

EUROSUNMED

Desert sun partnership powers ahead

If there's one thing North Africa has in abundance, it is sun – and with it, the potential for cheap, plentiful solar power. An EU-funded project is adapting solar technology to the region's environment and infrastructure, while building local research capacity in the field.

Solar energy could increase energy independence for southern Mediterranean countries – if the technology is adapted to local conditions. Equipment needs to resist hot, dry climates and harsh, sandy winds and to cope with limited, dated grid infrastructure.

The EU-funded EUROSUNMED project is working with researchers from Egypt and Morocco to adjust solar technology to North African conditions. To boost long-term green energy prospects for both sides of the Mediterranean, the project is sharing European know-how with its North African partners for stronger solar collaboration.

Research will focus on three areas: photovoltaics (panels that convert sunlight into electricity), concentrated solar power (mirrors or lenses that direct sunlight to a collector to drive generators), and energy storage systems and support for electric grids.

Project coordinator Abdelilah Slaoui of France's National Centre for Scientific Research and the University of Strasbourg says: "we chose

our Egyptian and Moroccan partners for their research skills and capacity, driven by growing demand for reliable domestic and industrial power."

To share know-how, student and researcher exchanges are training North Africans in chemistry, physics and materials science. "The exchanges have been beneficial for all parties, building knowledge in generating solar power in the North African climate," says Slaoui.

He predicts that generating more solar power could support economic growth in North Africa, while reducing its dependence on expensive imports of oil and gas. At the moment, Morocco and Egypt use hydroelectric plants for most of their renewable energy, which are erratic in the countries' dry climate.

Technical teamwork

Work is already underway on adapting solar panels and energy storage systems to North African conditions.

Participants

France (Coordinator), Belgium, Egypt, Italy, Morocco, Norway, Spain

<http://www.eurosunmed.eu/>

Energy

FP7

Proj. N°

608593

Total costs

€ 6.3 Mio

EU contribution

€ 5.3 Mio

Solar panels that work in deserts could benefit people in both off-grid and grid-connected areas, while energy storage could allow a more even power flow into old, fragile grids – even when there is no sunshine – giving the reliability needed for modern lifestyles.

To protect panels from the elements, the project is developing materials for strong coatings that resist the large sand particles and fierce, hot winds of North African conditions. Various energy storage solutions have been considered, with the main system studied based on traditional heat storage using stones.

Demonstrations of these technologies are expected in June or July 2016, says Slaoui, with feedback from testers being part of the overall research process.

Other research will investigate new types of photovoltaic cells and solar power plants, and will review how much renewable energy Egyptian and Moroccan grids can support, helping national grid managers decide whether to upgrade.

The second part of the project will plan how partners can continue their research to the stage where it can be used in industry, with patents applications already submitted for

some new ideas. “Countries will choose which ideas to prioritise after the project, taking into account their climate and energy needs”, says Slaoui.

Many of the research results will be shared through summer schools, workshops and conferences, and partners intend to continue their collaboration after the project, he says.

To promote further research collaboration between the EU and Mediterranean and North African countries, the project will publish a roadmap. And to encourage more education and training, the team would like to set up a European-Mediterranean master’s degree in renewable energies and an international laboratory agreement. Both will strengthen links between North African and European researchers, making it easier to develop future technology together.

