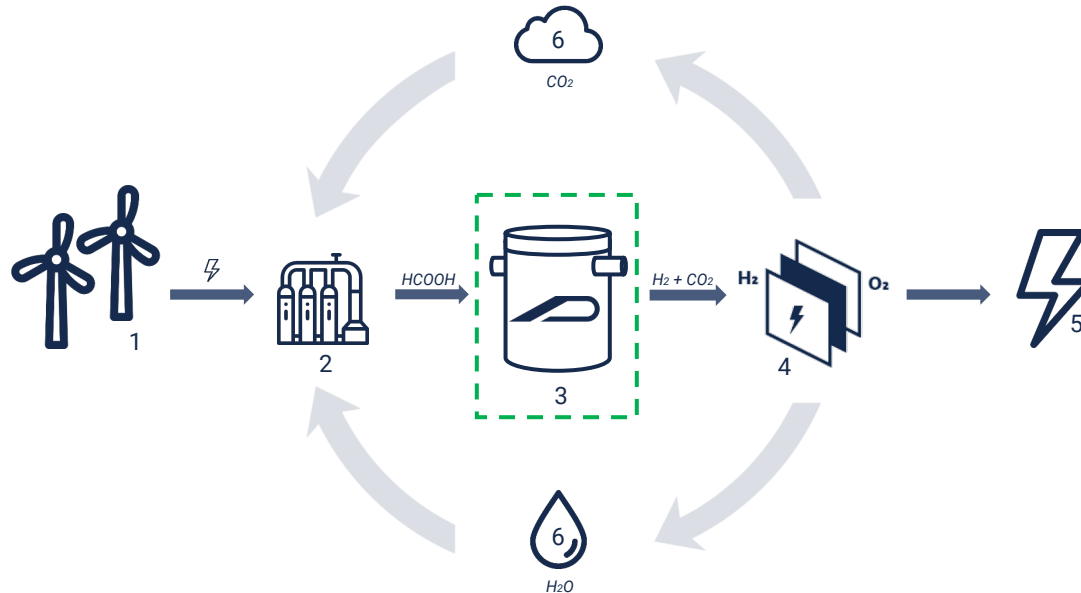




15-04-2020

# Our technology

DENS' reformer technology is able to produce pure hydrogen instantly from hydrozine up to pressures of 1200 bar.



**1:** Sustainable energy is being produced and must be stored such that it can be used at any other moment in time.

**2:** The production of hydrozine can be done by using sustainable energy, water and biogenic CO<sub>2</sub> (non-fossil carbon dioxide).

**3:** The hydrozine is reformed into H<sub>2</sub> (hydrogen) and CO<sub>2</sub> in DENS' reformer. This can uniquely be done at pressures ranging from 0-1200 bar. This is **DENS' core business and patented technology**.

**4:** In this example a fuel cell converts the H<sub>2</sub> into electrical power and water vapor.

**5:** The renewable power that was stored in hydrozine can now be used at any moment, in a broad range of applications such as portable generators.

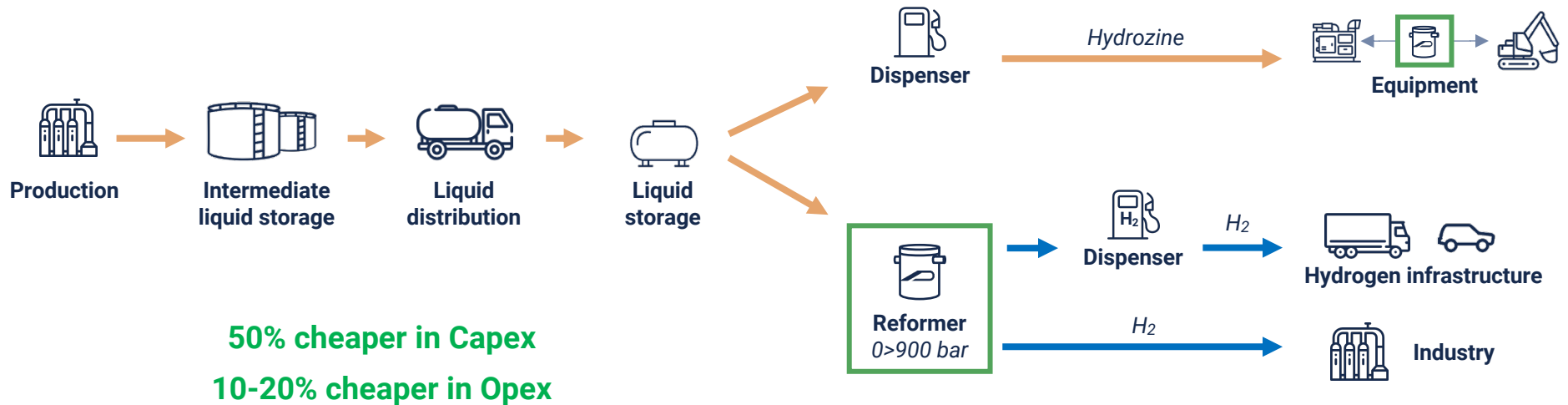
**6:** The use of the fuel emits an equal amount of CO<sub>2</sub> and H<sub>2</sub>O (water) that is used for the production, making it a 100% renewable.

# DENS' general value proposition

By using DENS' reformer technology, hydrogen's storage and transport issues can be easily overcome, and this will accelerate the hydrogen economy.

## The hydrogen economy with DENS

Storage and transport of the liquid hydrogen carrier, hydrozine, is significantly cheaper and safer, and therefore accelerates the hydrogen economy.



## Current hydrogen economy

Storage and transport of gaseous hydrogen is highly expensive and therefore limiting the adoption of the hydrogen economy.



# Key advantages

## General advantages:

- ✓ High energy density 1,8 kWh/liter of 53g H<sub>2</sub>/liter<sup>1</sup>
- ✓ Liquid at atmospheric pressures and temperature
- ✓ Limited safety risks
- ✓ Low tech and cheap infrastructure for storage and transport



*Hydrozine is a transparent liquid*

## Advantages for the construction sector

- ✓ Liquid fuel, easy refueling and bulk storage
- ✓ Can be applied like a conventional generator
- ✓ Electric power on demand
- ✓ Free of harmful emissions like fossil-CO<sub>2</sub>, NO<sub>x</sub>, SO<sub>x</sub>, PM
- ✓ Noise free



*Charging electric equipment or vehicles*

# About DENS

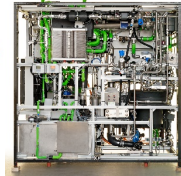
**1 meter RC model**  
Scaling up 42 times, 25W



**1<sup>st</sup> car on Hydrozine**  
TU/e Honours program



**Technology showcase**  
Concept of a Hydrozine range extender for a city bus



**Hydrozine generator, 25kW**  
Scaling up 1000 times



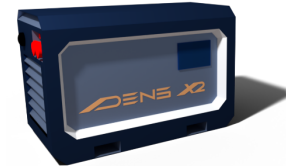
**DENS founded**  
Team FAST spin-off takes the next step: Commercialisation



**DENS X1, 5kW**  
Push of a button power



**DENS X2, 25kW**  
Series production 30pcs



60pcs

120pcs

240pcs

2015      2016      2017      2018      2019      2020      2021      2022      2023      2024



Team FAST founded by eight TU/e students

**DENS X2, 25kW**  
Full certified pilot generator



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