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The Noor solar power station near Ouarzazate, Morocco. SEPCO III / XINHUA / ALAMY STOCK PHOTO

In Scramble for Clean Energy, Europe Is Turning to North Africa

In its quest for green energy, Europe is looking to North Africa, where vast solar and wind farms are proliferating and plans call for submarine cables that will carry electricity as far as Britain. But this rush for clean power is raising serious environmental concerns.

BY FRED PEARCE • FEBRUARY 16, 2023

Solar panels in sun-rich North Africa generate up to three times more energy than in Europe. And North Africa has a lot more room for them than densely populated Europe. Result: Europe's drive to end its reliance on Russian natural gas supplies, triggered by the Ukraine conflict, is resulting in a rush to install giant solar energy farms and lay underwater cables to tap into North Africa's abundant renewable energy.

But there are growing concerns about the environmental impacts in Africa of Europe's outsourcing of its energy needs. Desert ecosystems will be decimated. Livestock pastures that have been grazed by nomadic tribes for millennia will be commandeered. And analysts fear that this will all happen with minimal community consultation or ecological assessment.

Solar and wind farms are already proliferating south of the Mediterranean. Morocco's Noor and Egypt's Benban solar farms are among the largest in the world. Their initial aim has been to boost domestic power supplies and reduce reliance on coal. But now these facilities are increasingly being lined up to supply green energy to industrial neighbors to the north, through new intercontinental submarine cables, or to locally manufacture "green" hydrogen for shipping to Europe, where demand is growing fast for low-carbon industrial fuels.

The biggest megaproject aims to connect giant wind and solar farms in the Moroccan desert to southwest England.

Morocco, the North African country furthest advanced on this road, is already exporting solar power to Europe via two existing power links with Spain. Last year it signed a new deal with the European Union to expand power exports. Egypt, host of the most recent UN climate conference (COP27) is considering three proposals for cables to link to Greece. Another planned submarine cable that would link new solar farms in the desert of southern Tunisia to Italy's electricity grid has funding promised from the European Union (EU) and World Bank.

But the biggest megaproject aims to lay the world's longest high-voltage submarine cables for 2,300 miles from giant energy farms in the Moroccan desert past the Atlantic coastlines of Portugal, Spain, and France to southwest England, from where it could provide 8 percent of the United Kingdom's electricity. The cost of the proposed 10,500-megawatt Xlinks project is expected to be $22 billion, half for the solar and wind energy farms and half for the cables.

In January, Morocco's ambassador to Britain, Hakim Hajoui, touted the project as capable of creating "thousands of jobs in both countries," as well as "enhancing local ecosystems" in Morocco and helping the U.K. reduce its reliance on burning imported natural gas to generate electricity. Xlinks executives say the cable could start delivering power as early as 2027 and be completed by 2030, though they complain that political turbulence in Britain in the past year has slowed sign-off for the government price subsidy required by potential investors.

The Noor I solar power station near Ouarzazate, Morocco. ABDELJALIL BOUNHAR / AP PHOTO

North Africa's sometimes autocratic governments have already shown themselves adept at delivering rapid construction of large renewable-energy projects in the Sahara. Egypt's 1,650-megawatt Benban solar park, near Aswan on the Nile River, was completed within two years of receiving funding.

And Europe is keen to tap in. Last May, as the Ukraine conflict intensified, the European Commission, representing 27 EU members, launched REPowerEU, "a plan to rapidly reduce dependence on Russian fossil fuels and fast forward the green transition." It provides political and financial backing for cross-border investments to stimulate renewable energy imports from North Africa, and it is considered crucial to enabling the EU to achieve its goal of cutting carbon dioxide emissions by 55 percent by 2030.

But there are ethical concerns about Africa exporting so much power. Most people in Morocco and Egypt have electricity, but less than half the continent's population is connected to reliable power grids. Laura El-Katiri, a visiting fellow at the European Council on Foreign Relations, a Berlin-based think tank, points out that Morocco has connections via a regional power pool that could send green electricity to most nations in West Africa, while Egypt is similarly linked to most of East Africa. But both countries' electricity exports are currently earmarked for European markets instead.

Critics also point to environmental and social concerns. Proponents of solar and wind farms in North Africa routinely describe the land they are taking as remote, empty desert. But even the Sahara Desert is not deserted, especially the coastal areas favored to link up with submarine cables.

Plans for one project in the Sahara call for 12 million solar panels and 530 wind turbines on an area of more than 650 square miles.

And the land being taken for projects large enough to deliver power economically down long cables is vast. Some of the planned renewable-energy hubs will cover hundreds of square miles, consuming precious desert ecosystems and fencing off seasonal grasslands vital to pastoralists. These often militarized zones will also block villagers' routes to nearby towns and consume scarce water resources.

Plans for the Xlinks project in the Moroccan Sahara call for 12 million solar panels and 530 giant wind turbines on an area of more than 650 square miles. The Moroccan government has yet to announce where the project will be located, other than that it will be within the Guelmim-Oued Noun administrative region in the far south of the country. But last fall, in a media interview, the president of that region, Mbarka Bouaida, mentioned three possible locations.

One is near Chbika, a small coastal resort close to the city of Tan-Tan, where the submarine cables from the U.K. will reach land. This is not empty desert. The area is inhabited by Regeibat and Tekna nomads who traditionally range across wide areas of the Sahara seeking pastures for their sheep and camels.

And Tan-Tan is a town with long-standing Saharan cultural traditions based on the desert environment. More than 30 nomadic tribes gather there annually for the largest religious,

cultural, and trade fair in North Africa. Famous for its music and camel racing, the gathering is recognized by UNESCO as part of Africa's cultural heritage. But it could soon be hemmed in by energy plants.

Most controversially, the two other sites mentioned by Bouaida – Mahbes and Lemsid – are in the neighboring disputed territory of Western Sahara, which Morocco has claimed as its own for almost half a century, in defiance of the UN, which does not recognize the claim and lists Western Sahara as a non-self-governing territory. Bouaida's statement appears to contradict a past promise by Xlinks project manager Richard Hardy that none of the sites from which it will take power will be in "contested territories."

The Moussem festival in Tan Tan, southern Morocco. MAXIM MASSALITIN VIA FLICKR

Xlinks did not responded to requests to clarify likely sites for the project. But with no environmental or social impact assessments of specific sites yet begun, critics fear any attempt to meet the company's promise to be delivering power to "over 7 million British homes by 2030" could ride roughshod over ecosystems, communities, and valuable pasturelands.

Clearly, mass expansion of renewable energy is going to have downsides. But the evidence for how such competing interests are being handled in Morocco is not encouraging. Sociologist Zakia Salime of Rutgers University has explored the social impact of the existing Noor solar power station near Ouarzazate. It is one of the world's largest concentrated solar power plants. (Instead of photovoltaics, these plants use mirrors to reflect the sun's rays to a central tower to heat a liquid that stores the energy.) Noor spreads across some 12 square miles of desert and requires more than 2,000 acre-feet of scarce desert water each year.

The project, masterminded by the Moroccan Agency for Sustainable Energy under the Moroccan king's patronage, went to some pains to gain local acceptance, promising jobs,

economic development, and infrastructure. But analysts say this aid turned out to be little more than a few small-scale farming projects for women and occasional construction work or jobs washing mirrors in the hot desert sun. Meanwhile, the wider area became a militarized installation with surveillance towers to protect the site.

These large projects are part of an attempt to control regions that have been the domain of tribal groups, a critic says.

Salime says "8,000 villagers lost their access to collective pastures," as well as sources of water, firewood, and traditional herbal medicines. There was "widespread disappointment" at the community benefits from the project, concluded Boris Schinke at Germanwatch, a Bonn-based nonprofit watchdog on environment and development issues.

Atman Aoui, president of the Moroccan Association for Mediation, an NGO, sees large renewable projects such as the Noor solar park as part of a wider attempt to take control of desert regions that have previously been the domain of tribal groups. The sheer scale of the projects is "challenging assumptions that a low-carbon energy transition is inherently progressive," he says.

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Noting the scheme's use of large amounts of water, he adds, "The irony that a project intended to mitigate climate change is only worsening the effects of climate change in one of Morocco's poorest and most water-stressed regions is not lost on residents."

Still, the potential gains from tapping North Africa's renewable energy resources are huge. The climate needs such megaprojects. And Morocco combines being one of the sunniest countries on the planet, with almost equally high wind-power potential. The sharp temperature difference between the hot desert and a cool offshore current in the Atlantic Ocean generates persistent strong winds blowing onshore. By tapping these forces, Morocco plans to generate more than half its electricity from renewable resources by 2030, and still have spare to sell to Europe.

The Benban Solar Park in Aswan, Egypt. AMR NABIL / AP PHOTO

Morocco is not alone. Tunisia is developing two schemes – the TuNur and Elmed projects – that aim to send power to Malta and Italy from solar complexes near the oasis town of Rjim Maatoug in southwest Tunisia. The area to be annexed is rich in salt-tolerant desert shrubs such as *traganum* and *ephedra* and is close to the largest salt pan in the Sahara, the Chott el Jerid.

Meanwhile, Egypt's military government has been busy building solar arrays. The Benban solar park, completed in 2019, is often described as being deep in the Western Desert, which Wikipedia describes as largely "barren and uninhabited." But in fact the Benban park covers 14.4 square miles of land close to a village of the same name; is close to the west bank of the Nile, downstream of the Aswan dam; and was occupied by settlers before they were removed by security forces.

Benban is soon to be joined by another 200-megawatt solar park, partly funded by the European Bank for Reconstruction and Development and named after the neighboring ancient temple town of Kom Ombo. Both these developments could deliver solar power to Greece and the European Union. According to recent reports, there are three Egypt-Europe cable projects under consideration, taking different routes and with a capacity of up to 3,000 megawatts. One, the Greece-Africa Power Interconnector recently recruited U.S. engineering companies.

Morocco is increasingly siting its wind and solar farms beyond its southern border in the disputed territory of Western Sahara.

Meanwhile, besides exporting renewable electricity to power-hungry Europeans, both Egypt and Morocco are in the early stages of developing the manufacture of "green"

hydrogen and ammonia, made with renewable power, for export to Europe. Egypt says it hopes to be the main source of green hydrogen for Europe by the end of the decade, producing 10 million tons a year. Morocco's National Hydrogen Commission plans to dedicate 6,000 megawatts of renewable energy capacity to the task, says El-Katiri.

As demand for renewable power grows, Morocco is increasingly siting its wind and solar farms beyond its southern border – in Western Sahara. Morocco unilaterally took over the territory, which is the size of Colorado, in 1975, after Spanish colonists left. Western Sahara is not internationally recognized as part of Morocco, and a war for liberation rumbles on intermittently, waged by Polisario guerillas based in Algeria, where many refugees live in camps. But those parts under secure Moroccan control are fast emerging as a hub for a range of resources – from phosphates to fish – that are of increasing value to Europe and the world.

Morocco has already installed three large wind farms and two solar farms in Western Sahara, all hooked up to the Moroccan grid. The largest wind farm, comprising 56 giant turbines erected onshore by a Scottish company close to the coastal fishing village of Aftissat, is now to be doubled in size to more than 400 megawatts, following an agreement signed in 2021 by Morocco with a subsidiary of General Electric.

A wind turbine blade being hauled to a construction site near Laayoune in Western Sahara. JBDODANE VIA FLICKR

Western Sahara Resource Watch, a Brussels-based NGO allied to the independence movement, estimates that by the end of the decade occupied Western Sahara could be supplying half of all Morocco's wind energy and a third of its solar energy, much of it headed for Europe.

Morocco insists that the territory is part of Morocco. But critics say it is using the lure of abundant green energy from the desert to persuade European governments to renege on legal rulings, including by the European Court of Justice, the judicial branch of the EU, which say all investment there must be with the consent of the local Sahwari people. They

note that in the past few months, both Spain and Germany, whose industrial giant Siemens provided most of the wind turbines currently operating in Western Sahara, have reportedly responded to pressure from Morocco by ending their diplomatic calls for a free Western Sahara.

"Morocco is routinely celebrated as a pioneer in the green energy transition," says Joanna Allan of Northumbria University in the UK. But "the Moroccan regime uses energy to recruit allies for its colonial project."

Politics aside, North Africa is increasingly seen as the golden prize for Europe's twin desires to green its energy system and end its reliance on Russian gas. "North Africa is Europe's most important potential future trading partner in renewable energy," says El-Katiri. That is good news for fighting climate change. And she says the new partnerships being developed across the Mediterranean open up the possibility of collaboration on protecting biodiversity, as well as generating green energy.

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But there is no getting away from the fact that tapping wind and solar power requires land: lots of it. And the environmental footprint in the Sahara of Europe's demand for green power will be large.

Fred Pearce is a freelance author and journalist based in the U.K. He is a contributing writer for *Yale Environment 360* and is the author of numerous books, including *The Land Grabbers*, *Earth Then and Now: Amazing Images of Our Changing World*, and *The Climate Files: The Battle for the Truth About Global Warming*. MORE →