

# Hydrogen Hub Noord-Holland

Noord-Holland is ready to accelerate the European transition towards green energy by playing a strategic role in the new hydrogen economy.

By replacing fossil fuels with hydrogen, we emit less CO<sub>2</sub> and we contribute to a healthier living environment.

The region has a lot of wind off shore at the North Sea, a strong industrial cluster in de North Sea Canal Area (NSCA), high-quality energy ports around Amsterdam and Den Helder, and the international aviation hub at Schiphol. The NSCA is located on the North Sea coast and close to the large wind farms being built in the North Sea. A substantial part of the Dutch goal to realize 70 GW of electricity by 2050 will be transmitted onshore in the IJmond region. This energy can be used directly to help meet industry's demand for electricity, or it can be converted into hydrogen close to where it is being generated. This makes Noord-Holland well equipped to develop an hydrogen economy. The region is developing hydrogen-based value chains, including import liquid organic hydrogen carriers (LOHC), production, storage, distribution, usage and export of hydrogen and hydrogen derived fuels such as synthetic kerosene to the rest of Europe.

Around Amsterdam (NSCA), an industry cluster consisting of Tata Steel, food industry in Zaanstad and fuel plants and ports are preparing for their transformation towards a sustainable energy system. Therefore they are concentrating on green electricity, hydrogen and sustainable fuels. The Port of Amsterdam specializes in the import, storage, and transshipment of - currently mostly fossil fuels - and in the future more and more hydrogen and sustainable fuels for aviation and shipping. It's connected to Schiphol Airport by an underground pipeline. Under the name H2A, parties are

exploring the various options, such as import via LOHCs. The port of Den Helder can play an important role in the large-scale intake and transit of hydrogen produced off shore. As long as the off shore produced hydrogen is not available, Den Helder is committed to the production of decarbonized hydrogen.

Tata Steel and other industry will need a large amount of hydrogen. Schiphol Airport committed to the usage of sustainable aviation fuels. The huge amount of hydrogen that our region needs, cannot all be produced locally. There is simply not enough space. Of course, the same holds for Europe in general. We are therefore looking at other production locations and at imports from overseas, to enable the decarbonisation of Europe.

The presence of high quality knowledge and experience with storage, processing, transit and trade in - currently fossil - fuels also contributes to our good starting position.

Noord-Holland is a rapidly emerging Hydrogen Valley where a lot is already happening! Our region is investing in a rich and diverse range of hydrogen production, distribution and application projects. This covers the large-scale production of hydrogen in Den Helder and in the NSCA. And it ranges from large-scale applications for industry (including Tata Steel), imports of hydrogen (Port of Amsterdam), grid balancing to innovative applications in shipping, aviation, heavy transportation and agriculture.

(All projects on the back of this chart).

Besides Noord-Holland achieving its own climate objectives, we can also make a substantial contribution to making the energy system throughout the Netherlands and northwest Europe more sustainable. In other words: the challenges for a sustainable future of our region are big, the players are big, but the opportunities, ambitions and possibilities are perhaps even bigger.

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## HYDROGEN HUB NOORD-HOLLAND: NEXT STEP IN THE DUTCH ENERGY TRANSITION



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