

## **The Challenges of Solar Energy Law in Morocco**

**Samir Moujjane, Badre Eddine Chegri**

*Environmental Law , Public Policy and Sustainable Development Team (DEPPDD) Faculty of Law Souissi of Rabat Mohammed V University (UM5) Rabat , Morocco*

*Department of economics and business Faculty of Law Souissi of Rabat Mohammed V University (UM5) Rabat , Morocco*

*Corresponding Author: Samir Moujjane*

---

**Abstract:** *The context of climate change has put the environment back on the political and economic agendas. It revealed that fossil energy systems are far from sustainable as evidenced by the multiple negative externalities caused by the sharp deterioration of the economic, social and environmental balances. Similarly, energy consumption in Morocco tends to increase due to the increase in population, rising living standards, and the increasing use of energy-consuming and polluting products. In this context, Morocco is forced to put in place an energy transition, built as a solution to the economic, social and environmental crisis of the energy sector, and whose purpose seems to be universal access to clean energy. An economically acceptable cost.*

*This energy transition is expected to be accelerated in the coming years, especially after the agreement of COP 21 held in December 2015 in Paris and maintained at COP 22 in November 2016 in Marrakech. The challenge will be to increase the efficiency of renewable solar energy in Morocco by adopting a solar energy right conducive to the deployment of innovations, but also ensuring the evaluation and control of their potential impacts on the environment.*

**Keywords:** *Solar energy law, Green energy, Ecological laws, and Environmentally Sustainable.*

---

Date of Submission: 20-10-2019

Date of acceptance: 02-11-2019

---

### **I. Introduction**

In a context of an ever worsening climate crisis, the energy transition appears to be the cornerstone of the fight against climate change and more generally a key element of Green energy [5]. The target or objective is then to develop a magic energy system or systems that have no negative environmental, economic and societal impacts. The planet is facing a major challenge, which concerns us all, which is the climate disruption resulting from local pollution and greenhouse gases (GHG) which originate from many natural sources but with the bulk coming from man's use of fossil fuels. Other human activities, such as deforestation, also contribute to global climate change. For example, air pollution resulting from pollutant emissions poses a severe threat to the health. Tackling climate change is thus as much a political and economic challenge as a legal one. But political accommodation should not be confused with determinations of international law. Industry as well as government is challenged to respond to the need for energy acceptability. But this cannot be done isolation of the quest for energy accessibility for all or the strategic balance which must be achieved to ensure energy availability [1]. International law the environment from pollution and others forms of damage is complemented by other rules, principles, and regulatory regimes which affect the conservation and sustainable utilization of natural resources.

In particular, it is now possible to point to treaties which impose on states obligations to cooperate in conservation, sustainable utilization, and ecological protection intended to avoid over-exploitation and permanent loss of some categories of internationally significant resources. And, the evolution of international environmental criminal law appears equally tentative, confined at present largely to war crimes and jurisdiction over offences at sea [3]. Despite these qualifications, we can see that the Stockholm and Rio Declarations have promoted individual environmental rights and addressed to some degree the responsibilities of individuals and corporations for environmentally harmful consequences. The lifestyles and aspirations of consumers and voters have come into question. Clearly, single energy resources such as fossil fuels are finite and thus lack, the characteristics needed for sustainability, while others, such as renewable energy sources, are sustainable over the relatively longer term.

The consequences of climate change are uncertain but could be extremely damaging to the economy and the environment. In application of the precautionary principle, the launch of a Moroccan solar plan is one of the elements allowing to mitigate this climatic disturbance, with the satisfaction of the energy needs of the population. This article will attempt to adopt a simple and effective solar energy right to the sustainable development of the solar energy project in Morocco. Today's problem is to what extent can the adoption of solar

energy law contribute to sustainable development in solar energy projects in Morocco? To further explain this issue, we will focus the first part on the legal and institutional framework of solar energy in Morocco, and in the second part we will deal with the effects and positive externalities of the application of solar energy law for the evaluation of the project Noor Ouarzazate.

#### **-THE LEGAL AND INSTITUTIONAL FRAMEWORK FOR RENEWABLE ENERGY IN MOROCCO**

Morocco's choice to invest heavily in renewable energies is a strategic choice aimed at developing abundant national resources to contribute to sustainable development. It is widely acknowledged that increasing the uptake of renewable energy should play an important role society [7]. In this perspective Morocco has been committed to a strategic energy policy for several years now, which has four main objectives:

- Diversification of the energy mix towards renewable energies and environmentally sustainable;
- Development of national energy resources and more particularly renewable;
- Exploiting the potential for energy efficiency in key sectors of the economy;
- Integration into regional and international energy markets.

The challenge of integrating environmental principles into energy law to fight against climate change, and the development of the use of renewable energies and their acceptance by the population whose participative democracy would prevent and limit all administrative and civil litigation in Morocco. Planning makes it possible to control the implantation and fight against the sprawl of the territory[1]. The success of democracy, which modern civilization holds dearly, could be considered as the diversification of idea development, consensus building, decision making, and governance. At procedural level, the Moroccan Environment Framework Law N° 99-12 is a reference for public policies, in this area. Has become an instrument for legitimizing national policies aimed at sustainable development, with implications principally for public-interest litigation. It is a law that takes into account commitments to environmental protection for sustainable development.

In addition the proper role for environmental and planning law, there is an equal need for an effective legal regime for the promotion of renewable energy sources in Morocco.

Law N°58-15 amending and supplementing Law N°13-09 on renewable energies, for its part, aims to overcome the shortcomings of Law N°13-09 in order to support the development of the sector, adapt it to future technological developments and encourage private initiatives, law N° 37-16 creating the Moroccan Sustainable Energy Agency of MASEN, and law N° 38-16 amending and supplementing the second article of Dahir 1-63-226 on 14Rabaa I 1383 (5 August 1963) establishing the ONEE, constitute a legal, institutional and procedural platform for the regulation of this new sector and the implementation of renewable energy projects in Morocco. The application decree N° 2-15-772 of 9 November 2015 on renewable energies the entry into force on 9 November 2015 of Decree N° 2-15 772 made it possible to set the conditions and modalities for access by electricity production installations from renewable energy sources to this medium-voltage grid, and these projects are subject to an authorization or declaration system.

Ministerial Order N° 313-14 of 4 Rabi II 1435 (4 February 2014): the first article announces that the specifications to be included with the application for a final authorization for the commissioning of an installation for the production of electricity from renewable energy sources provided for in Article 5 of Decree N° 2-10-578 of 7joudada I 1432 (11 April 2011), must be established in accordance with the model annexed to this Order. For its part, article 15 of the decree stipulates that the operator must produce an impact study to collect and synthesize the environmental and health consequences of its project, accompanied by the environmental acceptability decision.

In Morocco, solar energy is described as the most competitive and acceptable renewable energy in the country, with 300 days of sunshine, a significant potential, an irradiation of 5KWh per day.

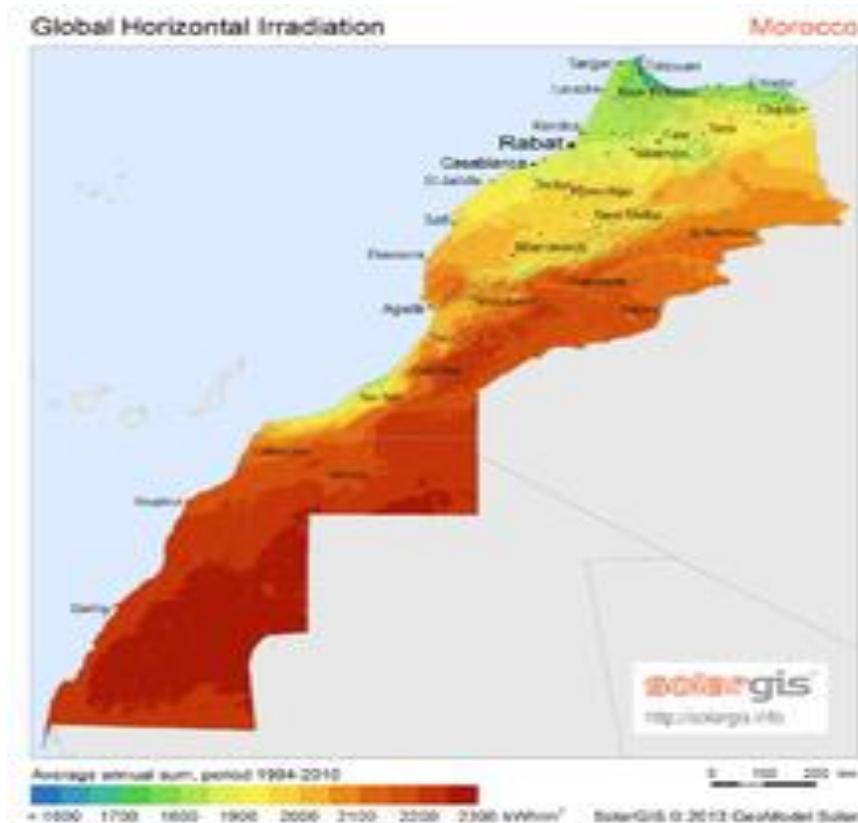


Figure1. Global horizontal irradiation in Morocco

A Moroccan solar plan will aim to set up Noor solar power plants throughout Morocco, with a production target of 2000MW by 2020, and 5000MW by 2030 of solar energy from renewable sources. The key barrier is the higher cost of renewable energy generation compared to conventional, often subsidized, fossil fuel power generation [4]. There are also significant legal impediments for renewable energy projects, with electricity regimes biased towards large, centralized power plants rather than smaller, more intermittent resource providers. Obtaining environmental and planning approvals can also be a costly and time-consuming process as local authorities familiarize themselves with the novel issues of these new project types.

### **B-OUARZAZATE SOLAR ENERGY COMPLEX PROJECT**

Due to climate change ,increasing environmental degradation and the depletion of natural resources, the public is developing an increased awareness for the importance of environmental and resource protection. Thus the Stern Review, published by Nicholas Stern in 2006, on the Economics of climate change transparently shows the economic consequences of climate change [8]. It is also clear that possible climate change would cost trillions and early prevention is more economically viable. The same applies to the processes of value creation of a company which have to support environmentally sustainable procurement, production, distribution, use and recycling of products [9]. In order to continue their commitments to climate change, Morocco has set targets to significantly increase the share of renewable energy in total energy consumption to 52% in 2030.

Although solar energy is now seen as an alternative and renewable source of green power generation for sustainability and energy security in Morocco. The Ouarzazate solar complex project is part of the Moroccan solar plan launched in 2009 to achieve a production of 2GW of solar energy in 2020, will mobilize nearly 9 billion dollars and will aim to facilitate the emergence of an integrated solar industrial sector in our country.

The expertise and know-how acquired by Morocco in the various energy fields: rural electrification, development of interconnections, renewable energies and energy efficiencies, are all assets that will help to meet these energy challenges: [2]

- Morocco intends to reduce its dependence on foreign countries by reducing the weight of its imports of petroleum products and, consequently, the pressure on its foreign exchange reserves;
- It also wants to go in the direction of the logic of preservation of the environment by opting for a green and sustainable energy ;
- And he wants to join the club of countries that are moving towards the appropriation of the technology of the future.

The target or objective is then to develop a magic energy system or systems that have no negative environmental, economic and societal impacts.

SOLAR POWER GENERATION	2000 MW
ELECTRICITY GENERATION	4500 GWH
INVESTMENT	9 billion dollars
ANNUAL ECONOMY	1 million TEP
CO2 EMISSION AVOIDED / YEAR	3,5 millions T

**Table 1: Objective Solar Project in Morocco in 2020**

In Ouarzazate, dry sunny weather may not be good for hydropower, but would be great for solar energy collection. The total project capacity of NOOR Ouarzazate site for electricity production at the solar energy base is 580 MW, of which Noor 1 will have a production capacity of 160 MW, Noor 2 with 200 MW, Noor 3 with 150 MW and Noor 4 with 70MW. The energy produced by the NOORo I solar power plant is evacuated at the ONEE 225 kV substation located at the Ouarzazate NOOR complex.

This electricity is then evacuated on the National Network, thanks to the reinforcement operated by the ONEE and can thus be used everywhere in Morocco, according to the needs. NOORo I will deliver 600 GWh per year, equivalent to the consumption of 630,000 inhabitants across the Kingdom (MASEN 2016). In this perspective, the Noor solar energy projects will contribute to the security of green electricity supply and environmentally sustainable. The Morocco Government must adopt a portfolio approach that provides adequate regulatory and economic drivers to enhance the commercial viability of renewable energy technologies and promote the diffusion and uptake of alternative energy sources within the community. MASEN maintain that the pursuit of energy accessibility and availability has opened up a wider and more realistic set of opportunities to make significant progress toward energy acceptability within the timeframe to. Investment companies diversify their holdings with investments ranging from high risk to conservative in order to prevent losses and guarantee healthy returns.

There are a range of potential renewable energy sources in Morocco that are at varying levels of development and deployment.

In Morocco solar energy projects will not generate significant greenhouse gas emissions and will guarantee politically assigned missions, namely the preservation of the environment, energy control and social well-being, through the transformation of unjust and non ecological laws, and to claim laws and rights that lead us towards a more sustainable, democratic, solidarity and ecological future. The current challenge requires: a regulatory framework that is conducive to the deployment of innovations, but also ensures the assessment and control of their possible impacts on the environment [6].The purpose of a solar energy right is to develop an organizational the long-term supply of solar energy and efficient access to it, with an obligation to conserve resources, while imposing the fair and real price of energy production on consumers and also protecting social and environmental aspects.

The environment can only benefit from solar energy because it is renewable, free, does not produce waste, does not emit smoke and is silent. Moreover, their impact on employment is particularly passive because the employment intensity of the renewable energy sectors is higher than the intensity of the current production methods they will have to replace. This is truly a national asset ensuring energy independence, security of sustainable energy supply, and the fight against climate change, for which maximum research and incentive efforts should be made. It is clear that radical transformations in traditional energy supply and use will be essential components of achieving the rapid and large-scale reductions in greenhouse gas emissions now required within Morocco. Renewable energy sources, it is important to have enforceable energy policies and instruments that promote sustainability. Therefore, a diversity and sustainable development diversification and localization of energy sources and systems go hand in hand.

Each energy system has its own adverse impact on the environment, economy and society. Generally, the installation of a solar complex can have impacts during the works phase, little impact during the exploitation phase, and impacts mainly concerning the elimination of solar park during the phase of enervations. Impacts on groundwater and surface water are potentially the most significant during the operation and construction phase. However, the application of solar energy regulatory texts is encountering difficulties. There is a clear need for government policy to minimize these barriers and encourage appropriate price signals for renewable energy generation. It is recommended to promote energy diversity as the sensible at practically feasible approach for sustainable development and energy security in Morocco. The challenge is therefore to create a simple, stable and applicable right to solar energy from renewable sources by reducing administrative constraints and controls,

which constitute a guarantee for ecological investments, and an effective applicability of rational management of natural resources for the benefit of current and future generations and to leave them a healthy environment.

### References

- [1]. K. Anour, terrestrial wind energy law and sustainable development in morocco, thesis in law, faculty of law souissi; mohammed v university (um5) rabat, morocco 2015.
- [2]. S. Adama the real light challenge, challenge the weekly morocco n°544, february2016,p3
- [3]. P. Birnie , alan boyle , catherine redgwell , "international law & the environment", oxford, university press, p334, 2009
- [4]. A. Darson: "energy transition and legal transition: the development of energy renewable sources in france, law thesis, university of bordeaux, 2015
- [5]. S. Moujjane, the green economy in morocco: "challenges and opportunities" the green, 12 march 2019, available on <http://www.Green.ma/the-green-economy-in-morocco-challenge-and-opportunities>.
- [6]. Ottinger r,mathews l and czachor n, "renewable energy in national legislation : challenges and opportunities" in zillman d et al, beyond the carbon economy: energy law in transition (oxford university press, 183 at 190, 2008
- [7]. Pierre "renewable energies: investments are on the rise again", the newspaper the world, france on 02/05/2015.
- [8]. Stern, the economics of climate change- the stern review; cambridge university, cambridge, 2007.
- [9]. Singh, a review of the leading opinions on the future of supply chains; supply chain 2020 project working paper. Mit, boston, massachusetts, 2004.

Samir Moujjane" The Challenges of Solar Energy Law in Morocco" IOSR Journal of Business and Management (IOSR-JBM), Vol. 21, No. 11, 2019, pp. -16-20