Hydrogen from H-vision to quickly reduce CO_2 emissions in industry

H-vision

Air Liquide

bp

Deltalinqs

ebn

equinor

ExxonMobil

gasunie

Port of Rotterdam

ONYX POWER

Shell

uniper

Vopak

H-vision will enable industry to significantly reduce CO_2 emissions in line with the terms of the Paris Climate Agreement. H-vision can supply hydrogen in the volumes that Rotterdam's industry needs to manufacture products and generate electricity in a sustainable way. In doing so, H-vision will also be helping to develop the hydrogen market.

Over the years, the Rotterdam port area has grown into an international industrial hub. The region is an important employment generator and also has a significant share in the Dutch economy. This industrial activity is leading to sizeable CO_2 emissions. Twelve partners have therefore come together in the H-vision project to jointly take a major step forward to reduce CO_2 emissions. H-vision has developed a unique process to produce low-CO_2 hydrogen to be used as a fuel in industry. This will enable companies to generate high-temperature heat for the creation of fuels and electricity, among other things.

H-vision's low-CO_2 hydrogen (also known as blue hydrogen) is manufactured mainly from refinery gases, supplemented with around 10% natural gas. H-vision can produce the hydrogen on a large scale. The CO_2 released during the production of this hydrogen is captured and stored in depleted offshore reservoirs.

Emission reduction

CO_2-free hydrogen (also referred to as green hydrogen) is expected to play a fundamental role in the climate-neutral energy systems of the future. However, a large-scale switch to CO_2-free hydrogen will still take a few decades. H-vision, on the other hand, will be able to have its first hydrogen plant in Rotterdam operational by the end of 2026, achieving an annual CO_2 reduction of 1.3 million tonnes. With a second plant, the reduction will increase to 2.7 million tonnes per year.

Both hydrogens (blue and green) will be developed and used side by side; they require separate infrastructures that can be linked in the long term. The H-vision infrastructure can also be opened up to parties outside H-vision. Given the higher purity of green hydrogen, it can initially be used more effectively as a raw material in the chemical industry, for transport and for the production of cleaner fuels.

Sprint and marathon

H-vision can count on broad support from government organisations and knowledge institutes. The regulations are not yet geared to the use of hydrogen for high-temperature heat. Therefore, the gaps in policy instruments require a quick solution so that the climate goals can be achieved on time. After all, H-vision is offering industry the opportunity to quickly and significantly reduce emissions. Without the use of this hydrogen, the ambitious climate targets for 2030 would appear to be unattainable. H-vision can supply enough blue hydrogen for the sprint required for the 2030 climate targets; green hydrogen is part of the marathon that will take us to the 2050 targets.