

Hydrogen. The first experiment with natural gas will begin

Within three months, Portugal will have the first natural gas distribution network with hydrogen.



Nuno Nascimento, director of Energy Transition, New Technologies and Communication at Galp Gás Natural Distribuição (GGND), alongside an electrolyzer from Gestene © ANDRÉ KOSTERS / LUSA

Lusa
05 April 2021 — 08:26

In a few months, Portugal will have the first distribution network for natural gas with hydrogen, a project essentially of learning, knowledge and testing, because the "life" of natural gas can be short.

"I would say that natural gas played a very important role for the Portuguese economy, but it is still a fossil fuel. It is the cleanest of fossil fuels, it is true, but it is still a fossil fuel. Of

course, the environmental pressure and the decarbonisation goals ... and when we talk about carbon neutrality in 2050, it actually means that natural gas is going to have a life span, perhaps, more limited than what would have been predicted ".

Words by Nuno Nascimento, director of Energy Transition, New Technologies and Communication at Galp Gás Natural Distribuição (GGND).

The official showed Lusa **GGND's project to start injecting hydrogen into the natural gas network, first a small percentage and in a confined network, which serves about 80 customers, mostly residential.**

It will be the first time in Portugal that hydrogen is mixed with natural gas and it will be within three months, in the accounts of Nuno Nascimento, who **believes that at the end of the decade it will be possible to meet the Government's goal of having 10 to 15% of hydrogen throughout the natural gas network.**

The Government is betting on green hydrogen to decarbonize the economy and meet the targets it committed to in 2050 to be neutral in carbon dioxide emissions. On Wednesday, as part of the presidency of the Council of the European Union (EU), he is even organizing a major conference on green hydrogen.

"We are committed as a company to decarbonize our natural gas infrastructure, we have more than 13,000 kilometers of gas infrastructure from north to south of the country, in which natural gas is currently circulating"

Hydrogen is the lightest and most abundant chemical element in the universe, a flammable, colorless and odorless gas, produced in particular through the electrolysis of water, which consists of the separation of its components (hydrogen and oxygen), using electrical energy. If that electrical energy is renewable it is called green hydrogen.

"We are committed as a company to decarbonize our natural gas infrastructure, we have more than 13,000 kilometers of gas infrastructure from north to south of the country, in which natural gas currently circulates. **What we intend to do is decarbonize our infrastructure, through injection of decarbonized gases, or gases with a low carbon content, namely hydrogen or biomethane "**.

Tell him to Lusa next to an electrolyser from the company Gestene, of electrotechnical engineering in the areas of energy distribution, shipbuilding and mines, in the industrial area of Seixal, south bank of the Tagus.

It is the electrolyser that is ready to produce hydrogen, green because it is powered by solar panels, which will be stored in a reservoir outside that is also ready to receive it. **All that remains**

is to install 1.4 kilometers of polyethylene piping to the place where the hydrogen, until then pure, will mix with the natural gas and then be distributed.

"We have almost all the licenses issued, only one is missing, I would say that in a month we will start building," he says, adding that in the pipeline where the hydrogen will circulate, material resilience tests will also be carried out, namely to control the permeability of polyethylene (a type of plastic) when exposed to 100% hydrogen.

What is the "Green Pipeline Project"?

The project, called "Green Pipeline Project" and which will be developed over the next two years, is all about learning.

"We want it to be an open project, involving a set of 'takeholders' who are currently sponsoring a project, which aims exactly to be a study project, a pioneering project in Portugal, so that **we can learn. if you inject hydrogen into the natural gas network, know how to mix hydrogen in the natural gas network, what is the behavior of the burning equipment**", says Nuno Nascimento.

It will be the first time that this has been done and GGND will start slowly in a small area of Seixal da Setgás (concessionaire that distributes gas in 10 counties in the south of the country), starting with a mixture of only 02% and then increasing to the maximum 20%. Consumers, 70 residential, one industrial and the remaining tertiary, will not notice anything in their equipment, such as stoves or water heaters.

The official guarantees that the incorporation of hydrogen in the mixing unit will be "very well done", in order to avoid creating hydrogen pockets that "could affect the performance of the firing equipment".

And when the process, as planned, is passed on to the entire country? Nuno Nascimento smiles enthusiastically. Recalls that Portugal was the last EU country to have natural gas and the benefit of that is now to have "the newest networks" of gas distribution and transport, with an average age of 15 years and being made of polyethylene (better to receive hydrogen) in 97% of the 19 thousand kilometers of network, 13 thousand of the GGND.

"All Portuguese are paying for this infrastructure. It distributes natural gas today, tomorrow it can distribute natural gas with other renewable gases or, at the limit, in a while it will be 100% hydrogen, with the necessary adaptations, changes that have to be made".

Sines is expected to have one of the largest hydrogen production in the country

The official recalls the tender notice, which is open until the end of April, to support projects for the production of gases of renewable origin for self-consumption and / or injection into the network (of

the Operational Program Sustainability and Efficiency in the Use of Resources - POSEUR) and says that GALP is following and that it wants to be "a facilitator of this whole process".

As soon as the notice of funding for hydrogen and biomethane projects came out **"we received a set of requests for technical advice, of technical feasibility", he says, considering "interesting" to see "how the market is receptive, attentive, waiting for something to happen" .**

And other projects of even greater importance? For Sines, for example, one of the largest hydrogen productions in the country is planned. Nuno Nascimento speaks of "another reality", of "another scale", which may serve customers who, for example, need to feed high temperatures in the production process and for which electricity is not a solution.

And he doesn't talk about the Sines project anymore, not least because it's not from GGND. But he insists that it is necessary to "start doing something today", because the technology is available, although it may not yet be "cost-effective", that it is necessary to learn and gain scale.

So that in 2030 10 to 15% of hydrogen is being injected into the natural gas network.

"We are committed as a company to inject this amount of hydrogen into our infrastructure, as facilitators of the entire process", he assures.

In: https://www.dn.pt/sociedade/hidrogenio-a-primeira-experiencia-com-gas-natural-vai-comecar--13533303.html?fbclid=IwAR2t_lX30aD4rcBlzoPfiC1eiaNBnUeHsHnFqYCO5gz9BX6gFfBmo4d9q8A