



From consolidation of conventional energies to the promotion of renewables

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Throughout the world, energy policies have, for the last forty years, evolved according to national and regional differentiated approaches, whether in the choice of fuel mix components, consumption patterns or through other means, especially, taxation, subsidies and standards. However, climate change and in particular the successive natural disasters of these last years, have mobilised public opinions around environmental challenges, reviving the debate of globalisation of energy policies and the regulation of physical and financial energy markets.

Due to its impact on climate change, energy policy has become a priority in the agenda of many countries and several international organisations' economic policies. The themes that are generally covered are:

- The security and competitiveness of energy supply;
- The energy efficiency and the development of renewables;
- The capture and sequestration of CO₂;
- The social and the economic development and co-operation between Northern and Southern countries.

Volatility of crude oil price which remain the driving price of energy is another important dimension of energy policy.

High volatility of the price of oil has led to an increasingly common perception of the need for stability of oil prices at a level sufficiently remunerative to ensure future demand for clean energy and justify investment in energy efficiency.

Both producers and consumers have interest in stable prices at a level which allows, among other things, the development of new oilfields, to meet the growing demand driven by the emerging countries today.

It is clear that environmental protection is a concern to the whole world which has to be taken in due consideration in elaborating and implementing energy policies. However, the differences between approaches and requirements remain important. It is well known that security of supply of consuming countries cannot be disconnected from the vital need of producing countries to secure markets and to preserve revenues generated from hydrocarbons.

Besides that, there are nearly two billion people with no access to energy and the solution to such an acceptable situation must come from a sound international solidarity. The development of bio-fuels led to strong tensions on the prices of food products and reduced significantly the land dedicated to these products, penalising mostly Southern countries, which are the first victims of climate change despite their low emission of greenhouse gases.

As for Algeria, it is committed to the transformation of its

energy policy around two fundamentals:

- Reinforcing its hydrocarbons reserves;
- Promoting renewables.

Maximising the value of energy potential while protecting the environment

For decades, environmental protection has been very present in the energy policy of Algeria. Algeria made large investments to reduce flared gases and implemented with its partners CO₂ sequestration in the In Salah gas field to prevent the emission into the atmosphere of approximately one million tons of CO₂ per year.

The Algerian mining potential offers promising perspectives and Algeria intends to continue and intensify its exploration effort in order to renew its hydrocarbon reserves, not only to ensure its domestic long-term needs, but also to assume its position of an oil and gas supplier.

Indeed, Algeria has an enormous potential for new discoveries in relation to its huge under-explored area estimated at 1.6 million km² of onshore sedimentary basins and 100.000 km² of offshore area.

Moreover, the Algerian mining domain conceals important resources of tight and shale gas. Algeria is interested in unconventional resources associated with Silurian and Frasnian which are rich in organic matter across most of the Algerian Saharan basins. The thickness of these levels exceeds locally one hundred metres and the shale objectives are at moderate depths (1000 to 3000 m).

The preliminary results of evaluation of shale gas potential carried out indicate that the potential in hot shales is comparable to that of the United States.

Based on geochemical modeling, the various estimates of total volumes generated from two principal source rocks of the Algerian Saharan platform might be as high as hundreds of Tcf.

To ensure the development of gas production from unconventional gas reservoirs, the recourse to partnership will be privileged. Considering the technological challenges and the importance of the financial costs, the development of unconventional hydrocarbons will be necessarily carried out with international companies that have demonstrated their know-how in this field.

A programme has been launched to confirm the potential of shale gas and to look at the possibilities of development in the Algerian context in order to quickly identify the conditions to achieve the objectives.

The process of collecting necessary data and determining the most suitable areas is, currently, ongoing before launching pilot operations.

Incentive measures to encourage partnership in this new field are being studied.

With regards to conventional hydrocarbons, the exploration programme is substantial. Sonatrach intends to invest US\$2.5 billion per year in exploration with its partners.

Above meeting the domestic demand, our medium-term objective is to export 2.5 mboe/d.

Preserving energy resources through rational consumption

The national policy of energy efficiency/saving will allow the harvesting of the energy efficiency potential, mainly in

thermal insulation of buildings, lighting, the motorisation of vehicles and the conversion of power plants from simple cycle to combined cycle.

Renewables: Ambition vs Challenge

Aiming towards sustainable energy development, Algeria has adopted an ambitious programme for the development of renewables over the next twenty years.

The programme consists of installing up to 22,000 MW of power generating capacity from renewable sources between 2011 and 2030, of which 12,000 MW will be intended to meet 40 per cent of the domestic electricity demand and 10,000 MW for export.

Solar (thermal and photovoltaic) is the strategic choice of this programme. This choice is motivated by the huge

Algeria has huge solar potential with an average solar irradiation of 2,700 kWh/m²/year



solar potential of Algeria (with an average solar irradiation of 2,700 kWh/m²/year)

The programme will be carried out in three phases:

- The first phase, between 2011 and 2013, will be devoted to the achievement of pilot projects to test the different available technologies;
- The second phase (2014 – 2015) will mark the beginning of the deployment of the programme;
- The last phase, between 2016 and 2020, will be devoted to the large-scale deployment of the programme.

The programme includes the gradual installation of power generation capacities using the following technologies:

Solar thermal: In addition to the operational hybrid plant of 150 MW, including 25 MW in solar, two more concentrating solar power plants, 150 MW each, have been launched.

By 2020, four solar thermal power plants with a total capacity of about 1 200 MW will be commissioned. Between 2021 and 2030, a capacity of 5000 MW will be installed.

Solar photovoltaic: Several solar photovoltaic projects with a total capacity of 800 MWp will be implemented by 2020. A capacity of 2000 MWp will be achieved over the 2021-2030 period.

Wind: The first wind farm of 10 MW will be operational in 2013. Between 2014 and 2015, two wind farms with a capacity of 20 MW each are to be developed. The plan is to realise other projects during the period 2016-2030 with a capacity of 1700 MW.

Renewables: a driver of industrial integration

To reinforce the programme, Algeria intends to develop its industrial capabilities in the field of renewables, focusing on selected technologies, with direct state funding and encouraging entrepreneurship.

The industrial integration rate for solar thermal, is expected to reach 50 per cent by 2020 through the implementation of factories for the manufacturing of (i) mirror, (ii) heat transfer fluid and storage equipment and (ii) power block equipment.

While for solar photovoltaic technology, the programme aims to achieve an integration rate of 60 per cent by building, before 2013, a plant for the manufacturing of photovoltaic modules with a capacity of 120 MWp/year and the construction of a silicon production plant, by 2020.

Moreover, a national subcontracting network is to be established for the manufacturing of inverters, batteries, transformers, cables and other equipment used in the

construction of a photovoltaic power plant. As such, the renewable energy programme will allow the creation of thousands of direct and indirect jobs.

Acquiring and maintaining knowledge

The development of renewables will rely on a research & development programme which will mobilise national experts and will lead to the establishment of an efficient know-how, particularly in engineering and project management.

The implementation of this programme will require the development of a national human capacity capable to assume assigned goals of accumulation of knowledge and technology transfer. In this perspective, the Algerian Institute of Renewable Energies was created to offer training programmes that will cover, in particular, engineering, safety and security, energy audit and project management.

Regulation, stimulation and coordination

The legal framework for renewable energies in Algeria consists of the energy efficiency law, the electricity law, the law for the promotion of renewables and many other regulatory texts.

Coordination of the execution of the programme and synergies among stakeholders will be achieved through the future creation of the Commission for Renewable Energies. The latter will have both authority and means to ensure a sound fulfillment of the various actions envisaged in the programme.

Incentives measures and encouragement are provided for the actions and the projects which contribute to promote renewable energies. To encourage and support the industrial companies in the realisation of this programme, is planned, among others, the reduction of the customs duties and the VAT on the import of the components, raw materials and semi-finished products used in the manufacturing of equipments, in Algeria, in renewable energies and energy efficiency domains.

In the new national energy policy, the financing of the programme component related domestic demand through the National Fund for Renewable Energies which is funded using 2 per cent of oil royalty. The export programme will benefit from partnerships that will be made with European players involved in the import of green electricity.

This approach in terms of allocation of fiscal resources reflects the desire of Algeria to ensure that hydrocarbons, available in the country, support the investments necessary to the development of new and renewable energy for the benefit of future generations. 