Available online at www.sciencedirect.com

ScienceDirect

Energy Procedia 6 (2011) 319–324

Energy Procedia

MEDGREEN 2011-LB

Algerian energy strategy in the context of sustainable development (Legal framework)

A.Ghezloun* , S.Chergui et N. Oucher

Division Bio-Energie et Environnement, Centre de Développement des Energies Renouvelables, CDER
B.P 62, Route de l'Observatoire , Bouzaréah, Alger, Algérie.

Abstract

The Algerian energy strategy is decidedly towards sustainable development by integrating the promotion of renewable energy. The legislative and regulatory framework adopted in recent years testifies to this irreversible commitment. Three major laws govern the field of renewable energy and state incentives enjoyed by this sector. The law on energy management enacted in 1999 provides for the creation of a National Fund for Energy Management (NFEM) which helps to finance renewable energy projects. As part of the implementation of the law on electricity and public distribution of gas by pipeline passed in 2002, executive decree on the costs of diversification of electricity production promulgated in 2004 provides for the granting of premium for green electricity up to 300% of normal rate. The law on the promotion of renewable energy in the context of sustainable development provides a national program to promote renewable energy and incentives for developing renewable energy. The implementing regulations are still pending. Some projects for electrification of rural villages in the sun have been made in Great South of Algeria. Currently, Algeria is engaged in two major projects that provide a place for solar and wind energy, hybrid gas-solar plant of Hassi R'Mel a capacity of 150 MW and wind farm in Tindouf. Other future projects are planned. In Algeria, despite a considerable potential, the share of renewable energies in the energy balance is still low especially in electricity generation. The rise of renewable energies in Algeria can not be conceived without the realization of a phased program of projects to produce electricity more important and connected to national grid electricity.

Keywords: Renewable energy; Sustainable development; Energy efficiency; Rural electrification; Central hybrid solar/gas; Wind farm

*Corresponding author. Tel.:213 21 90 15 03; fax:213 21 90 16 54.
E-mail address : a.ghezloun@yahoo.fr

doi:10.1016/j.egypro.2011.05.036

1. . Introduction

At the dawn of the XXI century, one of the major problems of mankind is to combine the energy, the respect for environment and economic development, particularly for southern countries, an issue of sustainable development has been clearly demonstrated in the Earth Summit in Johannesburg 2002.

In this perspective, large battles are to be undertaken during the century for the survival of the planet: include energy efficiency as a priority in international politics, reduce emissions of greenhouse gases, save energy for economic development and reducing inequalities, empower stakeholders, strengthen the global regulation [1].

Algeria has entered its energy strategy in the context of sustainable development by integrating the promotion of renewable energy. In addition, a favorable legal framework for renewable energy development has been adopted. Three major laws govern the field of renewable energy and state incentives enjoyed by this sector.

Algeria has one of the largest solar fields in the world. It is valued at more than 3,000 hours of sunshine per year and 5 KWh of daily energy received on a horizontal surface of 1 m2 on most of the country [2].

The objective of the strategy for developing renewable energies in Algeria is reaching to achieve, by 2015 a share of these energies in the national electricity balance that would be 6%.

Nomenclature

APRUE	Agency for the promotion and rational use of energy
NFEM	National fund for energy management
ICEM	Intersectoral council for energy management
HCDS	High Commissioner for Development of Steppe
NPEM	National program of energy management
NEAL	New Energy Algeria
SWH	Solar water heater
UNPE	United Nations programme for environment
CEEG	Company of engineering electricity and gas

2. National energy strategy in the context of sustainable development

2.1 Law on energy management

Algerian law on energy management 99-09 of July 28, 1999, is a framework law. It draws the general framework of the national policy of energy management and defines the legal instruments to enter. It reflects a fundamental goal of national energy policy, namely the rational management of energy demand. Its states in its first article three dimensions in the management of energy: the rational use of energy, development of renewable energy and protecting the environment from adverse effects of energy system [3].

This law defines the main lines of energy management which "aims to steer the energy demand towards greater efficiency of consumption system, through a model of national energy consumption".

Under this law enacted in 1999, a strategy and institutional arrangements were put in place, based around:

- Establishment of a national agency for energy management (APRUE), responsible for the leadership and facilitation of the process of implementing programs and actions of energy management,
- Establishment of an intersectoral Council for energy management (ICEM), which serves as a forum for consultation and coordination between different actors involved in this area,
- Establishment of a national Fund for energy management (NFEM), used as a catalyst for actions and programs to initiate [4].

The implementation of the law on energy management relies mainly on the national program of energy management (NPEM).

Actions and projects included in the NPEM are achieved through the provision of the national Fund for energy management, whose primary role will be to stimulate the market for energy management. This national Fund for energy management (NFEM) contributes to financing renewable energy projects. Article 33 sets out various tax and customs benefits granted to projects that contribute to the promotion of renewable energy.

The animation and national coordination of the national program of energy management are provided by the institution responsible for energy management, namely the APRUE. Other agencies could provide technical coordination of actions of energy management, particularly at the sectoral level.

Measures concerning renewable energies are expected to be funded in this context under the national plan of energy management (NPEM) 2006-2010. These transactions involving residential and tertiary sectors.

This is for tertiary sector, installation of 400 solar water heaters to produce hot water. For the residential sector, actions concern 20 operations of installation of solar equipment for the production of hot water and heating.

2.2 Law on electricity and gas distribution by pipeline

This law (N° 02-01 of 5 February 2002) takes into account the protection of the environment and provides for the integration of renewable energies in the energy mix of the country. Article 95 of this law provides that "the production of electricity from renewable energies benefits premiums and other measures to support the additional costs of transportation and distribution constitute the costs of diversification provided by law under the promotion of renewable energy". A decree entered into force march 25, 2004, on the costs of diversification of electricity production, establishes an incentive scheme for the production of electricity from renewable sources. All tax benefits outlined in this decree.

Bonuses are granted significant benefits to producers of electricity from renewable sources. The premium can reach 300% of applicable fare [5].

2.3 Law on the promotion of renewable energies in the context of sustainable development.

This law (*N° 04-09 of august 14, 2004)* has confirmed the environmental concern by establishing "modalities for promotion of renewable energies in the context of sustainable development". Is clearly stipulated in article 2 as soon as this law aims to "protect the environment by promoting the use of clean energy sources, to contribute to the fight against global warming by limiting emissions of greenhouse gas emissions", to "participate in sustainable development through the preservation and conservation of fossil fuels" and "contribute to national policy planning by promoting renewable energy fields by generalizing their use". The promotion of renewable energies in the context of sustainable development is achieved through a national program of promotion of renewable energies in the context of sustainable development, and an annual use of renewable energies and through the instruments of promoting renewable energy. The promotion of research development and utilization of renewable energy receive financial incentives (finance law) [6].

3. Achievements in the field of renewable energies

3.1 Some projects

The electrification of rural villages and electric power utilities are both axes pursued by the government.

Thus, nearly 1000 households in 20 villages in four south wilayas enjoy access to electricity since 2000, through photovoltaic kits which will add 16 more villages in the same area (900 households) and feeding more than 100 telecommunications sites.

Similarly, a central hybrid solar / diesel by 13 KWC installed in Illizi allows 300 households or 2000 people, to benefit from access to electricity.

Projects led by the High Commissioner for Development of Steppe (HCDS), a public institution whose mission is the development of stepiques and pastoral areas, have also allowed the electrification of more than 3000 homes with a capacity of 550 KWC, the provision of 160 solar pups for a power of 240 KWC and 80 wind pumps equivalent to a power of 120 KWC.

In the North, citing a 10 KWC photovoltaic plant that is connected to the national grid (this project is part of the Algerian-Spanish cooperation) CDER, a service station Naftal powered by solar energy (Staoueli with a capacity of 7 KWC), pilot plants for the benefit of the National Gendarmerie and the photovoltaic power supply of traffic monitoring stations.

3.2 Projects in progress and future

Currently, Algeria is engaged in two major projects that provide a place for solar and wind energy, hybrid gas-solar plant of 150 MW is located in Hassi R'mel which the cost is 350 million euros, a solar technology park that will generate electricity from the sun with a capacity of 6000 MW by 2015 and a 10 MW wind farm in Tindouf, these projects are being implemented by the group New Energy Algeria (NEAL).

The commissioning of the hybrid plant combining solar and natural gas in Hassi R'mel, the first to global scale is expected in 2010. This plant is part of the program of four hybrid units in Algeria and extends over an area of 152 ha. It will use giant parabolic mirrors on an area of 18 ha with solar panels of

100m to generate power. It will allow Algeria to be the pioneer in the Mediterranean in the field of renewable energies [7].

CEEG company (subsidiary of SONELGAZ), launched an international tender to conduct a wind farm with a capacity of approximately 10 MW in Tindouf. The investment cost is estimated at about 16 million US$.

Under the National Program of Energy Management (NPEM), 2006-2010, a large development project of solar water heaters market, funded by the PNUE, was launched in 2008. It is the installation of 10 000 m2 of solar collectors (4000 SWH in the residential sector).

The group Sonelgaz instructed its engineering company CEEG to undertake a project to build a manufacturing of photovoltaic modules in the scope of the industrial area of Rouiba, through a mandate with the client (Rouiba Lighting Company). The envelope that will be allocated to the creation of this first manufacturing plant for photovoltaic modules is 100 million dollars. This future entity, which commenced operations in 2012, will be an annual capacity of 50 MW. It will be financed entirely by Sonelgaz and installed within the company's website Rouiba Lighting over an area of 4 ha [8].

Three other central hybrid solar / gas of 400 MW each are scheduled for 2015. The Minister of Energy and Mines plans a total investment estimated at between 15 and 18 Mds USD : 400/75 MW in Naama : planned start 2010; 400/75 MW in Meghair : start in 2012; 400/75 MW in HR M : planned for 2015.

A wind farm with a capacity of 10 MW, located in Adrar, is under tendering. The project of 16 million USD is the first project of its kind in Algeria and will operate on a hybrid wind / diesel technology. Two other wind farm projects of 10 MW are planned in Timimoun (2012) and Bechar (2015).

4. Conclusion

A study of the APRUE indicates that energy demand will explode by 2020. The needs of the residential sector will be multiplied by 2.7 while the tertiary sector will increase its power consumption by 3.2, an increase of 40% relative to current consumption.

In Algeria, despite a considerable potential, the share of renewable energies in the energy balance is still low especially in the production of electricity, is only 0.02 % of national electricity consumption (5GWh).

The rise of renewable energies in Algeria can not be conceived without the completion of a phased program more important of projects to produce electricity.

Energy policy should encourage the introduction of hybrid possibilities and support other forms, including electricity generation by the private sector to share the heavy burden on her. This is the only condition that the energy mix of Algeria will grow potential of renewable energy.

References

[1] Jean-Marie Chevalier, L'équation de Johannesburg, Med énergie, N° 15, Avril 2005.
[2] Stratégie et Veille, Recueil trimestriel de l'hebdomadaire N02/2008/Sonelgaz/DGDS/DS.
[3] Sommet de Johannesburg 2002, profil de l'Algérie, Nations Unies in http://www.un.org/esa/agenda21/natlinfo/wssd/algeria.pdf
[4] Conférence internationale sur les énergies renouvelables, Discours du Docteur Chakib Khelil, Ministre de l'énergie et des mines Bonn, premier au 4 juin 2004 in http://www.mem-algeria.org/francais/index.php?page=673
[5] Décret exécutif n° 04-92 du 25 mars 2004 relatif aux coûts de diversification de la production d'électricité in http://www.creg.gov.dz/fr/fichiers/decret_executif_04_92.htm
[6] Loi n° 04-09 du 14 août 2004 relative à la promotion des énergies renouvelables dans le cadre du développement durable in http://www.cder.dz/loi/loi_avant.pdf
[7] Le mégaprojet de la centrale hybride solaire-gaz naturel mis en service en 2010, Energie et Mines, N° 09, juillet 2008.
[8] Sonelgaz investit 100 millions de dollars dans le photovoltaïque, Energie et Mines, N° 11, Janvier 2010.