an Economic Alternative in Light of Achieving Sustainable Development in Algeria. Sustainable Development in Algeria

### 4.3. International Cooperation in the Field of Renewable Energy Development:

In this context, many agreements have been held, including with the Tunisian Agency (ANER) and the French Agency (ADEME), to benefit from the experiences of member states in developing the use of renewable energies and also to contribute to the establishment of a Mediterranean market for renewable energy.

Algeria has benefited, within the framework of the Intermediate Association, of the Solar Thermal Applications Program, and it aims to:

- Evaluating the market situation of solar improvement in Algeria.
- Determining the available technical and material capabilities.
- Assessment of development potentials and actual national needs.

This study enabled the identification of four possible main halls for the exploitation of solar thermal energy, namely the health sector, driving and the household sector, in addition to services (bathrooms and swimming pools), as well as identifying the potential for energy saving and pollution reduction, in addition to collecting the required investments to promote the use of renewable energy.

The program of solar thermal energy applications in the Mediterranean basin aims to transfer the good deeds and successful European experiences in the field of solar thermal energy in these countries with the aim of developing small and medium industries and traditional industries.

Table 03: Evolution of Algeria's renewable energy volume in the horizons of 2020 and 2030. (Unit: MW)

the year	Wind Energy	photovoltaic cells	concentrated solar energy	Hydropower	total energy
2013	10	6	25	26	41
2015	50	182	325	52	557
2020	270	831	1500	150	2601
2030	2000	2800	7200	228	12000

Source: About Renewable Energy 2012, Regional Center for Renewable Energy and Energy Efficiency, Algeria – 2013.

It is evident from the above table that it is expected that the volume of renewable energy will develop from 41 MW in 2013 to 557 MW in 2015, to 2601 MW in 2020, an increase of more than 400% to become 12000 MW in 2030 with a significant increase, as the table shows that the volume of solar energy will increase considered during this period, which represents the largest share of the volume of renewable energy in the horizons of 2015 and the prospects of 2030 and the prospects for 2020.

### 5. Results and discussion:

Put the results obtained here, first by summary and analyzed data and results obtained in relation to the object of research. With an explanation of these results especially with regard to the proposed hypotheses and their validity.

## 6. Conclusion:

Despite the policies that countries have adopted in the field of renewable energy as an economic alternative, the most important measures that they have taken to raise the efficiency of production and consumption of renewable energy, they still face difficult and thorny challenges that prevent them from harnessing energy for sustainable development.

### ■ From the above, we can draw the following conclusions:

- ✓ Politics did not succeed in reaching the growth target, and the economy remained dependent on the changes in the level of fuel prices in international markets.
- ✓ The future of renewable energy and its contribution to energy sources depends on two main factors, one of them is the progress in technologies of this energy and the reduction of its costs, which is slow progress, and the other issue is related to environmental matters and the increasing taxes imposed on fossil fuels and financial and legislative support for renewable energy. However, these factors, although influential and will slightly increase the contribution of renewable energy, will not change much of the global energy mixture even in the long term.
- ✓ Many economies depend on petroleum products to meet their energy needs, while striving to raise the level of their dependence on natural gas due to its environmental advantages. As for its consumption of renewable energies, it is low due to the high cost of production and exploitation.
- ✓ Despite the diversity of energy sources available globally and the entry of some renewable sources into practical use, evidence indicates that traditional energy sources, especially gas and oil, will remain the main option for providing energy in the world for the coming decades.

### ■ Recommendations and Suggestions:

- Exchange and cooperation in the field of sustainable energy economics between developed and underdeveloped countries, and the promotion of economic and social development.
- Taking advantage of renewable energy resources, especially solar ones, to reach permanent growth, which allows raising the standard of living.
- We must go towards the exploitation of alternative and renewable energies as an input from the entrances to preserving the environment and considering that it will become the main alternative to energy in the future.
- Work to optimize the exploitation of natural resources, whether the underground or the apparent ones ; as an important capitalistic source for the country that possesses it, and thus advantages must be gained in exploiting them and benefiting from them.
- energy in the world for the coming decades.

## Developing Renewable Energies as an Economic Alternative in Light of Achieving Sustainable Development in Algeria. Sustainable Development in Algeria

---

### 7. List of references:

- 1- Mansour Qassoum, jaziratmieizi. The transition towards a green economy and renewable energies in the light of international experiences. journal of Studies in Economics and Business Administration, Larbi Tebessi University in Tébessa, Algeria, Volume 04 Issue 02- December 2021, p513.
- 2- Shawky El-Sayed: "Research on Renewable Energy", browsing date: 08/12/2008, URL: [www.netfirms.com/domain-names](http://www.netfirms.com/domain-names)
- 3- Zarzour Ibrahim: "The Environmental Issue and Sustainable Development", the National Forum on Environmental Economics and Sustainable Development, the Institute of Management Sciences, the University Center in Medea ,2006-7-17, p 6.
- 4- Hani Obaid: "Man and the Environment: Energy Systems, Environment and Population", Dar Al-Shorouk, Amman, year 2000, p 205.
- 5- Muhammad Sahel, Muhammad Talibi: An article presented in the researcher magazine entitled: "The Importance of Renewable Energy in Protecting the Environment for Sustainable Development - Presenting the experience of Germany, a scientifically refereed journal issued by the University of QasdiMerbah in Ouargla, Issue 06, year 2008, p204.
- 6- Michael Eckhart: Renewable Energies: Looking Towards Inexhaustible Energy, an article published in the Journal of Economic Situations issued by the US Department of State, Office of International Information Programs, Juila 2006, Volume 11, Number Two: [www.usinfo.state.gov/ar/home/p](http://www.usinfo.state.gov/ar/home/p).
- 7- P. Douglas Muschet, translated by Baha Shaheen, Principles of Sustainable Development, International House for Cultural Investments, Egypt 2000, p63.
- 8- smail Serageldin, «Until the Development Becomes Sustainable», Finance and Development Journal, December 1993, p6.
- 9- Fathi Dardar, The Environment in the Face of Pollution, Dar Al Amal, Tizi Ouzou, Algeria 2002, p77.
- 10- Raik Kamel, Moayad Mehayar, Sustainable Development, Concepts and Objectives of the Special Committee of the Arab Offices Authority.