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FINANCIAL MECHANISM FOR RENEWABLE ENERGY SOURCES ON THE EXAMPLE OF ALGERIA

Abstract

- *Goal* – The purpose of this manuscript is to characterise the financing mechanisms for renewable energy projects in Algeria – government, international, private – in solar and wind energy, along with an assessment of their effectiveness.
- *Research methodology* – The effectiveness of financing sources was determined using a case study of the largest completed and contracted solar and wind power plant projects in Algeria and an analysis of national and international reports on the energy sector and renewable energy sources.
- *Score/results* – The forms of financing used in Algeria are effective in terms of the share of solar and wind energy in total renewable energy production, the per capita energy generated from RES, and the energy potential generated by built and implemented PPP RES installations. In contrast, areas such as the share of solar and wind energy in the country's total energy mix and the implementation of a renewable energy development program for solar and wind energy are characterised by inefficiency.
- *Originality/value* – The article fills a research gap in the effectiveness of solar and wind energy financing sources in Algeria.

Keywords: renewable energy sources, financial mechanism, Algeria

1. Introduction

Algeria, one of North Africa's largest economies, has significant natural gas and oil reserves, the extraction of which accounts for 95% of export revenues, representing

over 30% of GDP [Bélaïd et al., 2017: 277–287]. These reserves also form the basis of its energy system. Changes in global energy production trends, oil price volatility, and problems with the extraction and export of fossil fuels caused by the activities of Islamic radicals have prompted the Algerian government to begin implementing sustainable development goals to reduce dependence on fossil fuels in favour of renewable energy sources. This is also intended to counteract environmental problems related to the relatively low average annual rainfall, which has fallen by 30% over the last few decades, and the limited possibility of reducing carbon dioxide emissions [www 1].

In terms of solar and wind energy potential, Algeria is classified as a country with high levels of solar radiation. It amounts to over 3,000 hours [Ghezloun et al., 2015: 1561–1570], which generates a potential of 13.9 TWh per year and, according to estimates, enables the production of over 1 000 gigawatts of energy through photovoltaic systems. This can be supplemented by wind energy, with a potential of approximately 35 TWh/year [www 2].

The pursuit of a sustainable energy future has required adaptation to international climate agreements, including, for example, the Paris Agreement, through the development and increase of the share of RES in the national energy strategy. In addition, an ambitious target of generating 27% of electricity from renewable sources by 2030 has been set [www 3]. The implementation of the adopted goals and obligations resulting from the signed agreements requires the use of available domestic and foreign financing mechanisms to obtain funds for the transition from the traditional energy sector dominated by oil and gas to sustainable energy solutions.

The aim of this article is to characterise the mechanisms of financing renewable energy projects in Algeria in the field of solar and wind energy, together with an assessment of their effectiveness.

Previous studies on the functioning of the renewable energy sector in Algeria can be classified into several groups. The first concerns the potential of renewable energy analysed by Stambouli et al. [2012: 4445–4460; 2011: 4507–4519], Bouraiou et al. [2020], Himri et al. [2009: 1584–1591], Hadji [2016] and Zahraoui [2021]. The second one relates to energy production through wind [Himri et al., 2012: 2381–2385; Laouadi et al., 2025, Himri et al., 2020, Nacer et al., 2016: 3631–3642], solar and photovoltaic [El-Kenawy et al., 2022: 5837–5854; Kaid et al., 2018: 169–182, Bouziane et al., 2022]. The third one covers the country's energy policy and the promotion of RES [Bouznit et al., 2020; Sahnoune et al., 2016; Haddoum et al., 2018]. The presented studies do not address the issue of assessing the effectiveness of RES project financing mechanisms, which provides an opportunity to examine this issue.

2. Materials and methods

The achievement of the adopted objective required the use of the following research methods. Firstly, a review of the literature on the Algerian energy sector was conducted, focusing on the adopted objectives and strategies leading to the diversification of the energy mix towards RES based on domestic and foreign sources of financing. Next, using an analysis of national legislation, incentives and forms of support for domestic and foreign investors to implement RES projects were identified. In the next step, documents on cooperation with international institutions and organisations, i.e., the European Union, the World Bank, the African Development Bank, and the United Nations, were analysed to determine the types of support provided. Then, based on an analysis of online sources and Algerian legislation, the functioning of private support in the PPP formula and the projects in which it was used were identified.

The effectiveness of financing mechanisms was determined based on a case study analysis and an analysis of data on the renewable energy sector published by, for example, the International Renewable Energy Agency (IRENA), the International Energy Agency (IEA), and the Ministry of Energy. The first study presented the largest solar and wind power plant projects contracted under PPP arrangements, together with the amount of energy generated. This made it possible to determine how the energy potential of renewable energy sources has changed over the years. The analysis of the data made it possible to determine:

- the share of solar and wind energy in the total energy mix,
- the share of solar and wind energy in total renewable energy production,
- per capita energy production from renewable energy sources,
- the level of implementation of the renewable energy development program in the field of solar and wind energy.

This made it possible to determine the effectiveness of the used financing mechanisms, while identifying the barriers that prevent their full utilisation.

3. Financing mechanisms for RES in Algeria

To promote and develop investment in renewable energy, the Algerian authorities are implementing initiatives to encourage domestic and foreign investors. A key move by the authorities was the implementation in 2011 of the Renewable Energy

and Energy Efficiency Development Plan [Stambouli et al., 2012: 4445–4460], which promotes the diversification of Algeria's energy portfolio, reduces dependence on fossil fuels, and limits greenhouse gas emissions by 7% by 2030 [Algeria's INDC-UNFCCC, 2018]. In addition, it was assumed that by 2030, 40% of the country's electricity production would be generated from renewable sources, including 37% from solar energy and 3% from wind energy. The total generated capacity was to amount to 23 000 MW, of which 10 000 MW would be exported to the European energy market [Nachmany et al., 2015]. In 2015, it was revised to 22 000 MW, of which 12 000 MW is to supply the national energy system and the remainder will be exported to EU countries [Abada et al. 2018: 1–7]. In addition, the share of renewable energy in the national energy mix was reduced to 27% in 2030. Achieving the adopted targets requires the use of appropriate financing mechanisms. These should be understood as methods of obtaining financial resources for the implementation of specific projects. They may come from private entities, foreign organisations and institutions, as well as the state in the form of share purchases, credits, loans, subsidies, public funds, or tax exemptions [www 4 h].

In Algeria, the renewable energy sector is being recapitalised through national support linked to domestic legislation, international aid from the European Union, the World Bank, and the African Development Bank, as well as the participation of domestic and foreign private entrepreneurs in PPPs related to renewable energy infrastructure.

3.1. Domestic support

Algeria's energy policy is regulated by Law No. 99-09 of 2009 on the rationalization of internal energy consumption, the promotion of electricity generation from renewable sources (sun, geothermal, wind, and water), and the fight against greenhouse gas emissions in residential areas. In 2011, the National Energy Management Fund was established to support the renewable energy sector by providing financial assistance or interest-free loans for all activities and investment projects carried out in the sector. In addition, the National Renewable Energy and Cogeneration Fund (NFREC) was established, financed by 1% of the license fee on crude oil and energy consumption taxes paid by energy users [Nachmany et al., 2015]. It uses its funds to finance, for example, renewable energy sources and cogeneration in the area of guaranteed tariffs for the purchase of electricity (PPA) and various costs of renewable energy projects,

i.e., the implementation of power plant projects, the purchase of production equipment, the financing of additional production and maintenance costs of production facilities, or the financing of training or research and development (R&D) work.

One form of incentive for domestic and foreign investors to implement renewable energy projects is guaranteed tariffs. These serve to cover the additional costs associated with energy production and diversification [Ghezlouna et al., 2014]. Owners of renewable energy production facilities receive a bonus from the government – an increased base tariff – for each kWh produced, consumed or sold. The rate depends on the production technology used and the amount of energy generated. Solar energy is the most lucrative – 300% – and hydroelectric energy is the least lucrative – 100%. In addition, the Algerian government has committed to purchasing all renewable energy produced by photovoltaic and wind cells for 20 years at a price exceeding the total production costs. It is worth noting that the rate depends on the capacity of the installation and the investment operating period.

Table 1. RES feed-in tariffs

	Power	Feed-In Tariff (DZD/kWh)	
		5 Initial Years	15 Remaining Years
Wind	1 to 5 MW	13.10	9.55–16.66
	More than 5 MW	10.48	7.64–13.33
Solar PV	1 to 5 MW	15.94	11.80–20.08
	More than 5 MW	12.75	9.44–16.06

Source: [Bouznit, Pablo-Romero, Sánchez-Braza, 2020].

The data in Table 1 shows that for the first 5 years, the investor receives a fixed remuneration for each kWh produced, and from the sixth year onwards, the rate may change depending on the level of energy generated, as confirmed by the data in Table 2.

The table below shows that in the second phase of the investment, the highest rate per kWh produced will be paid to the installation that achieves its energy potential in the shortest time during the year.

Table 2. Phases of feed-in tariffs in Algeria

	Hours of annal operation	Feed-In Tariff (DZD/kWh) per plant size	
Phase I		1–5 MW	> 5MW
Phase II	–	15.94/kWh ($202/MWh)	12.75/kWh ($162/MWh)
	1275–1349	20.08/kWh ($255/MWh)	16.06/kWh ($204/MWh)
	1350–1424	18.83/kWh ($239/MWh)	15.06/kWh ($191/MWh)
	1425–1499	17.45/kWh ($222/MWh)	13.96/kWh ($177/MWh)
	1500–1574	15.94/kWh ($202/MWh)	12.75/kWh ($162/MWh)
	1575–1649	14.43/kWh ($183/MWh)	11.54/kWh($147/MWh)
	1575–1649	13.06/kWh ($166/MWh)	10.44/kWh ($133/MWh
	≥1725	11.80/kWh ($150/MWh)	9.44/kWh ($120/MWh)

Source: [Serdouk, F.] A legal framework of renewable energies and climate change in Algeria.

Further forms of support are included in the Algerian legislative code of August 20, 2001, which allows domestic and foreign entities to invest in any area of the economy, including renewable energy sources. These include tax breaks, the list and duration of which vary depending on the phase of the project. The project implementation period is a maximum of 5 years, and the exploitation period is 10 years [Bouznit et al., 2020]. In the first phase, the investor is exempt from customs duties and VAT, does not incur the costs of company registration, capital increase, transfer of real estate ownership, and obtains a 10-year exemption from land tax related to real estate used in the production process. In the second phase, exemptions apply to corporate income tax, turnover tax, customs duties, VAT, and equipment and goods used in the production process.

Referring to the presented benefits, Ramli and Twa argue that they encourage investors to implement investments by mitigating the financial risk associated with renewable energy projects [Ramli et al., 2015: 649–661].

3.2. Support from foreign institutions and organisations

The inflow of capital from international institutions and organisations is essential for the development of renewable energy infrastructure, technology transfer,

and alleviating national budget constraints [Stambouli et al., 2024: 753–763]. The Algerian government cooperates with the European Union, the World Bank, and the African Development Bank. In addition, it obtains funds from the United Nations Environment Programme (UNEP) and the United Nations Development Programme (UNDP), as well as the Climate Investment Fund (CIF).

Cooperation with the European Union is based on the 2005 Association Agreement, the July 2013 Memorandum on Strategic Energy Partnership [www 5], the European Neighbourhood Policy, the renewed partnership with the Southern Neighbourhood – New Agenda for the Mediterranean Region of 2021, the Mediterranean Solar Plan and the LEAP-RE program offering funding for renewable energy projects [www 6]. Between 2014 and 2020, Algeria received approximately €80 million under the European Neighbourhood Instrument (ENI) – part of €236 million in grant support [www 7] – for investments in renewable energy infrastructure, technological innovation, and energy efficiency improvements. The obtained funds made it possible to attract significant investments promoting the creation of solar parks [Zahraoui et al., 2021]. In addition, this cooperation provides access to advanced technologies and expertise, strengthening the capacity to develop sustainable energy solutions within the framework of a long-term joint partnership between the EU and the African Union in the field of research and innovation in renewable energy. Between 2021 and 2027, the EU will provide Algeria with €13.5 million for the implementation of the Paris Agreement and €28 million for renewable energy and energy efficiency through the Neighborhood, Development and International Cooperation Instrument (NDICI) [www 8].

The African Development Bank (AFDB) provided Algeria with $160 million in support in 2010 from the Clean Technology Fund (CTF), which is part of the Climate Investment Fund (CIF), as part of the MENA concentrated solar power program for the implementation of the Meahir, Namma and Hassi R'mel II, and $1.8 million in technical support [CIF, 2014]. In 2016, it recapitalised the Program for the Support of Industrial and Energy Competitiveness (PACIE) with EUR 900 million, aimed at improving the efficiency of the energy sector [www 9]. In 2020, the Algerian government requested funding for the national Renewable Energy Program (AREP) in the amount of $995 million for the identification and assessment of the potential of solar project locations, the preparation of a legal framework, including concession agreement templates and PPA agreements, and tender documentation for the selection of investors [www 10].

Cooperation with the World Bank includes technical assistance and analytical services to accelerate the transition to cleaner energy sources, as well as raising funds for the phasing out of fossil fuel subsidies and oil subsidies under the energy sector management assistance program [World Bank, 2018]. In addition, Algeria benefits from the United Nations Environment Programme (UNEP) and the United Nations Development Programme (UNDP). It is a beneficiary of the SwitchMed initiative, phases I (2013–2018) and II (2019–2023) [www 11] to promote the transition to a circular economy and the implementation of renewable energy sources. Under the national program for Algeria for 2023–2027, the Executive Board of the United Nations Development Program will allocate $776 million to increase electricity generation from renewable energy sources from 0.4% to 13% [Executive Board of the United Nations Development Programme, 2023].

3.3. Private support

Cooperation with global companies specialising in renewable energy technologies enables the promotion of knowledge transfer, support for local innovation, development of national renewable energy potential, implementation of advanced technologies, and acquisition of financing for key renewable energy investments.

Since 2009, Algeria has applied a 50/49% rule, under which foreign investors could only hold a 49% stake in an Algerian joint venture, organise their finances through local banks, and the state had the right of first refusal on the completed investment [Serdouk, 2017]. The PPP regulation was introduced by Executive Decree No. 17–98 of February 26, 2017, introducing the organisation of auctions for projects related to renewable energy sources. According to the decree, the auction is opened by the minister responsible for the environment and renewable energy sources, who is also responsible for processing bids. Participation in the tender requires the submission of an energy project together with an economic assessment model. The government appoints public companies to participate in the implementation of the submitted projects [RES4Africa Foundation, 2018].

In 2002, as part of a PPP, the joint-stock company NEAL was established, responsible for projects related to the production of electricity from renewable energy sources, in which the state-owned companies Sonatrach and Sonelgaz held a 90% stake, and the Italian company SIM held 10% [Stambouli et al., 2011:

1169–1181]. At the beginning of the second decade of the 2000s, Sonelgaz established cooperation with the French electrical engineering company Cegelec for the construction of a wind farm in Adrad. In 2013, Shariket el Kahraba wa el Taket el Moutadiadida (SKTM), a subsidiary of Sonelgaz, was a party to a tender for the supply of photovoltaic farm projects with a total capacity of 233 MW of energy. The tender was won by the Chinese consortium Yingli Green Energy, which undertook to prepare the projects and implement the investment [www 12]. In February 2023, as part of the Solar 1000 Program, the Minister of the Environment opened a tender for the construction of 2 GW of solar power plants in the sunniest regions of Algeria based on a build-own-operate (BOO) contract. The tender assumed a 34% share of SHAEMS (a joint venture between Sonatrach and Sonelgaz) in the project company, financing of the project from equity and bank loans in a ratio of 20 to 80%. However, the project contractor could count on a 25-year PPA agreement with SADEG, a Sonelgaz group entity [www 13].

A consortium of Chinese companies, including China Water & Electric Corporation (CWE) and China Nuclear Industry Huaxing Construction (HXCC), the Turkish company Özgün İnşaat, the Chinese company China State Construction Engineering Corporation (SCCEC), the subsidiary COSIDER Canalisation, the Chinese company PowerChina, and the Chinese company Longi Green Energy Technology [www 14].

4. Effectiveness of financing mechanisms for RES projects in Algeria

The effectiveness of RES project financing mechanisms should be interpreted as the effects of financial capital expenditure, which have a direct impact on the energy balance, the natural environment, and society. Determining this requires an analysis of the largest completed and contracted renewable energy projects in solar and wind energy, as well as an analysis of statistical data from the Algerian renewable energy sector based on reports from the International Renewable Energy Agency (IRENA), the International Energy Agency (IEA), and the Ministry of Energy.

4.1. Case study – largest RES projects in solar and wind energy

The first Algerian hybrid power plant was built in 2011 by the joint-stock company NEAL in cooperation with the Spanish company ABENER ENERGÍA and

the CONFIDES organisation. Located in Tilghemt Hassi R'Mel, ISCC generates 150 MW of power [www 15]. It was built under a build-own-operate (BOO) contract, with ownership supervision transferred to Sonatrach. Four years later, in cooperation with the French company Cegelec, the 10 MW Kabertene wind farm was built in Adrar, which is managed by a subsidiary of Sonelgaz [www 16; www 17].

Between 2015 and 2016, four photovoltaic parks were commissioned as part of an agreement between Shariket Kahraba oua Takat Moutadjadida and the Chinese consortium Yingli Green Energy. Located in Aradar, the Sonelgaz Algeria Solar PV Park generates 233 MW of power [www 18], the Laghouat Solar PV Park has a capacity of 60 MW [www 19 h], the Djelfa Solar PV Park generates 53 MW of energy [www 20], and the Ouargla Solar PV Park generates 30 MW [www 21]. These power plants are owned by Algeria through Sonelgaz or its subsidiary. Meanwhile, the Hauts Plateaux West Saida Solar PV power plant, completed in 2016 by Shariket Kahraba oua Takat Moutadjadida and located in Saida, produces 29.88 MW of energy [www 22].

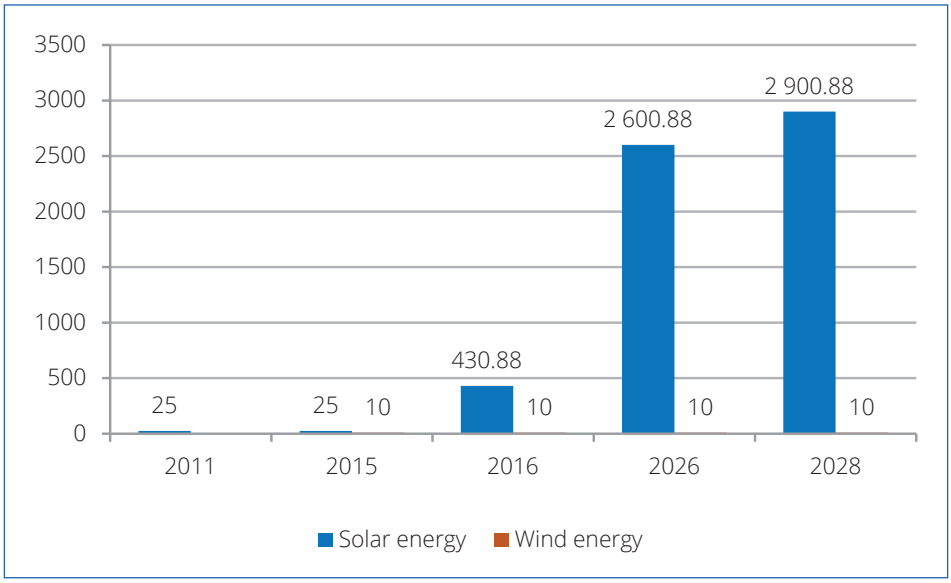
In November 2023, agreements were concluded with foreign companies for the implementation of investments in solar power plants. As part of the co-operation with Chinese partners, nine installations are to be built. Batmet with a capacity of 220 MW in M'sila Wilaya, Gueltet Sidi Saad in Laghouat Wilaya generating 200 MW of energy; Douar El Maa producing 200 MW in El Oued Wilaya; Abadla – 80 MW in Bechar Wilaya; Ouled Djelal Wilaya generating 80 MW, Ouled Fadel in Batna Wilaya with a capacity of 220 MW, Tendla in El M'ghaier Wilaya generating 200 MW, a 200 MW power plant in Laghrous and in Khanguet Sidi Nadji generating 150 MW of energy [www 23]. The Spanish company is responsible for projects in Béchar and Laghouat with a capacity of 150 and 250 MW, while the Turkish one is responsible for a 300 MW solar farm in Hassi Delaa [www 24]. The commissioning of the presented installations is planned for the end of 2025 or the beginning of 2026, and the Turkish one in 2028.

The 200 MW solar power plant in Tindouf, built in cooperation with the Chinese CGC group, together with an energy storage system, is to cover the demand of the Gara-Djebilet mining deposit and auxiliary facilities, including the high-voltage network of the wilaya of Tindouf [www 25]. It is scheduled to be commissioned in 2026.

A characteristic feature of the presented projects is the use of the BOO formula, which allows a public entity to take over the rights to the completed

installation and finance a private partner through guaranteed tariffs (PPA). In addition, the use of a special purpose vehicle made it possible to obtain funds for the investment from domestic and foreign banks and international institutions. Based on the data presented above, it is possible to determine Algeria's solar and wind energy potential for the period 2011–2028 (commissioning of the last power plant).

Figure 1. Wind and solar energy potential of Algeria in relation to biggest PPP projects



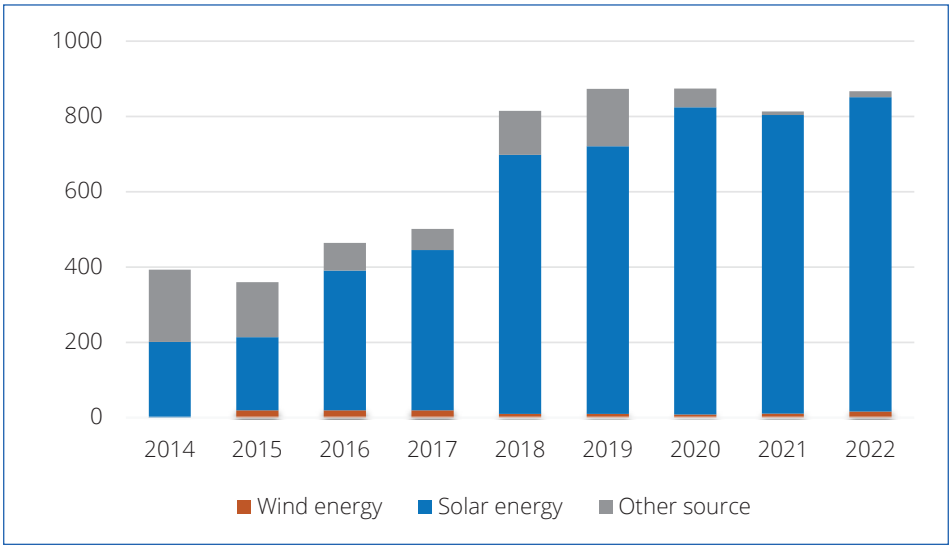
Source: the author's own work.

The above chart shows that wind energy generation amounts to only 10 MW despite significant geographical conditions. On the other hand, solar energy potential is steadily increasing. In 2016, it amounted to approx. 431 MW, and partnerships concluded seven years later will enable an increase to 2.9 GW in 2028. It should therefore be concluded that establishing cooperation with private entities contributes to the growth of solar energy potential. The stagnation of investments in wind farms remains striking.

4.2. Evaluation of the effectiveness of RES financing mechanisms – analysis of national and foreign reports.

The assessment of the effectiveness of financing mechanisms focused on the share of energy generated by solar and wind power plants in the total level of renewable energy sources in 2014–2022.

Figure 2. Share of solar and wind energy in the total renewable energy production



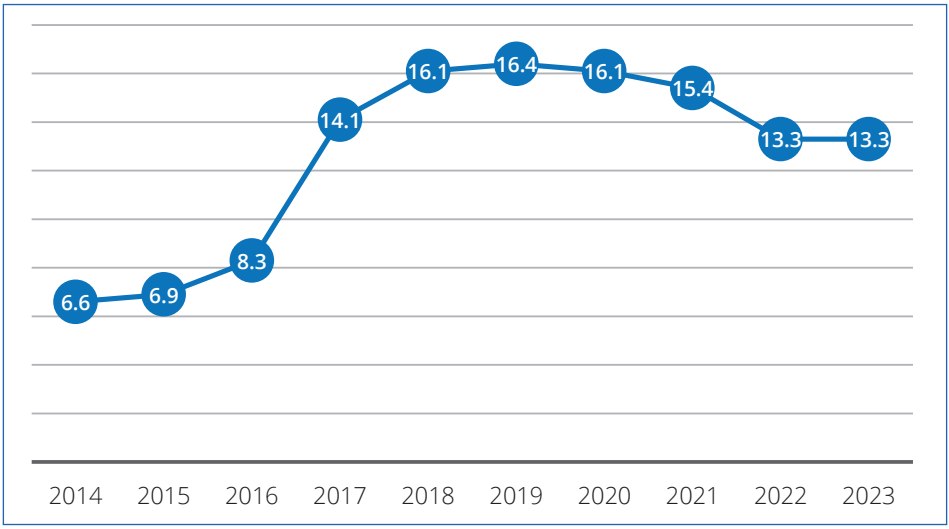
Source: the author's own work.

The above chart shows that, in the adopted time horizon, the amount of energy from renewable sources showed an upward trend, except for 2021, due to the pandemic, and in 2022 it amounted to 867 GWh. In addition, solar energy accounted for the highest percentage of total energy generated, while wind energy accounted for a marginal percentage. This is due to the photovoltaic farm projects implemented since 2015 under PPP.

Another factor was the number of watts of renewable energy produced per capita. From Figure 3, we can see that between 2014 and 2019, there was a steady increase in energy per capita. However, in the last four years, there has been a downward trend caused by the effects of the pandemic.

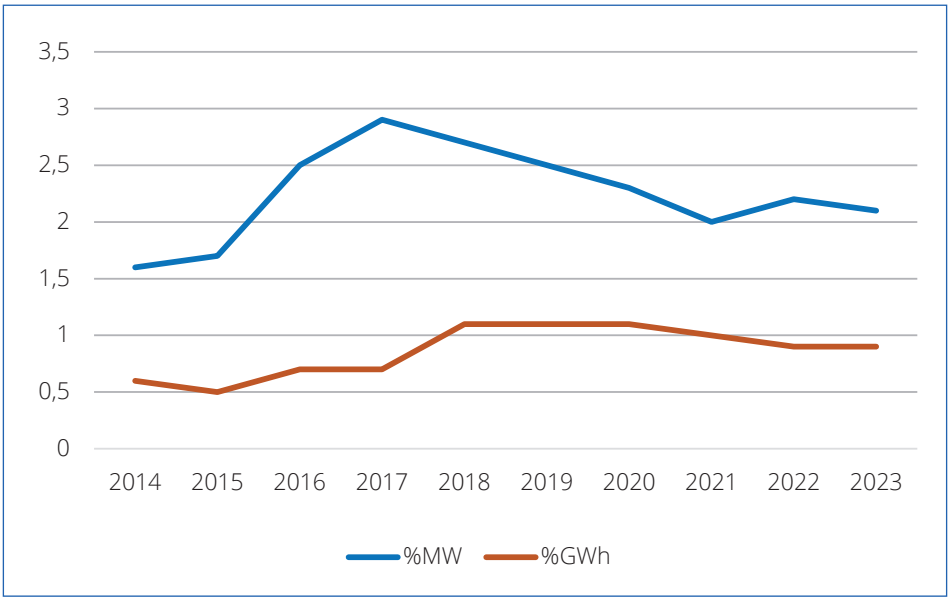
Next, the share of the RES sector in the country's total energy mix was analysed in terms of potential and generated energy (Figure 4).

Figure 3. Renewable energy production per capita



Source: the author's own work.

Figure 4. Share of% of energy potential and level of energy generated by renewable energy sources in Algeria's energy sector



Source: the author's own work.

The data presented above shows that the renewable energy sector has a higher percentage of generation potential in relation to the generated power. In the adopted time horizon, the % potential curve showed greater fluctuations, which may have resulted from decreasing precipitation in 2017–2020, which could have affected the operation of hydroelectric power plants [www 26]. Furthermore, in both examined categories, renewable energy sources account for a marginal share of the total energy mix. The energy potential in 2022 was 2.1%, and the energy generated was 0.9%.

The last analysed issue is the implementation of the renewable energy development program in the field of solar and wind energy in phases I and II, which is presented in Table 3.

Table 3. Realisation of renewable energy development program regarded to solar and wind energy

MW Unit	FASE I 2015–2020	Potential 2020	% of plan realized	FASE II 2021–2030	Potential 2023	% of plan realized
Solar Energy (PV & CSP)	3000	441	14.7	12 575	547	4
Wind Energy	1.01	10	990	4000	10	0.25

Source: the author's own work.

The above data shows that the Algerian government has set a high level of energy generated from renewable sources. In the first phase, the target for solar energy set for 2020 was achieved at 14.7%, and for wind energy at 990% of the adopted plan. However, in the second phase, after two years of implementation, the potential of solar farms was recorded at 4% and wind farms at 0.25% of the plan. It is worth noting that this is the beginning of the second phase, and the CSP and PV power plants built between 2025 and 2028 may significantly improve the potential under study. However, it should be noted that the results achieved in both phases are well below expectations compared to the adopted targets.

The analysis shows that the use of RES financing mechanisms in the area of solar and wind energy was effective in terms of the increasing share of solar energy in total RES capacity, the growing number of watts per capita, and the stable growth of the percentage of potential and generated energy in relation to the

energy sector. This is due to the use of the PPP formula for the construction of solar installations (PV and CPS). However, the ineffectiveness of financing mechanisms was detected in the context of the negligible share of RES in the total energy mix and the failure to achieve the objectives of the renewable energy development program. According to RES4MED [RES4Africa Foundation, 2018] and Zeggagha and Ziane [2025: 1–16], this is due to legislative aspects and auction procedures. They point to the protracted administrative process of approving and implementing RES projects, gaps between legislative rules and their implementation, the unpreparedness of local financial institutions to implement RES projects, and the protracted auction process resulting in delays, reduced capacity, or postponements. The regulatory barriers presented may affect investment uncertainty and discourage potential investors from investing capital in the Algerian RES sector. This is confirmed by the cancellation in 2010–2021 of auctions for the supply of solar energy with a potential of 4 000 MW, which is the highest result in North African countries [IRENA, 2023].

5. Conclusions

Based on the conducted research, the following conclusions were drawn:

1. Three financing mechanisms are used in the Algerian renewable energy sector: national, international, and private.
2. National support includes the implementation of tax breaks, exemptions, and financial incentives for domestic and foreign investors. Private support, on the other hand, concerns public-private partnerships.
3. Funding obtained from foreign entities includes the adaptation of national legislation to the Paris Agreement, the modernisation of renewable energy infrastructure, technical assistance and analytical services to accelerate the transition to cleaner energy sources, and the withdrawal and reduction of subsidies and subsidies for conventional fuels.
4. The participation of foreign investors in PV and CSP farm projects will enable an increase in solar energy capacity to 2.9 GW in 2028.

The financing mechanisms used in Algeria are effective in terms of the share of solar energy in total renewable energy capacity, the amount of renewable energy per capita, and the growing percentage of energy potential and renewable energy levels in the entire energy sector. However, their ineffectiveness relates to the

unfulfilled objectives of the renewable energy development program, which are the result of the government's ambitious goals and the existence of legislative and tender barriers that contribute to uncertainty among investors. Appropriate adjustment of the requirements for renewable energy potential, together with the removal of these barriers, could increase the inflow of foreign capital.

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