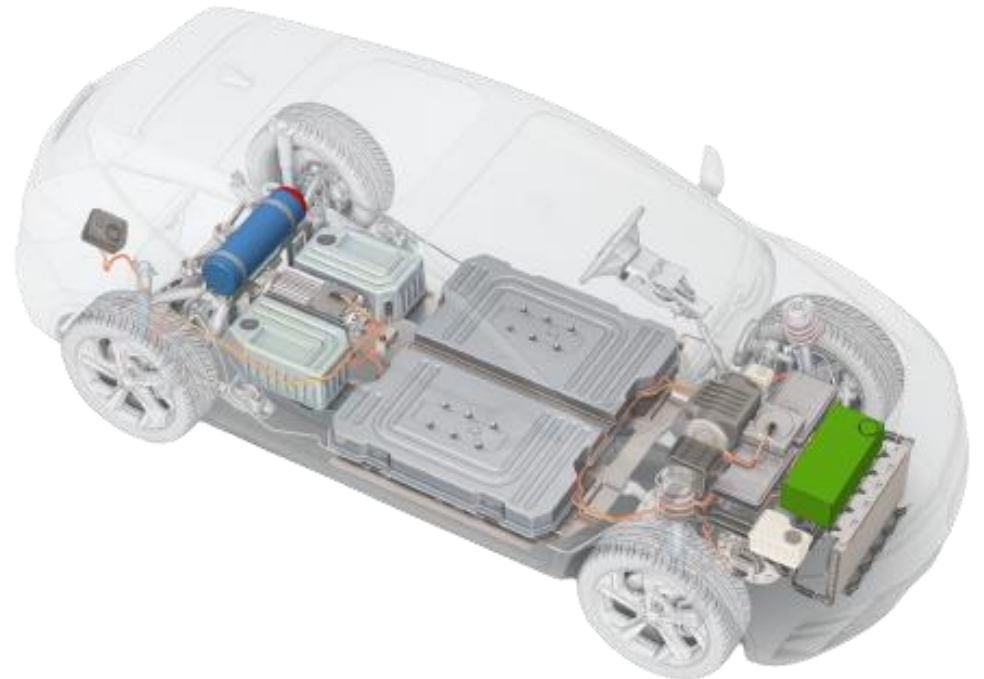


ZERO EMISSION POWER BOX

The Future of Battery electric driven Vehicles

[Date: 08.11.2023 / Version: 10.2]

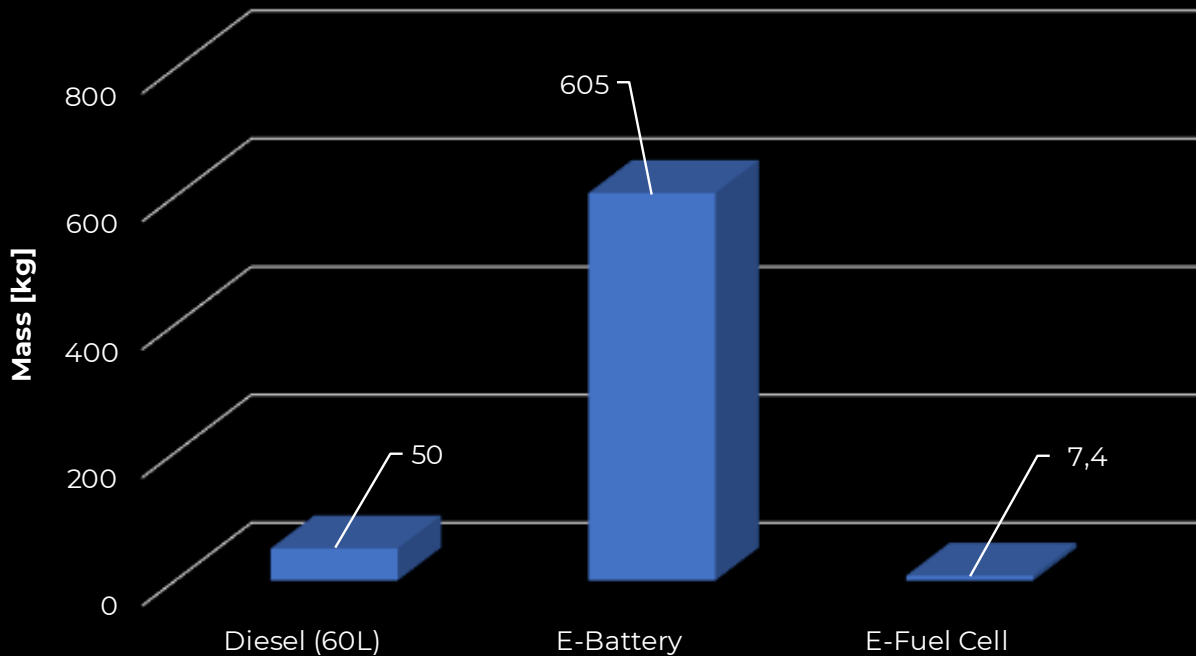


What is the challenge with electric vehicles and why does the environment influence the range?

Mass and Volume of Energy Medium / Mid Class E-Cars

60L Diesel equivalent (147 kWh)

Consideration of different propulsion efficiencies in urban traffic

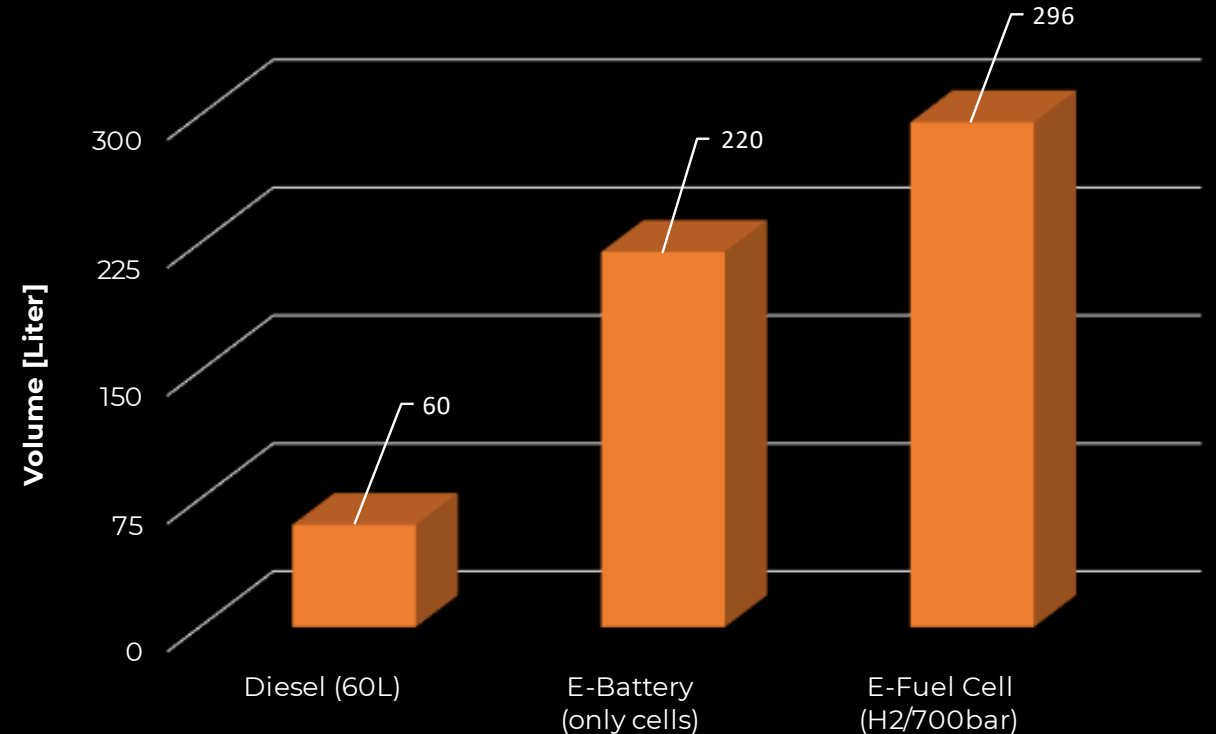


Propulsion efficiency

Diesel 25%

E-Battery 90%

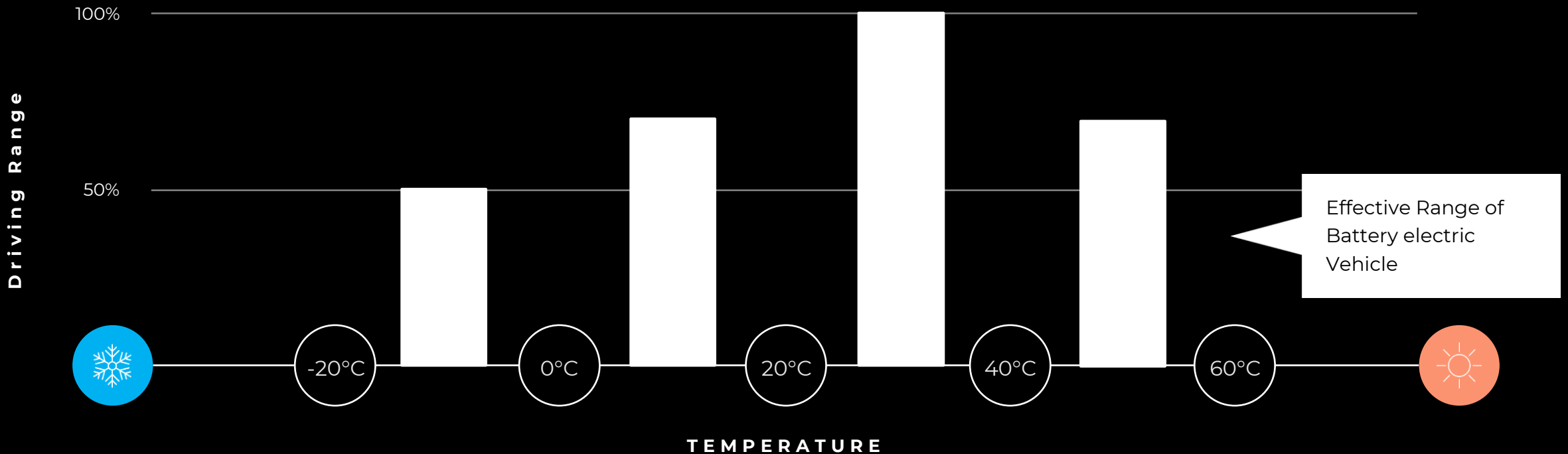
E-Fuel Cell 60%



We are significantly improving the range of E-Vehicles by integrating our H2 Power Box

The range problem of E-driven vehicles

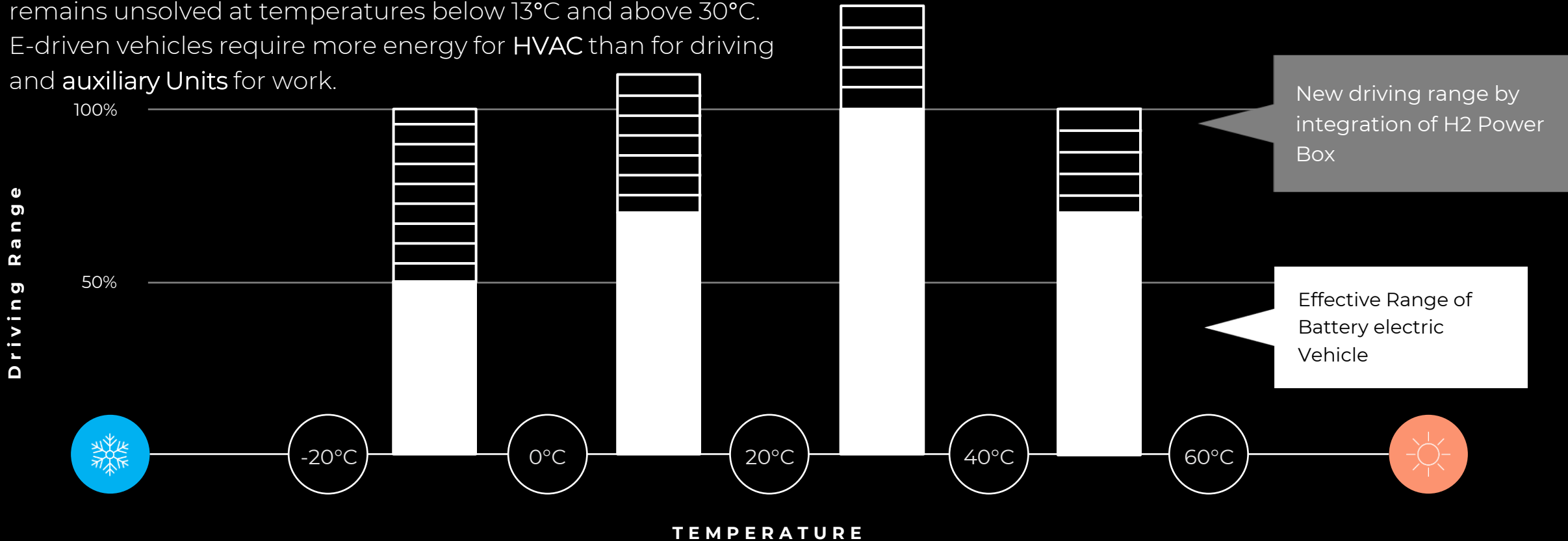
remains unsolved at temperatures below 13°C and above 30°C. E-driven vehicles require more energy for HVAC than for driving and auxiliary Units for work.



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The range problem of E-driven vehicles

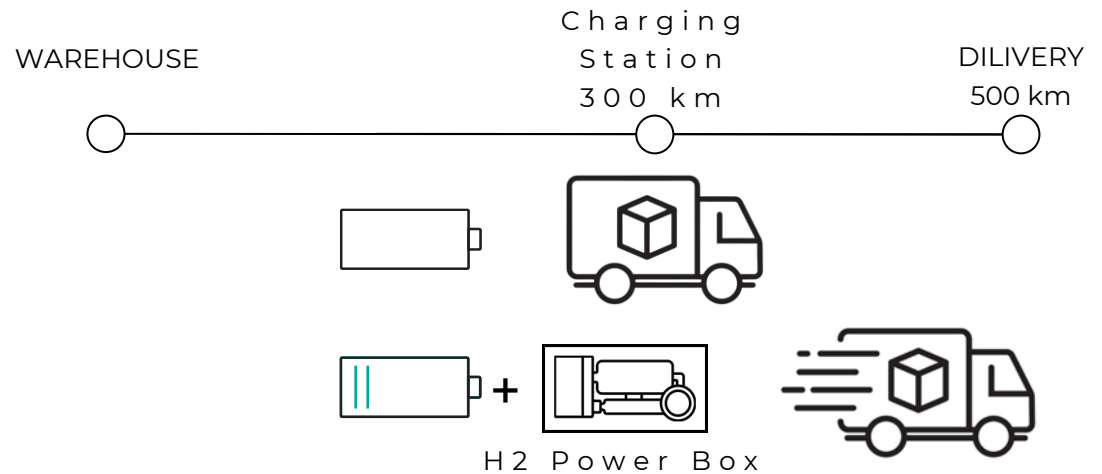
remains unsolved at temperatures below 13°C and above 30°C. E-driven vehicles require more energy for HVAC than for driving and auxiliary Units for work.



We enable E-Mobility for everyone together with our Fuel Cell System

H2 Power 'n' Heat is a pioneer on the field of **green Hydrogen Solutions**. We develop **innovative mobile Hybrid Systems** to make E-Mobility more suitable for everyday use.

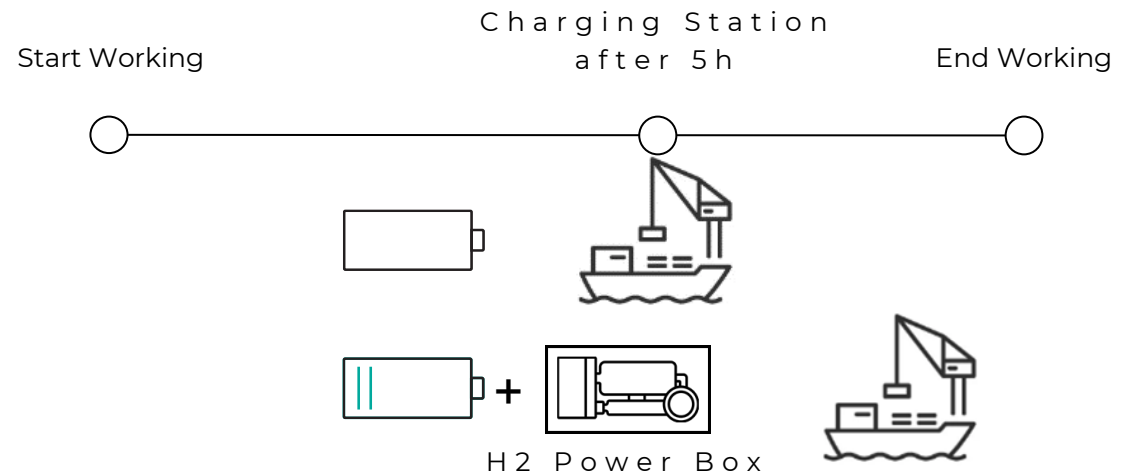
We are significantly improving the range of E-vehicles by integrating our H2 Power Box



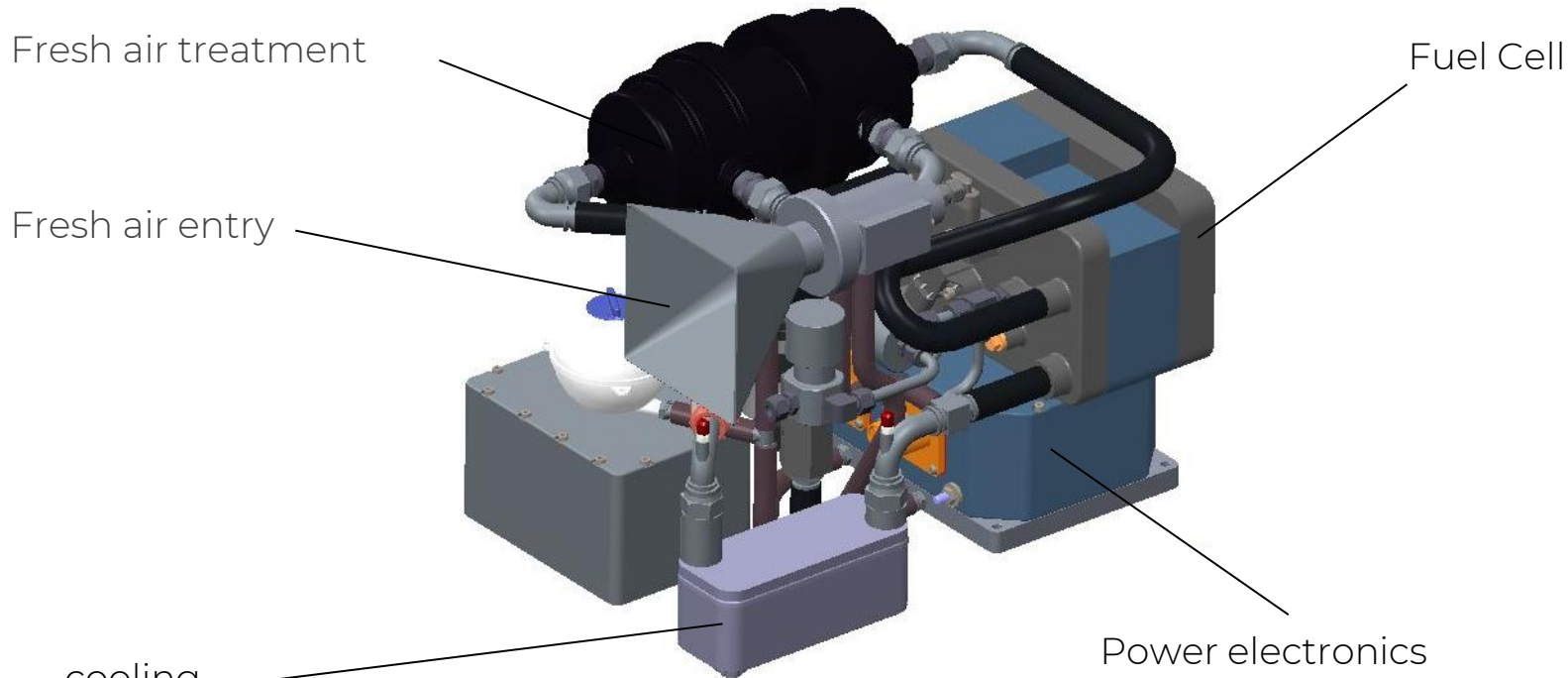
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The H2 Power Box is light and can be retrofitted in all electric vehicles



cooling
Plug and Play connection for integration into the vehicle's thermal management circuit

Performance output

Output	30 kW
electr. Output	16 kW
therm. Output	14 kW
Energy capacity	up to 150 kW/h

Technical Data

Dimension	50 x 36 x 36 [cm]
Volume	65 liter
Weight	35 kg

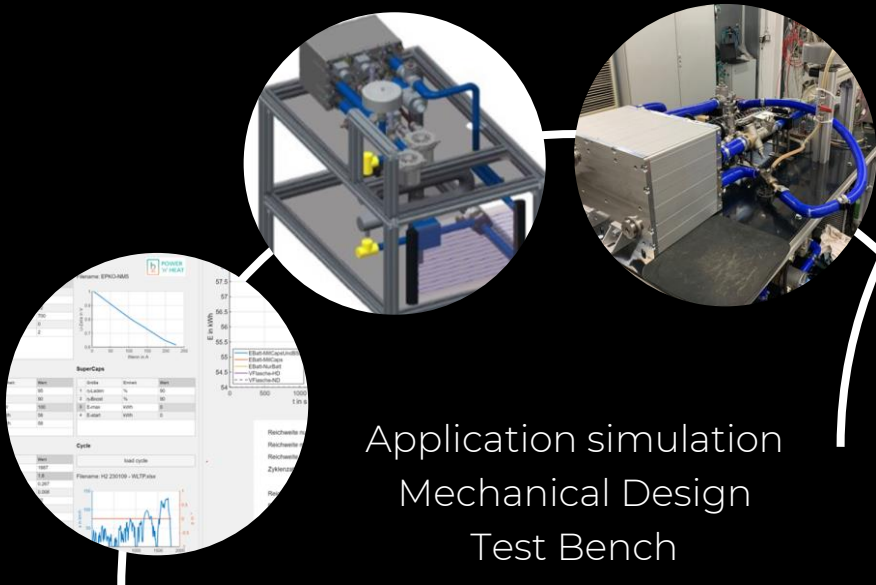
Tank system

Volume	2x 120 liter
Weight	55 kg per Bottle

Vision of H2 Power 'n' Heat GmbH

PHASE I

Testbench



Application simulation
Mechanical Design
Test Bench

The Phase I section features three circular images. The leftmost image shows a software interface with a line graph and a table of data. The middle image shows a 3D CAD model of a mechanical assembly. The rightmost image shows a physical test bench with a large metal enclosure and various pipes and components.

PHASE II

Proof of Concepts



PHASE III

Roll out additional markets



Application in additional
Onroad and Offroad
Applications

The Phase III section features five circular images arranged in a semi-circle. From left to right: a white semi-trailer truck with 'Vendelbo Spedition' on the side; a yellow off-road tractor; a blue semi-truck; a yellow and red container truck with 'BROMMA' and 'D41' on the side; and a high-speed train.

Existing infrastructure can be used for providing Hydrogen Bottles to Endusers



Selling the hydrogen:

- retail trade (e.g. hardware stores)
- Car service station
- Charging parks / Gas stations
- local gas dealers
- ... and much more ...

Hydrogen production from renewable energy

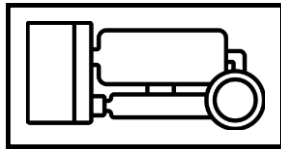
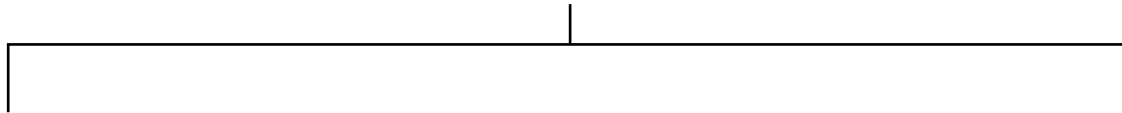
Start of establishing a reference region in Berlin-Brandenburg (2024)

Goals:

- 2 year test period
- 10 different commercial vehicles
- 500.000 km



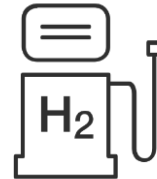
Cars / Delivery Trucks / Train



H2 Power Box



Workshop for Installation and Service



Infrastructure

First Customer Projects in 2024



OBERLIN WERKSTÄTTEN



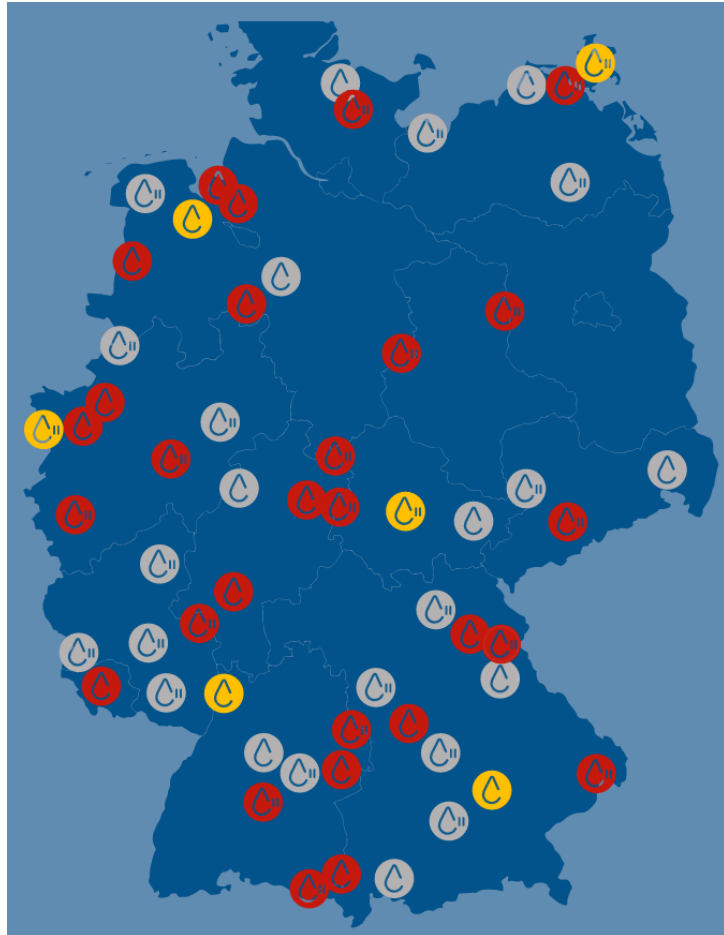
Development partner



Currently in discussions

- Service station operators
- Hydrogen producer and distributors
- Gas bottle developer and producer

Expansion preferably into nationwide Hydrogen Project regions (2025/ 2026)



First Customer Projects in 2024



OBERLIN WERKSTÄTTEN



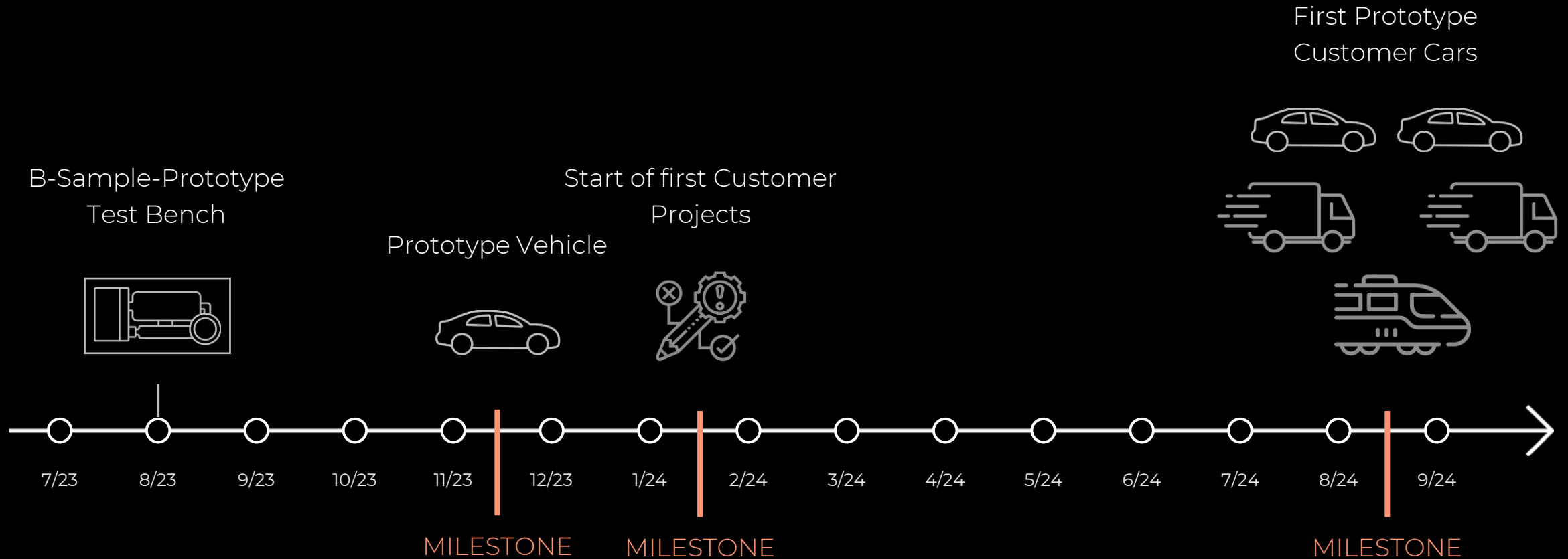
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Currently in discussions

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Our current goals



Our current goals

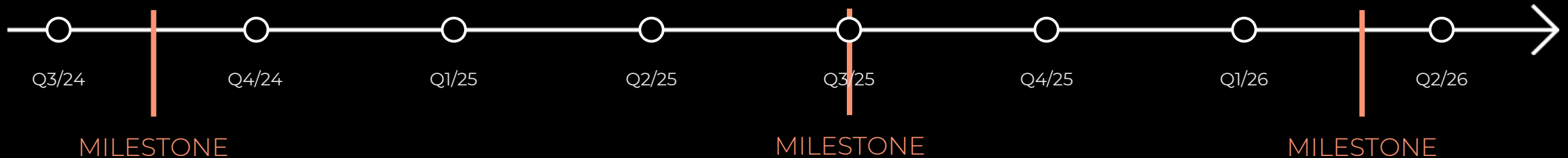
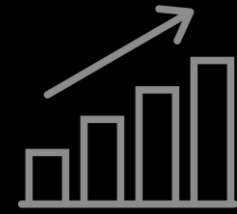
First Prototype
Customer Cars




readiness for marketing
(Aftermarket)



Start Ramp-Up
(Aftermarket)



A photograph of four men in a laboratory or industrial setting. They are gathered around a table, examining a piece of equipment that appears to be a fuel cell or a similar power generation device. The equipment is mounted on a metal frame and has various wires and components. The men are dressed in a mix of business casual and work attire. The background shows industrial equipment, a red fire door, and a white cabinet.

A broadly positioned
Team with plenty of
Experience and
Access to People
from all relevant
Fields of Expertise



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