Launch of the LESGO project

The project brings together an international team of scientists to carry out research on hydrogen & how to exploit it for electric storage in order to provide green supply of electrical power on demand.

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In order to reduce the use of traditional energy sources such as fossil fuels, scientists are finding out ways to efficiently store solar energy obtained from solar panels. Many platforms have been investigated over the years and currently hydrogen is being pursued as a promising route to store this energy.

Now, due to the fact that over 95% of H2 produced comes from breaking the C-H bond in hydrocarbons, storing Hydrogen bound to Carbon atoms may provide a long-term solution to this issue. Common liquid hydrocarbons are not an optimal solution since extracting H from them involves CO2 emissions.

With this in mind, the European project LESGO has been recently launched with the

objective of using graphene to store hydrogen as effectively as possible, by binding it to the carbon in reduced graphene oxide (rGO-H), a green and clean material that can be stored safely, exhibits an energy density more than 100 times larger than that of H2 gas, and can be easily transported wherever the electricity generation is needed. In addition, one important factor to take into consideration is that in a complete cycle from sun light to electrical power the raw material for storage evolves from graphite back to graphite with no CO2 emissions in any intermediate step.

To successfully achieve these goals proposed and create a technology that will be effectively deployed in the market, LESGO gathers a consortium of 10 partners from 6 different countries based on their knowledge and expertise in the field: ICFO- Institute of Photonic Sciences, the Catalonia Institute for Energy Research (IREC), and Graphenea; the University of Duissburg-Essen, Aalto University , the CNR-Nano National Research Center and the Centro Ricerche Fiat (CRF); Hysytech, Gencell, and the Danish Board of Technology (DBT).

LESGO will demonstrate that rGO-H can become an ideal energy stock at an affordable cost and used to supply electrical power on demand where ever it is required. It will enable the emergence of an ecosystem around a circular economy relying on the use of widely available raw materials, storing energy in chemical bonds, using it in applications that require electrical power, and finally recovering the materials for a second or multiple lives.

Finally, LESGO also sets a stone towards gender parity, with 57% of the work packages led by females and approaching the 50% of female participants in the project.