

## 1. EXECUTIVE SUMMARY AND KEY RECOMMENDATIONS

### EXECUTIVE SUMMARY

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This is the first in-depth review the International Energy Agency (IEA) has conducted of the energy policy of Morocco. Indeed, it is the first the Agency has conducted for any country in the Middle East and North Africa region.

Working on the review has much improved the Agency's understanding of Morocco's energy situation and the policies the government has adopted. It has also improved the Agency's energy data. The review process has involved a productive dialogue on numerous aspects of energy policy, some fruits of which are already becoming apparent.

Unlike some of its neighbours in the region, Morocco is highly dependent on imported energy. Over 91% of energy supplied comes from abroad: coal, oil and oil products from world markets; gas from Algeria; and imported electricity. This is a significant burden on the balance of payments, and, insofar as some energy supplies are subsidised, a drain on the budget.

The high dependence on imports also raises questions about the security of energy supply, while the strong dependence on carbon fuels sustains a relatively elevated level of greenhouse gas (GHG) emissions. Morocco, therefore, shares many of the same energy challenges that are faced by the majority of IEA member countries: affordable energy supply, security of supply and sustainability.

Morocco has long recognised that it is vulnerable to the impacts of climate change. The government ratified the United Nations Framework Convention on Climate Change (UNFCCC) in 1995 and the Kyoto Protocol in 2002. In 1996 a National Committee on Climate Change was established, and in 2009 the National Plan to Combat Climate Change set the first targets for reducing GHG emissions in the energy and industry sectors.

Since the 1990s, the government of Morocco has emphasised the central role of energy in economic and social development. An ambitious programme has been in place since 1995 to extend access to electricity to the general rural population. The network now covers 164 000 kilometres and embraces 98% of the population, compared with 18% two decades ago – a very impressive achievement for which the government of Morocco deserves enormous credit. This development has contributed to a consistent economic growth rate of between 4% and 5% per year, although it has also led to a strong increase in electricity demand.

Morocco has also largely liberalised its market in oil products, privatising the distribution sector in 1995 and allowing imports free of duty since 2002. The first agreement on a foreign-invested power supplier (at Jorf Lasfar) dates back to 1994. In 1995 plans were laid for an electricity interconnection with Spain which began to operate at full capacity (1 400 megawatts [MW]) in 2005. Also in 2005, the first natural gas-fired power plant was commissioned using royalty gas from the Maghreb-Europe Gas Pipeline. Morocco

works with its partners in the Maghreb Union (the Maghreb Electricity Committee [COMELEC], set up in 1992) to promote regional grid integration, as well as with counterparts in the European Union. Combining market liberalisation with regional integration has been a leitmotif for Morocco's energy policy, and the government hopes that a more integrated and liberalised European market will facilitate future Moroccan energy exports to Europe. Morocco has also maintained very attractive investment terms for upstream oil and gas exploration.

In 2009, the Moroccan government developed a National Energy Strategy setting clear and precise objectives. This strategy covers five main strands: optimise the fuel mix in the electricity sector; accelerate the development of energy from renewable sources, especially wind, solar and hydropower; make energy efficiency a national priority; encourage more foreign investment in the energy sector; and promote greater regional integration.

Significant achievements have been made since the strategy came into effect. In the power sector, an additional 2 gigawatts (GW) of coal-fired power capacity has been signed up. This should significantly reduce the average cost of base load power.

In renewables, the overall target of 2 GW of wind power, 2 GW of solar power and an increase to 2 GW of hydropower capacity by 2020 is designed to take advantage of Morocco's highly favourable conditions for both wind and solar power, as well as its long-established hydropower sector. On that basis, renewables should represent 42% of installed capacity by 2020. The first wind farms are up-and-running (at 600 megawatts [MW], with over 1 000 MW in planning or construction), and the first commercial concentrating solar power project has been launched at Ouarzazate with foreign investment and the support of multilateral development agencies.

A legal and institutional framework has been established in parallel. Its goals are to implement stricter standards in energy efficiency; to allow private industry to supply power to the grid (at high voltage initially); to lay the foundation for an electricity and gas sector regulator, to provide support for energy efficiency and renewable energy programmes (through the Agency for the Development of Renewable Energy and Energy Efficiency); to promote solar power (the Moroccan Agency for Solar Energy); and to promote research and development (R&D) in renewables (the Institute for Research into Renewable and Solar Energies). These programmes are now established and funded; they are beginning to have an impact on the development of the whole renewable energy sector, as well as on the country's R&D activity.

On the upstream oil and gas side, a sustained period of high prices and some discoveries in similar geology in neighbouring countries have aroused considerable international interest once more in the Moroccan offshore. The drilling programme this year is expected to be significant. Further, the substantial onshore deposits of oil shale may also prove attractive in due course. Most recently, important steps were taken in late 2013 and early 2014 to eliminate the effective subsidy on gasoline and fuel oil, as well as to reduce significantly the subsidy on diesel fuel, and in June 2014 to eliminate the subsidy on fuel used for electricity generation. Although there still remains a high level of subsidy in the socially very sensitive area of bottled gas (butane), the measures announced so far will have a far-reaching impact on the budget cost of subsidies and (to a lesser extent) on energy consumption.

Lastly, a number of measures have been taken specifically to reduce GHG emissions in the energy sector. The government has worked closely with multilateral and bilateral development agencies to put in place programmes designed to improve environmental management. It has also advanced a number of projects that can benefit from the United

Nations Clean Development Mechanism, as well as a Technology Action Plan to identify technologies best suited for climate change mitigation. Morocco submitted its second National Communication to the UNFCCC in 2010: the third, for 2014, is in preparation.

The main message of this report is that the 2009 National Energy Strategy is being implemented in accordance with the deadlines set at its launch. Major progress has been made both at the institutional level and in terms of major project development, and important reforms have been taken in hand. In the last five years, sustained high prices in most world energy markets have served to reinforce the wisdom of the main strands of the policy: the benefits of improving energy efficiency are more obvious (in terms of controlling energy costs and maintaining industrial competitiveness and of reducing GHG emissions), as are the costs of failing to do so. The competitiveness of renewable technologies has increased significantly and needs to be recognised through a more flexible and innovative approach, particularly towards photovoltaics. Restructuring the power sector, beginning with an internal re-organisation of the national power supplier, will be an important next step in liberalising the electricity market. Likewise, the establishment of an energy regulator, decided by the Moroccan government, will be essential in order to underpin a liberalised market.

Further, attractive investment terms in the upstream need to be maintained in order to provide incentives for international donors and investors. The progress towards decompensation of retail oil products needs to be followed up with a strategy to tackle subsidised butane, including measures to compensate the least affluent. Finally, the institutional revolution in the approach to R&D needs to be supported with increased central government funds so that Morocco can be well placed to become a regional leader in technologies where its geography gives it a natural advantage.

## KEY RECOMMENDATIONS

*The government of Morocco should:*

- *Sustain recent progress in reducing the level of fuel subsidies.*
- *Reinforce the current energy efficiency strategy through clear regulation and incentives, while taking care to measure progress to date and learn from others' experience, e.g. in the European Union.*
- *Optimise the deployment of solar power, maximising the use of concentrated solar power at peak hours and facilitating the use of photovoltaics, by accelerating work in the medium and low voltage area currently under way in Morocco – including access to the grid.*
- *Accelerate the establishment of an energy regulator to supervise an even more open power market and encourage wider use of gas.*
- *Maintain the confidence of foreign investment and domestic industry, while also encouraging more R&D in new energies and the transfer of technology.*