

**ITALY DAY**

**ABSTRACT TABLE OF  
PROJECT PROPOSAL**

**PROJECT Nr. 8**

<b>SECTOR:</b>	ENERGY PRODUCTION, WIND ENERGY, HYDROGEN TECHNOLOGY
<b>PROJECT IDEA IN A HEADLINE:</b>	INNOVATIVE Nanostructured Catalyzer to Generate Hydrogen from Wind Energy
<b>INNOVATIVE POINTS:</b>	A NEW ELECTROLYZER NOBLE METALS FREE COUPLED WITH A HIGH EFFICIENCY WIND TURBINE
<b>POTENTIAL BUSINESSES AND APPLICATION FIELDS:</b>	BACKUP SYSTEMS, HYDROGEN PRODUCERS, FUEL CELLS SYSTEMS
<b>CHARACTERISTICS OF POTENTIAL PARTNERS:</b>	CENTRES OF EXCELLENCE AND RESEARCH, FUELL CELLS AND ELECTROLYZERS PRODUCERS, ELECTRONIC SMES
<b>EU PROGRAMMES TO PARTECIPATE:</b>	FCH JU, RESEARCH FOR SMEs, TO BE DEFINED
<b>BRIEF PROJECT DESCRIPTION:</b>	<p>We have introduced the innovative project NanoCatGeo. General objective of the project is the development of an electrochemical hydrogen generator formed by an innovative nano-structured PEM catalyst made up of not precious metals coupled with a high efficiency wind turbine. This technological solution overcomes the limits of traditional electrolyzers making them more adapted to the spread and commercially more interesting. In fact the necessity to maintain in constant polarization the electrodes in the traditional devices, in order to prevent explosions, made it impossible to couple them with renewable sources of energy due to their fluctuations in time. In this way instead, thanks to the new technology that holds gases always separated, the two devices are perfectly integrated assuring optimal performances, reliability and easy of installation. The sophisticated aerofoil of the blades and an electronic control box guarantees the maximum efficiency in the conversion of the mechanical energy. This last one moreover can completely be accumulated in hydrogen form. On one side therefore the electrolyzers are low cost and without the presence of precious metals such as Platinum and Iridium and on the other side the project previews the development of an advanced design of a micro Wind turbine able to convert mechanical energy in the best</p>

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possible way. Remarkable can be in this case the perspectives of spread of a system like this in a Distributed Generation scenario, as well as the development and spreading of Fuel Cells systems, which represent the more interesting applications for the production of low impact energy production. One of the greatest obstacles to their spreading consists just in the generation of hydrogen in a low emissions way being Hydrogen commonly produced by means of the reaction of reforming or electrolysis from grid energy implementing greenhouse gases in atmosphere. NanoCatGEO is proposed therefore as a first step in the spreading of a system based on clean and self produced hydrogen, favouring the possibility to be free from grid energy and the dangerous fluctuations of the market and the relative prices.