Energy in the Arab World

The heartland of the fossil fuel industry, but the sun unites the region more than oil and gas

---

Today fossil fuels dominate the region

The Middle East and North Africa (MENA) is home to more than half the world's crude oil reserves and more than a third of its natural gas, though alongside countries which have grown rich from fossil fuels are those with almost none. It produced more than 20 million barrels a day in 2014 and is forecast to overtake North America by 2035 as the region with the highest per capita consumption of oil.

It is also the region where primary energy consumption is growing the fastest – up by 4.6% in 2015. Domestic consumption of oil in the Middle East almost doubled from 2000-2015. Even though the region is associated with oil, almost half its primary energy consumption is natural gas, which has overtaken oil (50% vs 48% share), and gas is growing faster than any other energy.

The focus on oil and gas has led the IEA to predict that CO_2 emissions from the region will double between 2012 and 2050.

It is also a region which is particularly at risk from climate change. Temperatures in the Gulf region hit 54^{0}C this summer, and climate scientists have predicted that large areas could become uninhabitable because of extreme heat and water stress.

Fossil fuels are causing huge damage

Middle East countries are paying a heavy price for their focus on fossil fuels in the form of air pollution and contaminated water. Increasing desertification has affected farming, and the fishing industry is suffering from deteriorating quality in coastal waters and the effects of changing sea temperatures on catches.

But fossil fuels continue to enjoy huge subsidies and fossil fuels are so under-priced that it is difficult for renewable energies to break through. They are seen as not cost-competitive because of the sometimes-hidden subsidies offered to fossil fuels. Renewable energy is also blocked by state monopolies of the power system or poor institutional capacity.

A promising region for renewable energies

Only some countries in the region have grown rich by exploiting fossil fuels. But all Middle East and North African countries stand to benefit from the sun, as the region has huge potential for solar energy - and wind power.

A study by the Oxford Institute for Energy Studies estimated the solar potential in the Gulf Cooperation Countries (Saudi Arabia, Kuwait, Bahrain, Qatar, UAE and Oman) could produce 300 times their current electricity consumption, and 34 times their total energy demand.

Yet investment in renewables is among the lowest in the world, behind similar-income countries but also behind many poorer countries. Most countries in the region are sourcing less than 1% of electricity from renewables.

All countries in the region have renewable energy targets which seem modest but, given the low starting points, actually involve very ambitious timeframes. Morocco stands out from the others with its plans on renewable energies. Some large-scale solar projects are operating in the UAE, such as the 100 MW Shams concentrated solar power plant in Abu-Dhabi. And Jordan recently signed a contract for a 200 MW solar plant.

GREENPEACE

International

Country	RE share of electricity installed capacity 2015 (ex hydro)	2020 target	2030	RE detail where available
Algeria	0.24%	15%	20% generation	37% solar, 3% wind
Libya	0.10%	7%	10% by 2025	
Morocco	10.2%	42% installed capacity	52% installed capacity	14% solar, 14% wind, 14% hydro for 2020
Tunisia	6.1%	16% by 2016	25% capacity	
Egypt	2%	20%		12% wind
Jordan	0.5%	10%		
Lebanon	0.08%	12%		
UAE	0.46%	24% clean energy in energy mix by 2021		"Clean energy" includes nuclear
Saudi Arabia	0.03%		10%	Scaled back from earlier target of 50%
Oman	-	10%		

Source: RCREE/AFEX (2015), MEES (2015), MOEM (2016), AOGD (2015), SHANA (2015), REN21/ISEP 2013

IRENA believes that MENA could attract $35 billion in renewable energy investments annually over the next four years. Solar projects alone grew from about $160 million in 2010 to $3.5 billion in 2015.

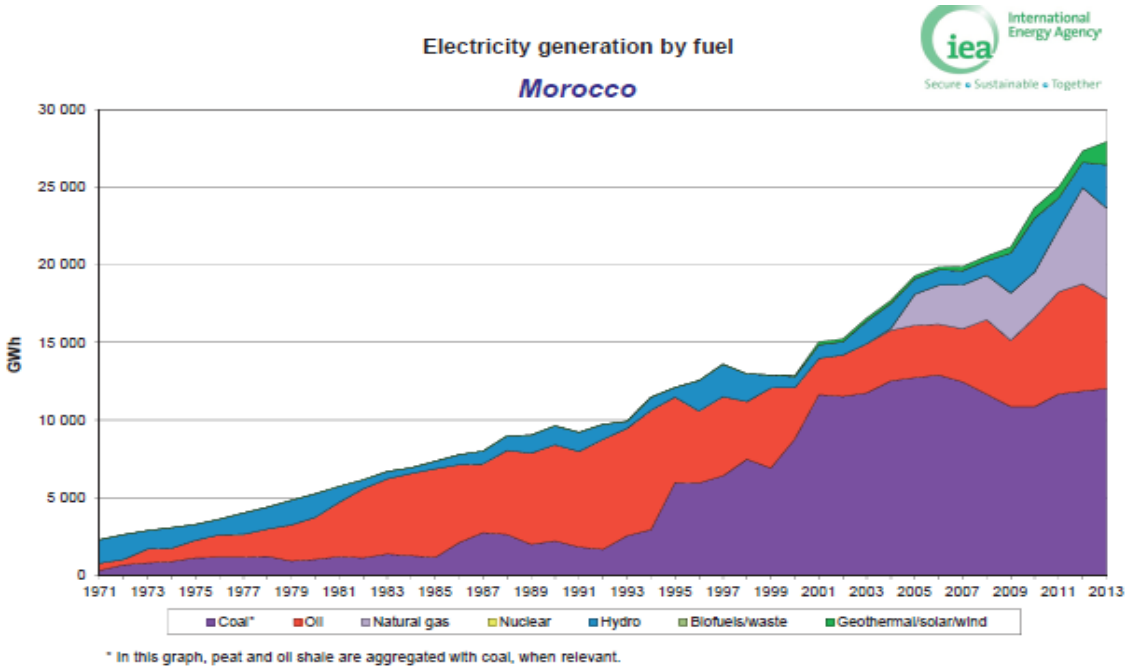
IRENA's director general Adnan Amin believes the MENA power sectors would enjoy a net benefit of $750 billion if they hit their current 2030 targets, in cost and benefit savings. GCC countries alone could create 200,000 jobs in renewables by 2030, reduce their carbon footprint by 8% and water use by 16%.

Morocco

As befits the host of the COP, Morocco has greater ambitions for renewable energy than any other MENA country and is expected to surpass its renewable energy targets by 2030.

It currently meets nearly 84% of its electricity needs from local production. About a third of this is from renewables, the rest from thermal (mainly coal). All cities and 99% of rural areas are connected to the grid.

Earlier this year, it opened a solar thermal plant which will eventually produce enough electricity for a million people.



Renewable energy potential

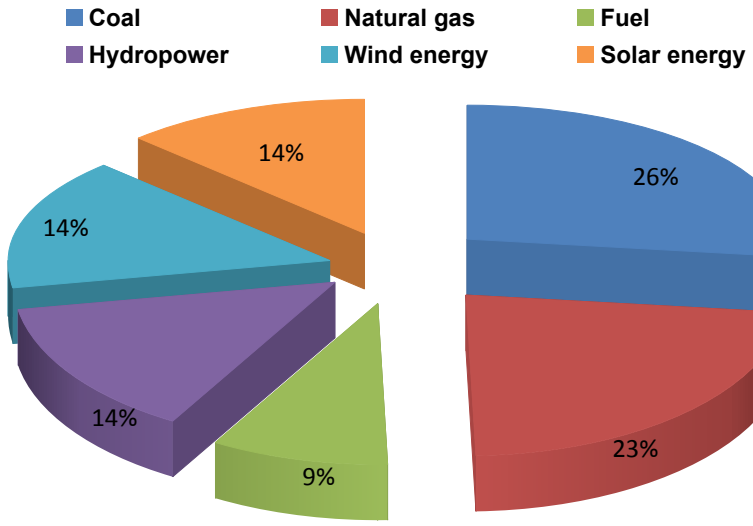
The country's renewable energy potential is huge – particularly solar CSP, wind and solar PV. The economic potential of wind energy is almost equivalent to its current annual needs (33 TWh). But in the long term, it's believed solar CSP will offer the cheapest source of power and, when combined with storage, will be able to more than meet Morocco's needs. It's been estimated it could deliver as much as 600 times the current annual consumption and make Morocco a major energy exporter.

The government of Morocco recently set a new renewable energy target of 52% of total installed power capacity by 2030. The aim is to add more than 10 GW of renewable power capacity from 2016-2030, consisting of:

- 1.3 GW hydro
- 4.2 GW wind
- 4.6 GW solar

Its short term ambitions are for solar and wind to provide 28% of power capacity by 2020.

Planned power mix by 2020



Barriers to renewable energy

The obstacles in the way of this deployment are financial, institutional, skills-based, legal and integration into the grid. Most of these are being tackled by the Moroccan government.

Morocco needs to implement the Law 58-15 which allows connection of Medium and Low voltage systems to the national grid which would increase the proliferation of renewable energy in the country. For that it needs to speed up its infrastructure work (estimate potential and upgrade national grid), build human capacity, finalise financial mechanism (connection costs and payments modalities) and issue the necessary implementation decrees.

It is essential that the government also removes all subsidies to fossil fuels. Subsidies to fuel, petrol and electricity prices have largely disappeared, but remain for bottled butane which is often used for cooking, water heating and irrigation systems. Solar systems could easily be substituted for butane, saving the government the $1.6 billion a year it currently pays to subsidise this fuel (80% of the market price).

It has also introduced an energy efficiency plan, aiming to reduce energy consumption by 12% by 2020 and 15% by 2030 compared to 2010. The government is also removing taxes of energy efficiency technologies, raising awareness and updating regulations.

Greenpeace demands
As host of COP22 and a member of the Climate Vulnerable Forum, Morocco must ensure that the needs of countries which are most vulnerable to climate change yet least responsible are met. Issues like adaptation and the financing of climate action must be prioritised.

Morocco needs to be an ambassador for renewable energies in the region. It should divest from coal and other fossil fuels (especially the huge investment in fossil fuel harbours) and shift more resources towards renewable energy. In particular, it should focus investment on small scale decentralized projects using Moroccan R&D, not just on their mega projects, with the objective of achieving 100% renewable energy.

For further information, contact: Dania Cherry, dania.cherry@greenpeace.org

Greenpeace International
Ottho Heldringstraat 5
1066 AZ Amsterdam
The Netherlands
Tel: +31 20 7182000

greenpeace.org