Where do we get the hydrogen from?

Hydrogen is one of the key technologies against climate change. A direct way to obtain it is electrolysis: using electricity to split water into its basic components.

When the electricity comes from renewable sources, this generates green hydrogen. According to the IEA, less than 1% of current hydrogen is green. Green H still faces several barriers.

Electrolysis with dirty waters

Current electrolysers need very clean waters to work, which complicates the process. Our technology will be able to work with "dirty" waters: saline and waste waters.

This will facilitate the upscaling of the electrolysers to industrial settings: to use either marine water near ports, or waste waters that come from industrial processes.

Get in touch!

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Download our annual report!

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ANEMEL

We turn dirty water into clean hydrogen

ANEMEL's technology

Catalysts

We design catalysts to accelerate electrolysis, replacing rare metals like platinum and ruthenium with more abundant and sustainable raw materials.

Membranes

Ions – electrically charged particles – travel through semipermeable membranes. These membranes are usually made from fluorine and fluorspar, both critical and contaminant raw materials. We will use alternative materials, such as electrospun polymers and fibres.

Cells

Combining the electrocatalysts and membranes, we assemble full electrolysis cells – the basic unit to split water and generate green hydrogen. We will test different configurations and combinations and select the most efficient products for scale-up.

Stacks

We need five cells to build a stack. Our stack prototypes will test real-life features to facilitate scale up towards industrial settings. Our goal is to manufacture a stack strong enough to work non-stop, in stable conditions, over 2000 hours – that's about three months!

Designing more sustainable electrolysers

We're committed to sustainability: from using green energy sources to implementing cleaner raw materials. Thus, we have incorporated eco-design into every single process of our project. In addition, we will perform the whole life cycle analysis (LCA) of our technologies and results, and compare it to industry standards.

Cutting our dependence on critical raw materials

Commercial electrolysers use precious and scarce materials, like platinum and fluorine, in key components such as membranes and the anode and cathode.

We want to design an electrolyser that uses alternative, cheaper and more abundant materials.

United for green hydrogen

We are not alone in this. Our funding comes from the European Innovation Council, that funds other hydrogen.-related projects across the EU.

Together, we have created the Hydrogen portfolio: a group of nine projects that work together with a common goal. Making green hydrogen a reality in Europe.