ABENGOA

Innovative technology solutions for sustainability

Abengoa moves forward the commissioning of the Grasshopper pilot plant to produce energy from hydrogen

- In an institutional event, the mayor of Seville, Juan Espadas, and the delegate of the Free Zone, Alfredo Sánchez Monteseirín, visited the plant, located in Free Zone of Seville (Spain).
- Once passed the start-up phase, the plant will prepare to be transferred to its destination in The Netherlands.
- Grasshopper is a new generation power plant based on fuel cells that differs from current ones in that it is able to operate dynamically, flexibly, versatile and with a significant cost reduction

December 1, 2021 – Abengoa, an international company that applies innovative technology solutions for sustainable development in the infrastructure, energy and water sectors, through its Innovation area, moves forward the commissioning phase of the pilot plant for the production of energy through the use of hydrogen fuel cells of the Grasshopper project, in which it participates. The main novelty of this plant is that it is the first in the market capable of operating in a dynamic, flexible and versatile way and with a significant cost reduction, being capable of maintaining its performance throughout its operating range. Its bidirectional communication with the electricity market allows it to offer capacity and receive requests through a platform designed for Smart grids, and its rapid response allows it to participate in the electricity reserve and grid balance markets. The plant is currently located in Free Zone of Seville, from where it will soon leave for its destination, in The Netherlands.

With the Grasshopper project (GRid ASsiSnting modular HydrOgen Pem PowER plant, or, in other words, PEM-type hydrogen fuel cell power plant for grid balance assistance), a new generation of power plants based on PEM-type (Proton Exchange Membrane) hydrogen fuel cell is created of hydrogen fuels, of the type, capable of operating dynamically, being able to adapt to the needs of the electricity grid demand, with a great response capacity, which makes it a 100% manageable installation. This added value will place it in a very competitive position in the backup power markets once the pilot plant is commercially developed. A larger-scale solution is already in the works, which will enable to enter to the market almost immediately.

Another great benefit of this plant is its modular nature, which makes it relatively easy to transport, and quick to connect, known as plug and play. Thus, Grasshopper presents the solution for the energy demand of remote places, or off-grid locations, such as camps or islands, or as an emergency generator for buildings, such as hospitals. Also, and since the plant generates energy not only in the form of electricity, but also heat, as a by-product, the plant generates heat, it can be used in industrial processes that require low temperature, or for heating supply in residential areas (CHP).

Destination: The Netherlands

Once the start-up phase is completed, the project will prepare to be transferred to its destination, a chemical park in Delfzijl (The Netherlands), where it will operate for five years to demonstrate its durability and economic viability. The plant will operate from the excess hydrogen produced in a chlor-alkali chemical plant.

Presentation ceremony to the mayor and the delegate of the Seville free trade zone

In an institutional act, the Mayor of Seville, Juan Espadas, and the Delegate of the Free Zone, Alfredo Sánchez Monteseirín, visited the plant, located in the Free Zone of Seville (Spain).

In the words of Juan Espadas, "this is a powerful work of research and technological innovation that reveals the full extent of the talent that exists in the company Abengoa, which is a source of pride for Seville and Andalusia. In fact, this project, like its solar and solar thermal initiatives in the past, once again places Seville at the forefront of engineering applied to renewable energies". In the opinion of the mayor of Seville, "this Abengoa plant highlights that Seville is a reference for the European Green Pact in terms of several of its central axes: the change of energy model, the commitment to renewable energies and economic growth through industry".

For his side, Alfredo Sánchez Monteseirín, emphasized that "In the coming years, we must accelerate the large-scale transformation of our energy system to achieve a 100% renewable, and therefore clean, system by 2050. It is imperative to promote green, sustainable, and technologically advanced industry, which is increasingly being applied in our basin. We all have the goal of offering society products with a minimum environmental impact."

On behalf of Abengoa, the president of Abenewco, Juan Pablo López-Bravo, highlighted his appreciation for the attendance and support of the Mayor and the Delegate of the Free Zone of the city. As he pointed out, "Abengoa has always been committed to innovation as a differential value and competitive advantage.

ABENGOA

Innovative technology solutions for sustainability

Currently, the company has specific areas of solar, railway, electrical power systems, aerospace, and hydrogen innovation. The Grasshopper project is Abengoa's hallmark because it represents the result of the company's commitment to the environment, its customers and technological development. Now our sights are set, on the one hand, on successfully completing the tests of the Grasshopper project and its transfer to its final destination, in Holland; and, on the other hand, on the possible development of this type of power plant on a commercial scale".

International project and financing

In addition to Abengoa, the project consortium includes other companies and institutions such as INEA -Informatizacija Energetika Avtomatizacija, Johnson Matthey Fuel Cells Limited (JMFC), Nedstack Fuel Cell Technology BV, Politécnico di Milano (Polimi) and Zentrum für Brennstoffzellen Technik Gmbh (ZBT).

The Grasshopper project meets the objective of the European Green Pact, which aims, among other things, to eliminate net greenhouse gas emissions by 2050. Moreover, among the renewable energies that could supply a substantial part of the European energy mix by2050, hydrogen could represent up to 20 %. Hydrogen is therefore a key point in the process of decarbonization of the energy sector and one of the best energy carriers for energy storage in the medium and long term, contributing to the development of a circular economy and a zero-emission society

The successful completion of the start-up of the Grasshopper project represents a key milestone for Abengoa, as it will open the door to new developments in this field, while reaffirming the company's leading position worldwide in this sector.

This project has been funded by the Fuel Cells and Hydrogen 2 Joint Undertaking undersigned agreement number 779430. It is supported by the European Union's Horizon 2020 framework program for research and innovation and by the Hydrogen Europe and Hydrogen Europe Research associations.

More information here.

GRASSHOPPER

Grid Assisting Modular Hydrogen PEM Power Plant

FCH

FUEL CELLS AND HYDROGEN JOINT UNDERTAKING

About Abengoa

ABENGOA

Innovative technology solutions for sustainability

Abengoa applies innovative technology solutions for sustainability in the infrastructure, energy and water sectors. (www.abengoa.com)

About Grasshopper

The Grasshopper project aims to create a new generation of hydrogen fuel cell based power plants more cost effective and flexible in energy production, achieving an estimated CAPEX below 1500 EUR/kWe at an annual production rate of 25 MWhe. (http://www.grasshopperproject.eu/).

Communication Department:
Marián Ariza
Tel. +34 954 93 71 11
E-mail: communication@abengoa.com

Investor Relations & Capital Markets:
Gonzalo Zubiría
Tel. +34 954 93 71 11
E-mail: ir@abengoa.com

You can also follow us on:

@Abengoa

And on our blog:
http://www.theenergyofchange.com