Sacyr
iChallenges
A Sacyr Open Innovation Program

New solutions to maximize renewable energy use

How can we increase generation, storage and renewable energy capacity at our facilities, while reducing our energy bill?

Challenge Context

Key facts

Electrical energy can be easily generated, transported and transformed. However, so far it has not been possible to store it in a practical, simple and economical way. Therefore, electrical energy must be generated at all times according to demand and, as a result, renewable energies require the support of storage systems in order to be integrated. Only lithium batteries present efficiencies above 85%, although they still offer life expectancies limited to a maximum of 1000 charge cycles and a negative impact on the environment due to their highly polluting and resource-intensive extraction process.

Problem description

- Current storage options have a low level of scalability, directly limiting the use of clean energy in energy-intensive operations.
- The lack of alternatives for managing large volumes of energy surplus represents an irrecoverable loss of energy.
- The rising cost of energy caused by the socioeconomic and environmental context makes it necessary to identify and apply new technologies capable of generating energy from renewable sources, in order to increase its supply and contribute to the development of the energy transition.

Challenge goals

Identify and implement technological solutions and tools to improve the performance and management of energy from renewable sources to be used in large buildings, industrial and waste recycling plants, transportation nodes, etc. In order to achieve a decarbonization of these infrastructures, in each of the following phases of the energy cycle:

- Generation from new renewable technologies.
- Intelligent use of this energy.
- Storage with greater autonomy.

What are we looking for?

We are looking for innovative solutions that:

- Provide infrastructures with new technologies that allow the generation of renewable energy to reduce energy dependence on polluting sources.
- Guarantee greater energy autonomy of the infrastructure.
- Enable efficient management of existing energy resources while ensuring a sustainable operating model.

Expected impact

- Support the mass adoption of renewable energy use in large facilities by ensuring their energy autonomy.
- Develop the capacity to store surplus energy in order to use the surplus in the hourly intervals where the price of energy is higher, or to sell the excess energy produced to other consumers during periods of higher demand.
- Encourage the decarbonization of industrial assets.
- Identification of new technologies to increase the production of energy from renewable sources, in order to increase its supply and contribute to the development of the energy transition.

Target audience

This challenge has a global scope and is aimed at the entire professional innovation community such as UTEs, research centers, universities and startups.