

Seixal receives pioneering project to inject green hydrogen into the gas network

17.12.2020 at 2h18 pm

Project led by Galp Gás Natural Distribuição involves other Portuguese companies, such as Gestene and PRF, and will be in Portugal the first field test to mix hydrogen in gas, covering 80 final consumers



Portugal has been attracting hydrogen-related projects but the bet has been criticized and far from being consensual

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It is not on the controversial list of hydrogen projects to be presented to Brussels. It is not a project of millions. It is not revolutionary on a global scale. But it is a pioneer in Portugal and could be the very small scale test that the country needs to verify the technical feasibility of hydrogen injection into the gas network. It is called Green Pipeline Project and will take place in Seixal. The project has the participation of Galp Gás Natural Distribuição (GGND), the company that controls Setgás,

concessionaire for the exploration of the natural gas network in the Setúbal region, including Seixal. It also involves other Portuguese companies, such as Gestene and PRF. The Portuguese Association for the Promotion of Hydrogen (AP2H2) is also involved, as is ISQ, among other entities.

It will be a demonstration project, which for two years will inject green hydrogen into the gas network that serves a cluster of only 80 customers, of which 70 are residential and a dozen companies, including an industrial consumer.

Nuno Nascimento, head of the energy transition area at GGND, explained to Expresso that this project was born out of Galp's desire to become involved in the search for decarbonisation solutions, but it is also enhanced by the fact that Gestene already owns an electrolyzer and an installation of solar panels. The equipment will produce 10 cubic meters per hour, using electricity from photovoltaic panels.

With the conditions met for the production of green hydrogen, GGND now intends to test its incorporation into the gas network. The project to be developed in Seixal, with a cost of less than one million euros, foresees the construction of a 1.4 kilometer tube that will connect Gestene's hydrogen production to an infrastructure that will mix that renewable gas in the gas network Natural.

The mixture will then be distributed over a little more than 6 kilometers of existing piping up to 80 points of consumption. "It will start with 2% to 3% hydrogen in the initial phase. The project will last two years, until it reaches 20% mixing", indicated Nuno Nascimento

The idea of this pilot was born about a year and a half ago, the executive president of GGND, Gabriel Sousa, also told Expresso, noting that "in Portugal we find a very favorable context, because our networks are more recent than those of most of the Europe".

Gabriel Sousa is aware of the criticisms that have been made to the national strategy for hydrogen (ENH₂). If some of the opponents condemn subsidizing a technology that is not yet mature (arguing that the economy would gain more from allocating these resources to other businesses), other critics point the finger at the technical challenges of hydrogen, which is a lighter gas than natural gas, with a lower energy content and with special pressurization needs in its storage.

The executive chairman of GGND underlines that "the technological challenges in the gas pipelines [in the transmission network, operated by REN] are different from those in the distribution networks [part of which operated by GGND]" and recalls that "many hydrogen projects will be in the distribution networks".

Nuno Nascimento considers that the gas distribution network does not need major investments in its adaptation to receive hydrogen, being globally well prepared for the injection of this renewable gas.

INSPECT AND CHECK THE SAFETY OF INSTALLATIONS

One of the challenges will arise at the points of final consumption. The project at Seixal aims precisely to function as a living laboratory to test the behavior of domestic (and business) equipment with the mixture of natural gas and hydrogen and to verify that the burners work well.

Thus, the project will have an inspection and testing unit, which will verify, with each consumer, whether their equipment (stoves, water heaters, boilers) are adequate. Now, one of the partners in this initiative is Bosch, which has several factories in Portugal, one of which produces water heaters and boilers. And according to Nuno Nascimento, the German company "already has a unit ready to produce a boiler for 100% hydrogen".

Bosch's involvement in this project will allow customers whose equipment is not suitable to receive new equipment, free of charge. "We don't have a census yet, but we want to make sure that all customers have a capable infrastructure. It is a very controlled environment, we want to follow it one by one", stresses Gabriel Sousa.

Nuno Nascimento concedes that what will be done at Seixal has already been done in several countries, but not in Portugal. For the development of this project, GGND is in contact with the Energy Services Regulatory Entity (ERSE), the State Secretariat of Energy and the General Directorate of Energy and Geology (DGEG).

Although the investment is not large, GGND is finalizing the structuring of this project, which will be partially covered by the permitted income from the regulated activity of Setgás (with the agreement of ERSE). The promoters want to make this possible with funding under public support, and are evaluating which instruments they can apply for. "It is one of the rough edges that need to be filed", admits Nuno Nascimento.

Once the entire project design has been closed, the construction work on the piping and equipment that will make the hydrogen mixture in the gas network will take two months. And over two years, GGND will monitor the results of this test. "The project's objectives are aligned with the decarbonization strategy. All the teachings of this project could be very important for the future of legislation", concludes Nuno Nascimento.

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In: <https://expresso.pt/economia/2020-12-17-Seixal-recebe-projeto-pioneiro-de-injecao-de-hidrogenio-verde-na-rede-de-gas>