

## THE EOS START-UP COMPANY PROJECT

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### Title

CHEMICAL ALTERNATIVE ENERGY STORAGE

### Description of the project

#### THE IDEA

The project aims at establishing a start-up exploiting the scientific know how of the University of Perugia and the engineering skills of the ENEA laboratories of Frascati to the end of producing and marketing industrial apparatuses storing low cost excess electric energy generated from non fossil sources. The crucial step of these technologies is the utilization of chemical processes to convert electricity generated from non fossil fuels into chemical energy.

#### THE APPARATUS

The apparatus is carbon neuter (or even carbon sequestrator) that is made of:

- a water electrolyser producing hydrogen and oxygen using electricity generated by discontinuous sources (wind, sun, sea, etc.);
- a storage of hydrogen (or of any other fuel obtained by reducing carbon dioxide using electrolytically produced hydrogen)
- an "on demand" electricity generator using the stored fuel.

#### THE SCIENTIFIC MISSION OF THE START-UP

The scientific mission of the start-up is the development of processes either allowing the direct storage of H<sub>2</sub> or its use to reduce of carbon dioxide and the storage of the reduction products. Among the methods investigated for the storage of H<sub>2</sub> are carbon nanotubes, metallic matrices, clathrate hydrates, etc. Among the methods recovering reduction products are liquefaction, clathrate hydrates, etc.

#### THE MARKET MISSION OF THE START-UP

The market mission of the start-up is the production of apparatuses allowing the recover of vast amounts of excess energy produced by discontinuous sources.