Legal and Regulatory Framework for Renewable Energies in Algerian Law

الإطار القانوني والتنظيمي للطاقات المتجددة في القانون الجزائري

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abstract:

The Algerian state has focused on the development of the renewable energy sector through a set of legal and regulatory texts aimed at regulating this strategic sector and implementing it in reality. This is based on a combination of approaches that include environmental protection, achieving sustainable development, and ensuring the rational exploitation of various forms of energy to achieve energy security. Additionally, the door to investment in the field of renewable energies has been opened, granting incentives and benefits to investors through investment laws and regulatory texts. Accordingly, our study will focus on identifying the legal texts regulating the renewable energies sector in Algeria, then addressing the energy security program established by the Algerian state in order to embody the gradual trend towards alternative energies.

Keywords: Renewable Energies, Sustainable Development, investment, Energy Security, environment.

ملخص

ركزت الدولة الجزائرية على تطوير قطاع الطاقة المتجددة من خلال مجموعة من النصوص القانونية والتنظيمية الهادفة الى تنظيم هذا القطاع الاستراتيجي وتنفيذه على ارض الواقع. ويرتكز ذلك على مجموعة من التوجهات التي تشمل حماية البيئة وتحقيق التنمية المستدامة، وضمان الاستغلال الرشيد لمختلف اشكال الطاقة لتحقيق أمن الطاقة. بالإضافة الى ذلك تم فتح باب الاستثمار في مجال

الطاقات المتجددة ومنح الحوافز والمزايا للمستثمرين من خلال قوانين الاستثمار والنصوص التنظيمية. وعليه ستتركز دراستنا على تحديد النصوص القانونية المنظمة لقطاع الطاقات المتجددة في الجزائر ثم التطرق الى برنامج الامن الطاقوي الذي سطرته الدولة الجزائرية بغية تجسيد التوجه التدريجي نحو الطاقات البديلة.

الكلمات المفتاحية: الطاقات المتجددة ، التنمية المستدامة ، الاستثمار، الامن الطاقوي، البيئة.

Introduction :

Energy security is among the priorities of the development strategy followed by Algeria through the gradual transition to sustainable and renewable energies, known as alternative energy to fossil fuels. This is to ensure environmental preservation, achieve sustainable development, and ensure the sustainability of natural resources for future generations. This opens up investment prospects in this vital sector, as reflected in the Investment Law 22-18[1], by conducting technical and economic feasibility studies. These studies contribute to raising and improving environmental conservation levels based on the "substitution principle" mentioned in Law No. 03-10[2], which allows for replacing environmentally harmful activities with less hazardous ones. The alternative activity is chosen even if its cost is higher, as long as it is suitable for the environmental values under protection.

The Algerian state has been concerned with the development of this strategic sector through a series of legal and regulatory texts aimed at regulating the exploitation of renewable energies and implementing it in reality by opening the door to investment in this sector. It has also dedicated principles for environmental conservation through Law 03-10 related to environmental protection within the framework of sustainable development[3].

The Minister responsible for energy and mines highlighted, in the context of presenting the sector's achievements, the program to achieve 15 megawatts of renewable energies to be implemented by Sonelgaz Group within an accelerated program covering 42 provinces. Additionally, there are projects to establish 1000 electric vehicle charging points, scheduled for launch in 2023. The Minister also shed light on the sector's tasks regarding the completion of several petrochemical and joint projects in water scarcity treatment programs.

Furthermore, there are projects to hybridize diesel stations in small networks in the southern regions with a program of 50 megawatts[4].

However, alternative energies will not provide what the world currently needs in terms of oil consumption, making it difficult to compensate for the current or future petroleum consumption. This leads countries to resort to using a mix of energy or nuclear energy[5].

Despite Algeria's vast state-owned land, it faces difficulties in providing real estate vessels due to policies and programs not proportionate to these projects. Moreover, there are limitations in local manufacturing capacities for the equipment required for renewable energy production, and the inability to compete with global companies due to insufficient national technical resources. Consequently, authorities rely on international consulting firms, alongside the inadequacy of financial allocations for scientific research and development of renewable energy equipment[6].

Study problem:

The problem of this study can be formulated in the following main question:

How effective and sufficient are the legal texts regulating renewable energies in Algeria?

Conclusion: Times New Roman 14 bold (Including search results, recommendations or suggestions, not a summary) (Sakkal Majalla17).

margins:The margins are automatically placed at the end of the article, according to a scientific method as follows: without brackets, stars, or shot for example: (1, (1), 1 *):

Therefore, our study will focus on identifying the legal texts regulating the renewable energy sector in Algeria first, and then on the energy security program outlined by the Algerian state to embody the gradual shift towards alternative energies.

Section 1

Legal Consolidation of Renewable Energy Exploitation in Algeria

The Algerian state has shown interest in renewable energies to achieve energy security and explore alternative ways of obtaining energy by shifting towards environmentally friendly projects as alternatives for the post-oil era. Despite Algeria's cautious steps in investing in this sector, Algerian legislation has

surrounded it with a series of guarantees and incentives, as indicated in several legal texts addressing renewable energies.

1- Law No. 98-11, which includes the Directive Law and the Five-Year Program on Scientific Research and Technological Development[7]

This law does not explicitly mention the concept of renewable energies or specify methods and ways of exploiting them. However, it implicitly understands it through Article 3, paragraph 8, which states: "Scientific research and technological development aim to achieve economic, social, cultural, scientific, and technological development of the country... production, storage, distribution, rational use, and diversification of energy sources – environmental protection and conservation of nature, biodiversity, and ecological balance..."

2- Law No. 99-09 dated 15 Rabi' al-Thani 1420 corresponding to July 24, 1999, regarding Energy Control[8]

This law aims to define the conditions of the national policy for energy control, framing its means, and implementing it. Energy control includes all measures and practical activities to optimize the use of renewable energy through better energy consumption in various production levels, energy conversion, and final consumption in all sectors, including household consumption. It also aims to mitigate the impact of the energy system on the environment by reducing emissions of greenhouse gases and vehicle emissions in cities.

3- Decree No. 02-01 dated 22 Dhu al-Qi'dah 1422 corresponding to February 5, 2002, concerning Electricity and Gas Distribution through Channels[9].

This decree aims to establish the rules applied to activities related to electricity production, transmission, distribution, marketing, gas transmission, distribution, and marketing through channels. These activities are carried out by individuals or legal entities subject to general or special laws and practice them within the framework of the public facility.

Following these laws, Executive Decree No. 05-182 dated May 18, 2005, was issued to regulate definitions and incentives for activities related to the transmission, distribution, and marketing of electricity and gas[10] Then came Executive Decree No. 13-218 dated June 18, 2013, which defines the conditions for granting bonuses entitled "Costs of Diversification of Electricity Production - Revised and Complementary."[11]

The bonuses titled "Costs of Diversification of Electricity Production" refer to the income that can cover additional costs resulting from renewable electricity

production or joint production, ensuring financial returns for the production facility thanks to the applied guaranteed purchase tariff.

4- Law No. 04-09 dated August 14, 2004, concerning the promotion of renewable energies within the framework of sustainable development, specifies the methods of promoting renewable energies within the framework of sustainable development[12].

The objectives of promoting renewable energies include environmental protection by encouraging the use of non-polluting energy sources and contributing to combating climate change by reducing greenhouse gas emissions. Additionally, it contributes to sustainable development by preserving traditional energies, conserving them, and participating in the national policy for regional development by valorizing renewable energy sources and promoting their widespread use.

According to Article 3 of this law, renewable energies are defined as follows:

Forms of electrical, kinetic, thermal, or gaseous energies obtained from the conversion of solar radiation, wind power, geothermal heat, organic waste, hydro-power, and biomass utilization techniques. It encompasses various methods that allow for substantial energy savings, including the use of bio-climatic engineering techniques in the construction process.

The main conversion branches falling under the scope of renewable energies are also outlined in Article 4 of the aforementioned Law No. 04-09, which states the following: "All operations converting renewable energies from their primary form to their final form are subject to the provisions of this law and constitute its field of application, particularly the following conversion branches:

- **Solar Energy:** - Photovoltaic conversion. - Thermal and thermogenetic conversion.
- **Biomass Energy:** - Anaerobic conversion processes (wet) through methanization and alcoholic fermentation. - Dry conversion processes by combustion, pyrolysis, and gasification.
- **Wind Energy:** - Mechanical conversion. - Electromechanical conversion.
- **Geothermal Energy:** - Recovery in thermal form.
- **Hydro-power:** - Electromechanical conversion.
- Materials and techniques related to bioclimatic engineering that allow for effective savings in the use of traditional energies."

The Executive Decree No. 17-98[13], which specifies the procedures for tendering for the production of renewable or co-generated energy and integrating it into the national energy supply system, defined renewable energies as follows:

"All energies derived from hydraulic sources, solar thermal energy, wind energy, geothermal heat, radiant solar energy, biomass, as well as waste recovery..."

5- Law No. 15-21, enacted on December 30, 2015, includes the guiding law on scientific research and technological development, which repealed the provisions of the aforementioned Law 98-11. The text explicitly refers to the subject of renewable energies and works towards their promotion, diversification of energy sources, and ensuring their sustainability for achieving sustainable development. Article 7 of the law states:

"The objectives of scientific research and technological development are particularly aimed at:

- Energy production, storage, distribution, rational use, and diversification of sources.
- Environmental protection, promotion of green economy, and adaptation to climate change.
- Combating desertification, preserving nature, biodiversity, and ecological balance, and promoting sustainable development.
- Development and promotion of renewable energies."

Some provisions of this law were amended by Law No. 20-02, dated 18 Rabi' al-Awwal 1437 corresponding to December 30, 2015, which includes the guiding law on scientific research and technological development.[14]

Section 2
Foundations of the Energy Security Program in Algeria

In embodiment of the international principles and trends regarding the transition to alternative energies amidst the continuous deterioration of environmental systems due to the use of fossil and traditional energies, which are predicted to deplete if excessively exploited in a few years, Algeria has embarked on outlining a set of programs aimed at developing research, with one of the most important being the Energy Security Program.

Energy security refers to the proper balance between supply and demand for energy to facilitate and serve the economic development and social progress of both producers and importers. It is a balance intended to reconcile a variety of energy sources with a complex array of needs[15].

Executive Decree No. 21-89 was issued on 17 Rajab 1442 AH, corresponding to March 1, 2021, including a multi-year development plan for the implementation of national programs for scientific research and technological development[16]. This decree is in accordance with the provisions of Article 13 of Law No. 21-15, which includes the guiding law on scientific research and technological development, amended. This decree aims to establish a multi-year development plan for the implementation of national programs for scientific research and technological development.

The main objectives of scientific research and technological development of the aforementioned plan in Article 1 above, according to Article 2 thereof, are as follows:

- Enhancing energy security,
- Diversifying energy sources and improving their efficiency, taking environmental needs into account at all levels,
- Developing techniques and processes for alternative energy production and their applications,
- Contributing to environmental protection and promoting blue and green economies.

To achieve the objectives mentioned in Article 2 above, the national programs for scientific research and technological development prioritize programs that must be implemented, including:

- The National Program for Research on Food Security,
- The National Program for Research on Citizen Health,
- The National Program for Research on Energy Security.

As for the National Program for Research on Energy Security, it falls within the research on energy security, given its national priority, within the framework of the government's action plan aimed at securing and diversifying energy sources. This program encompasses both renewable energies and fossil fuels, aiming to exploit new energy sources through a series of related measures.

The development and enhancement of renewable energies within the framework of national energy security are among the main objectives of the government's national strategy. Regarding the development of renewable energies, the government approved, in March 2020, a program to develop renewable energies with a capacity of 16,000 megawatts by the year 2035, including 15,000 megawatts connected to the national electricity grid and the remaining 1,000 megawatts for off-grid use (self-consumption).

Algerian legislation defines, in Article 3 of Law 09-04, "electric, thermal, kinetic, or gaseous energies derived from solar radiation, wind power, geothermal heat, organic waste, hydraulic energy, and biomass utilization techniques" as forms of renewable energy.

The National Program for the Development of Renewable Energies relies on the importance of renewable energy sources in Algeria, especially with the availability of a solar field distinguished by an average of more than 2500 hours of sunlight per year and an average solar radiation of 3000 kilowatt-hours/m²/year.

The potential of wind energy is also considered significant, with many sites characterized by medium wind speeds exceeding 5 m/s. The same applies to geothermal energy, given the numerous sources available in Algeria. Energy valorization of waste constitutes another important source of energy production[17].

The effects of developing renewable energies are reflected in:

- Environmental protection and promotion of the green economy,
- Development of agriculture and rural areas,
- Facilitation of energy utilization, especially renewable electricity,
- Efficient use and diversification of energy sources,
- Combating desertification, biodiversity, achieving ecological balance, and promoting sustainable development,
- Local development,
- Job creation,
- Development of the local industrial sector.

The fields and axes of research in renewable energies and energy security can be summarized as follows:

-Integration into the grid: Impact and analysis, development of calculation and analysis tools (smart grids, etc.), requirements for connecting renewable energy stations to the transmission and distribution network.

-Renewable energy fields: Evaluation of solar energy fields, wind energy, geothermal energy, assessment of biomass reserves, evaluation of small hydropower and other renewable sources.

-Photovoltaic solar energy: Integration of photovoltaic energy stations into the grid, systems and applications of photovoltaic energy, cells, units, and photovoltaic generators, conversion, management, and monitoring of photovoltaic systems.

-Wind energy: Wind farms, small wind applications, control of wind systems and wind turbines.

-Energy efficiency in construction: Integration of energy systems into buildings, traditional and modern concepts, technologies, and practices.

-Hybrid systems: Study of various types of hybrid systems, hybridization of traditional stations in isolated networks, hybrid systems connected to the grid, energy control and management in hybrid systems, development of software for dimensioning and improving hybrid systems and other applications of hybrid systems.

-Solar thermal energy: Concentrated solar power stations, air conditioning and solar thermal cooling, low-temperature systems, and thermal applications.
-Cogeneration: Cogeneration applications, cogeneration and micro-cogeneration.
-Exploitation and maintenance of renewable energy stations: Exploitation and maintenance of renewable energy stations.
-Energy storage: Thermal storage and multiple storage.
-Geothermal energy: Management and environmental impacts, concepts and utilization techniques, geothermal applications.
-Bioenergy: Bioenergy (raw materials, assessment and utilization), treatment and energy valorization of waste.
-Hydrogen and fuel cells: Hydrogen and fuel cells.
-Materials: Storage materials, photovoltaic materials, wind materials, thermal materials, hydrogen materials, and fuel cells.
-Geological sciences: Exploration, logistics, and environmental effects, characterization and modeling of reservoirs, hydrology and hydrogeology. Definition of petroleum systems in North Algeria, marine exploration and exploitation.
-Improvement of fuel recovery: Improvement of petroleum recovery rate, production mechanisms in traditional and non-traditional tanks, characterization of complex tanks.
-Corrosion and protection: Treatment and monitoring of pipeline corrosion and gathering networks, equipment corrosion, corrosion under insulation, formation mechanisms, and preventive or mitigating measures against the effects of black powder on petroleum and gas facilities, mercury corrosion, corrosion inhibitors, corrosion protection, biological corrosion, and biocide inspection and monitoring of facilities.
-Refining, petrochemistry, and catalysis: Development of new additive materials for fuel, development of new types of fuel and lubricants, cost assessment of petroleum, exploitation and monitoring of catalysts for petrochemical and refining units, exploitation and monitoring of advantages for processing units.
-Environment: Analysis of environmental impacts associated with fuel development, waste treatment and valorization, soil, water, and sediment decontamination from fuel pollutants.
-Operational problems: Development of non-destructive monitoring techniques, problems related to fuel exploitation and transport (flow assurance).
-Modeling, simulation, and improvement: Improvement of final product features. Modeling and simulation and improvement of petroleum and gas pouring methods. Mastery of technological selection for technologies,

development of data conversion tools and programs in programmable self-machines.

-Development of innovative materials (exploration, transport, installation, and methods): Sustainability of equipment (discs, gas turbine blades, exploration tools, etc.), high-performance exploration materials (increase in temperature and pressure), movement of composite and long-term repair materials in the pipeline.

CONCLUSION :

Despite the high costs of renewable energies, Algeria remains a candidate for leadership in this field in the near future, given the natural resources it possesses. This comes against the backdrop of fluctuating oil prices in global markets, the need to mitigate pollution risks, and scientific studies confirming the decline of fossil fuels. Therefore, it is necessary to rationalize their use and consumption to ensure their sustainability for future generations and focus on alternative energies. This can be achieved by encouraging investment in renewable energy and providing additional incentives for investors, as outlined in the Algerian investment law for the year 2022. Moreover, there should be a focus on promoting the production of local equipment operating on alternative energies. Additionally, awareness should be raised about using environmentally friendly devices to reduce pollution risks and gradually transition towards alternative energies.

Furthermore, efforts should be made to remove barriers to the importation of devices using alternative energies and reduce customs duties on them to facilitate their widespread use among individuals.

1- Fiscal, Quasi-Fiscal, and Customs Incentives

2- The principle of caution, whereby the lack of available technologies should not delay the adoption of effective and appropriate measures to prevent serious environmental damage, given current scientific and technological knowledge, at an economically acceptable cost.

3- The polluter-pays principle, under which each person responsible for or capable of causing environmental damage bears the costs.

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11- Executive Decree No. 13-218 dated June 18, 2013, which specifies the conditions for granting bonuses for diversifying electricity production costs, Journal Number 33 dated June 26, 2013.
12- Law No. 04-09 dated August 14, 2004, related to the promotion of renewable energies within the framework of sustainable development, Journal Number 52 dated August 18, 2004.
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