



CASE STUDY
**GERMAN TECHNOLOGY FOR
HIGHER ENERGY YIELDS**

TECHNOLOGY FROM GERMANY PROVIDES GREATER ENERGY YIELDS AT ITALIAN SOLAR PARKS



The Italian company Renegies Italia, specialist for renewable energies, started operation of a new solar park in Andria, Apulia. The plant generates around 40 percent more solar energy than conventional solar parks. The German company **DEGERenergie**, situated in Horb am Neckar, is responsible for this extra yield.

Renegies Italia currently operates four solar parks. **In total, Renegies generates around 6.3 million kilowatt hours annually from the sun with these four plants - without any kind of pollution.** At the end of March 2009, Renegies started up its latest photovoltaic park near Andria, in Apulia to the far south of Italy.

The company increases the energy yield of this 1 MW plant by using **130 DEGERtraker 7000NT tracking systems** developed by German manufacturer **DEGERenergie**. The trackers make sure that the solar modules automatically follow the path of the sun. Every solar system equipped with DEGER technology has a nominal rating of 7.26 kWp. Michel Gouffon, general director of Renegies Italia: "We're very pleased that we could equip our park with technology from **DEGERenergie**. We have been able to generate more power, secure our investments and ensure faster amortization of the park."

"The patented sensor control on the **DEGERconector** makes tracking with our systems particularly efficient," explains Artur Deger, founder and managing director of **DEGERenergie**. "It makes sure that Renegies generates about 1.8 million kWh in its newest park - without tracking, the yield would be about 1.3 million kWh." This efficiency gain of around 40 percent tipped the scales in Renegies' decision to adopt tracking with systems from **DEGERenergie**.

PROJECT OVERVIEW

Location: Andria
Completion: March 2009
System: dual-axis tracking systems
Construction power: 944 kWp
Number of Systems: 130
Products: DEGERtraker 7000 NT



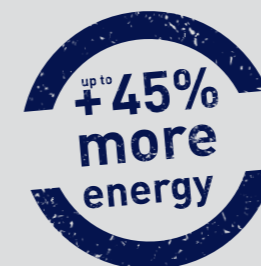
PATENTED SENSOR CONTROL ACHIEVES EXTRA YIELD

The heart of this intelligent control is the patented DEGERconector control module developed by Artur Deger was awarded the Inventor's Prize by the state of Baden-Württemberg in 2001.

The DEGERconector continually measures intensity and the angle of light rays and aligns the solar modules accordingly. The DEGERconector thereby takes into account not only the exposure to direct sunlight but also (for example) the light that is reflected of snow, water or rock, or diffused sunlight that penetrates through the clouds. This allows the connected solar module to always receive the greatest possible amount of energy and to emit the energy as usable power.

DECENTRALIZED CONTROL SAVES COSTS AND INCREASES EFFICIENCY

Decentralized control is one of the most significant features of DEGER systems: Every single system aligns itself completely independently according to the optimal angle of light incidence. This has several advantages: Since the systems work perfectly without a central control, the park does not need to be networked with data cables. This accelerates construction and saves on investment costs. An additional factor is that in case of a possible control failure only one single system will be affected - all other systems in the park continue their work as normal. The third factor has a significant influence on the economy of the systems: DEGERconnectors always direct every single system in the entire park to an optimum position, even under different and/or rapidly changing cloudiness. Every system therefore achieves the highest possible energy yield. Quick response times ensure that even gaps in the clouds (Eye of Cloud) can be very efficiently utilized.



Operation of DEGER tracking systems is highly energy efficient. The energy consumption of a DEGERtraker 7000NT system, as operated in Apulia, is around 9 kWh per year. In contrast to this, the extra yield achieved because of tracking is about 5,000 kilowatt hours per system and year. The internal consumption therefore is about 0.2 percent of the extra yield.

ENERGY BALANCE ACHIEVED AFTER JUST THREE YEARS

This efficient handling of energy becomes apparent in the environment/energy balance and in the returns for solar park operators, as Artur Deger explains: "With our tracking systems, after about three years a solar park as in central Spain has already generated as much energy from the sun as was needed for the production of the entire installation – the entire infrastructure with concrete buildings, steel constructions and wiring."

Artur Deger estimates that the entire investment in the park, about seven million Euros, will be redeemed in approximately nine years. "Thanks to system tracking, we have a yield increase in Andria of between 38 and 40 percent. Without tracking, we would have had to wait at least 16 years until recouping our costs." And that's not all, once the point of amortization has been passed, the 35 to 40 percent higher yield will really make a difference, and this is four to five years earlier than would be the case without tracking.

Renergies' general director, Michel Gouffon, also thinks the sums add up: "Intelligent tracking technology convinced us to go for it."

So it's no surprise that other solar park operators have also decided on tracking systems from **DEGERenergie** not just in Italy, Spain and Germany, but currently in 38 countries around the globe. For example, two additional megawatt parks and many smaller installations in Italy are already operating with DEGERtrakers – there are currently more than 500 systems from Germany in use there.

DEGERenergie – INNOVATIVE. EFFICIENT. HIGH-YIELD.

DEGERenergie is an international, innovative company with headquarters in Horb a.N. The company was founded in 1999 by Artur Deger and is now the global market leader for sensor-controlled solar tracking systems, with more than 25,000 systems installed worldwide. Since being founded, **DEGERenergie** GmbH has grown at a high rate year by year. In 2008, the company, which now employs 37 staff, achieved a turnover of roughly 36 million Euros. Around 340 people are employed amongst **DEGERenergie's** suppliers.

The focus of **DEGERenergie's** entrepreneurial philosophy and approach is on the design, development and production of tracking systems for photovoltaics modules in solar technology. The sun's energy can be considerably better utilized in solar power systems that use these tracking systems than with just static systems. Solar plants that work with **DEGERenergie systems** achieve up to 45 percent higher energy yields. In 2001 the patented DEGERconector control module was awarded the Inventor's Prize by the German state of Baden-Württemberg and more than 48,000 units are now in use worldwide. DEGERenergie systems are currently harnessing solar energy in 38 countries around the globe.

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