

ENERGY

Failure tolerant converters: CONFIA



The CONFIA project aims to improve the efficiency and availability of converters, especially those used in wind turbines, by the development of new multi-level converter topologies. These converters allow the operation to continue in failure situations through the redundancy of the switching devices

and the software used to reconfigure them. This increases reliability and also allows us to maximise the output and quality of the energy processed.

Active demand management

The project was approved by the CDTI in its 2nd call for the 2006 CENIT programme and consists of a consortium made up of 15 Spanish companies and 14 Spanish research centres, headed by Iberdola Distribución.

The aim of the project for 2007-2010 is to optimise the form of energy consumption and therefore the costs associated with said consumption, while at the same time satisfying consumer needs without reducing its quality.



Commissioning trials for high voltage underground cables



During 2006, TECNALIA carried out stringent verification tests prior to the commissioning of over 40 high voltage lines (66-400 kV) installed in Spain, Germany, Italy and Holland, mainly for IBERDROLA and ENDESA. This task was aided by our mobile 260 kV, 80 A Resonance System and our advanced

technological specialisation in the on-site measurement of partial discharges.

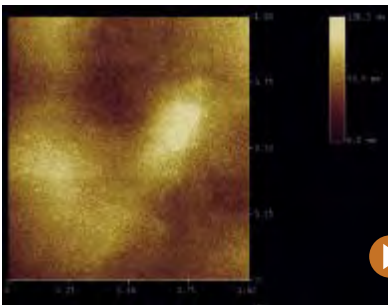
Pilot H₂ production plant and electricity generation using fuel cells: HIDROTEC



The HIDROTEC project has completed its first phase with the commissioning and operation of a pilot plant for studying Hydrogen technologies in combination with Renewable Energies. This system allows us to produce hydrogen using such renewable energies as wind power or solar energy, store it and use it as fuel for generating electrical energy. This means that we can analyse a wide range of scenarios, such as hydrogen stations (service stations supplying hydrogen fuel for vehicles) or the management of

wind farms equipped with this energy storage method. It is the first installation of its type in the Basque Country and its versatility, transportability and level of automation make it a point of reference at European level. The project is being carried out with the collaboration of HIDROTEC Industrial Interest Group (HIG), consisting of Artech, Gas Natural, Naturgas Energía, Carbuos Metálicos, Gamesa Energía and Tamoin Energías Renovables.

NANOSOL. New oxide-conducting polymer nanohybrid materials for photovoltaic applications



This specialised project is developing photovoltaic solar cells based on hybrid nanostructured layers consisting of metal oxides and conducting polymers. The technology being developed offers an alternative to DSSC (dye sensitised solar cells), where the liquid electrolyte is replaced by a solid conducting polymer that improves its stability and manufacturability.

The project aims to synthesise the polymer and achieve the simultaneous deposition of titanium oxide nanoparticles.

Leading the development of marine energy: PSE-MAR



TECNALIA is the coordinator of the most significant Spanish initiative being carried out in the field of marine energy. The "Special Strategic Marine Energy Project (PSE-MAR)" is co-funded by the Ministry of Education and Science and aims to position Spain as a world leader in the marine energy sector. The project has a budget of 25 million Euros for 2005-2009 and focuses on the development of three of the most promising Spanish technologies for harnessing wave energy

– the technologies developed by PIPO SYSTEMS, HIDROFLOT and TECNALIA. At the same time we are going to build an infrastructure for experimental and demonstration purposes off the Basque coast to validate the technologies developed, as well as any other technologies interested in setting up off our coastline.