

IMPULSVORTRAG



Aufbau eines Wasserstoffkreises zur Sektorenkopplung im industriellen Bereich

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- › **Verbundpartner:** IZES gGmbH (Institut für ZukunftsEnergie und Stoffstromsysteme)
- › **Laufzeit:** 01.10.2021 – 30.09.2024
- › **Fördersumme Verbund:** 1.086.252,63 + IZES €
- › **Projektziel:**

Kombinierte Nutzung von regenerativ hergestelltem Wasserstoff in den Sektoren Verkehr/Transport, Produktion und Energie im industriellen Umfeld zur Etablierung CO₂ neutraler Produktionsstandorte;

Teilvorhaben:

 - Aufbau und Betrieb Testfeld
 - Entwicklung Planungs- und MSR-Software

Bosch

Invented for Life



Mobility Solutions



Industrial Technology



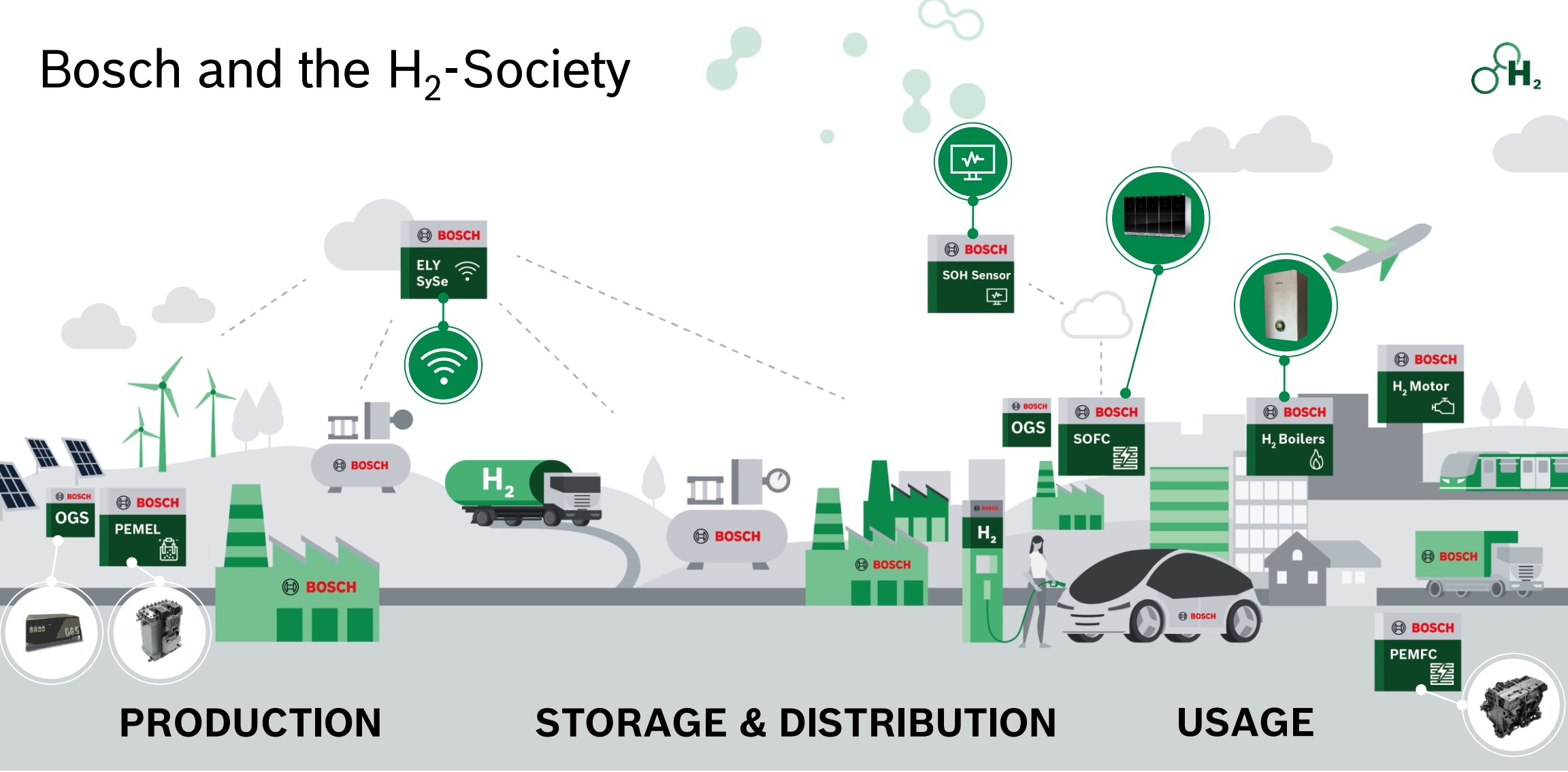
Energy and Building Technology



Consumer Goods



Bosch and the H₂-Society



PEMEL: Polymer electrolyte membrane electrolysis; OGS: Optical Gas Spectrometer; ELY SySe: Electrolysis Systems & Services; SOFC: Solid oxide fuel cell; SOH Sensor: Virtual Sensor for SOFC Stack State of Health; PEMFC: Polymer electrolyte membrane fuel cell

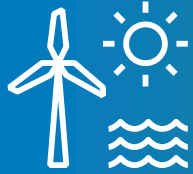


Climate protection
becomes specific:



Increase
energy
efficiency

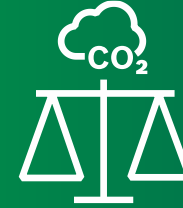
The four levers of
CO₂ neutrality



Supply with
renewable
energies



Green
electricity
purchase



Offset CO₂
emissions

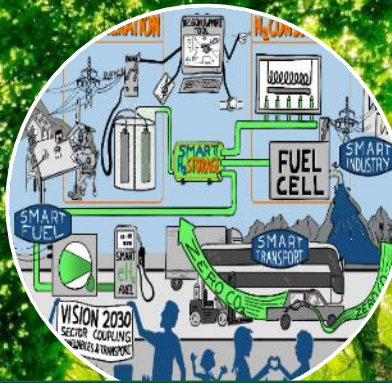


Challenges

- Rising costs
- New mobility concepts
- High volatility

Strategy

- Efficient and flexible use
- Connection through the Energy Platform
- Optimized generation in regard to consumption
- Storage and sector coupling, e.g. through H₂-Cycle



Connected eH₂-Cycle

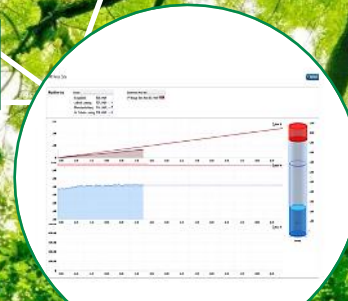
Storage & sector coupling



Energy Platform

Cross-linking:

Datapoints: **15.000 Stk.**



Cost reduction through flexibility

Actual : **2MW**



Reduced consumption through efficiency

Savings: - **40% kWh/pcs.**

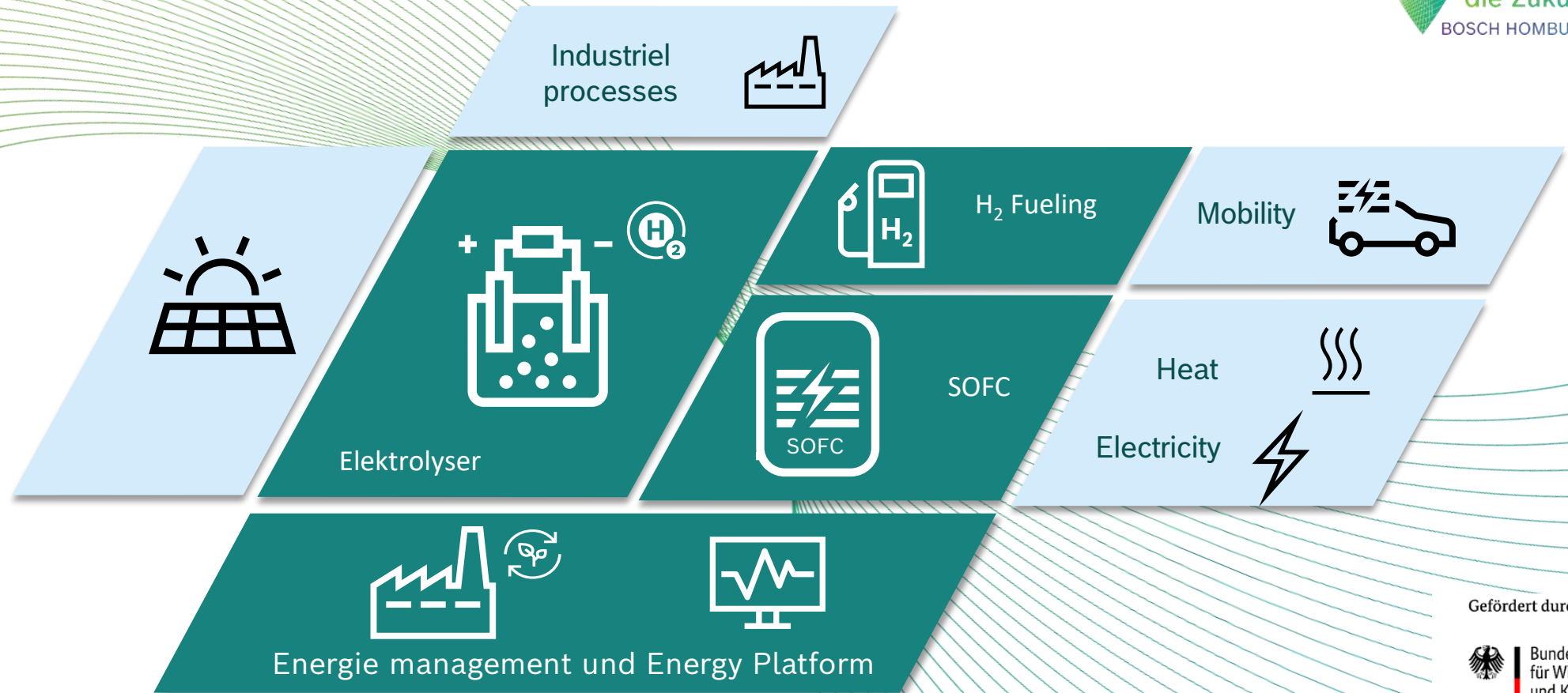


Self-generated energy

PV, Solar thermal, heat pump, SOFC

Actual: **3,8MW_{Peak}**

Plan: **8,3MW_{Peak}**



Gefördert durch:



aufgrund eines Beschlusses
des Deutschen Bundestages



Connected eH₂ Cycle



PV
3.8 MW_p
(2023: >8 MW_p)





Green
Electrolyzer

Electrolyser



Electrolyser



Electrolyser



BOSCH



**H₂ Storage
> 300 kg**



Industry



SOFC

Performance and application of SOFC

Performance

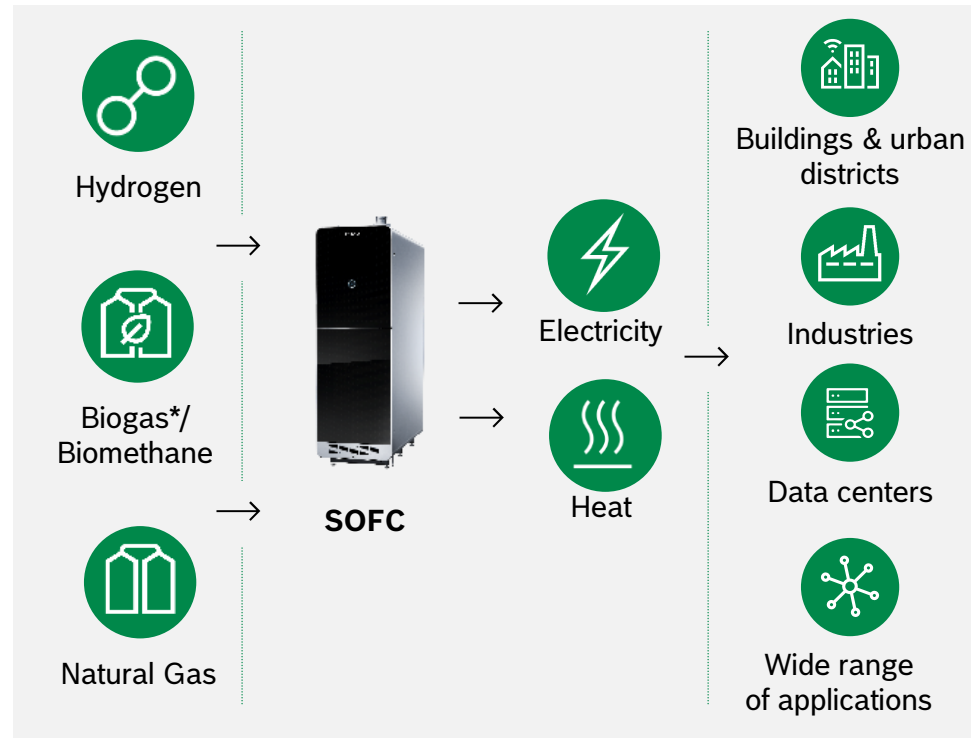
 **> 60 %**
Electrical efficiency (AC)*

 **> 85 %**
Overall efficiency*

 **10 kW_{el}**
Nominal power (AC)*

 **> 3 kW_{th}**
Thermal output*

Multi-fuel system & flexible application



* Currently in the pilot phase, the Bosch SOFC system is to be mass-manufactured by 2024. All technical specifications given in this informational document are development objectives.

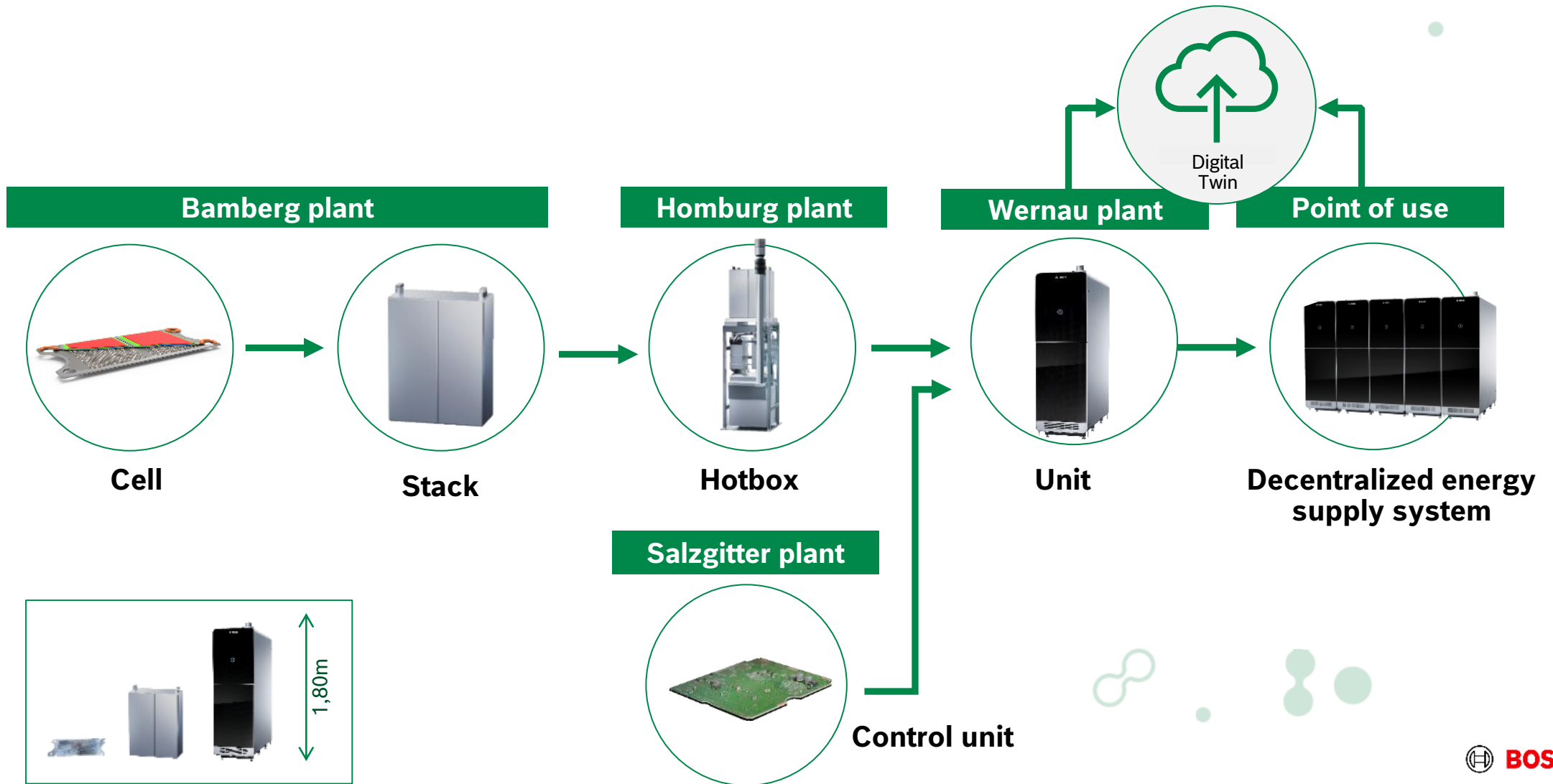
* Beginning of life

* Biogas processed according to DVGW G260



1 A stack of several hundred cells

SOFC: Complete value stream covered at Bosch





Compressor





Compressors
from Maximator
Hydrogen w/
Bosch Rexroth
technology





Mobility





H₂ Fueling Station



H₂ Fueling Station



H₂ Forklifts

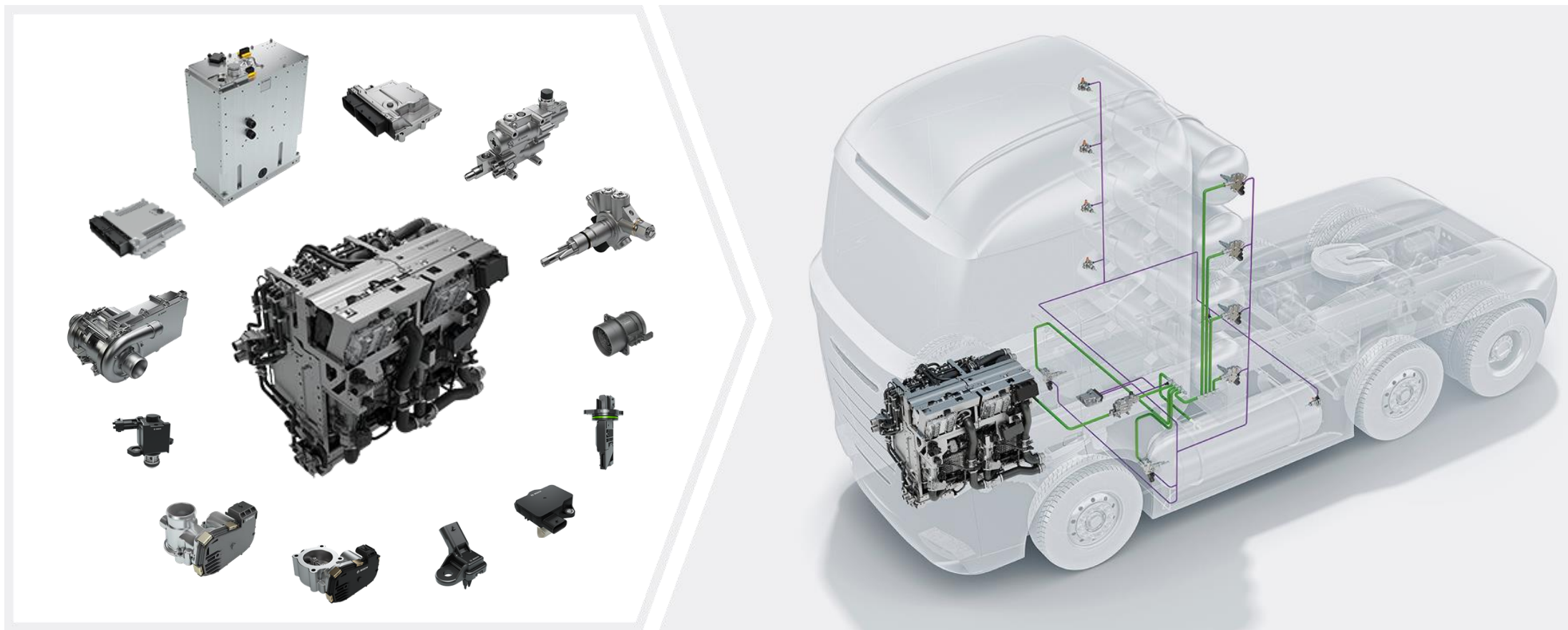


H₂ Van



The industrialization of the Bosch fuel cell system

The fuel cell system



Bosch Homburg: Transformation of the Powertrain

PRESENT CORE DIESEL SYSTEMS



Lead Plant for injectors and rails (PC/CV), as well as inline pumps (Aftermarket)

FUTURE CORE: H₂ TECHNOLOGY

Components for Fuel Cell Electrical Vehicles

Electronic Air Compressor



SOP
1.Q 2023

Anode Recirculation Blower



SOP 2022

Hydrogen Gas Valve



Components for Hydrogen Tank Systems

H₂ Tank Plug

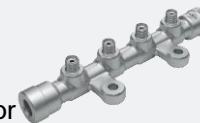


H₂ Tank Valve



SOP
2.Q 2023

H₂ Distributor



Components for Solid Oxide Fuel Cell (SOFC) Systems



SOP 2025

Solid-Oxide-Fuel-Cell (SOFC): Hotbox

- 6 H₂-Components w/ SOP 2022/2023
- 300 Associates in H₂ products



Bosch Homburg

1.310 Follower:innen

1 Monat • 🔒



Bosch Homburg unterstützt Aufbau der Wasserstoffwirtschaft
im Saarland ... mehr



More to come...



More to come...



More to come...



More to come...



H₂ Bus



More to come...

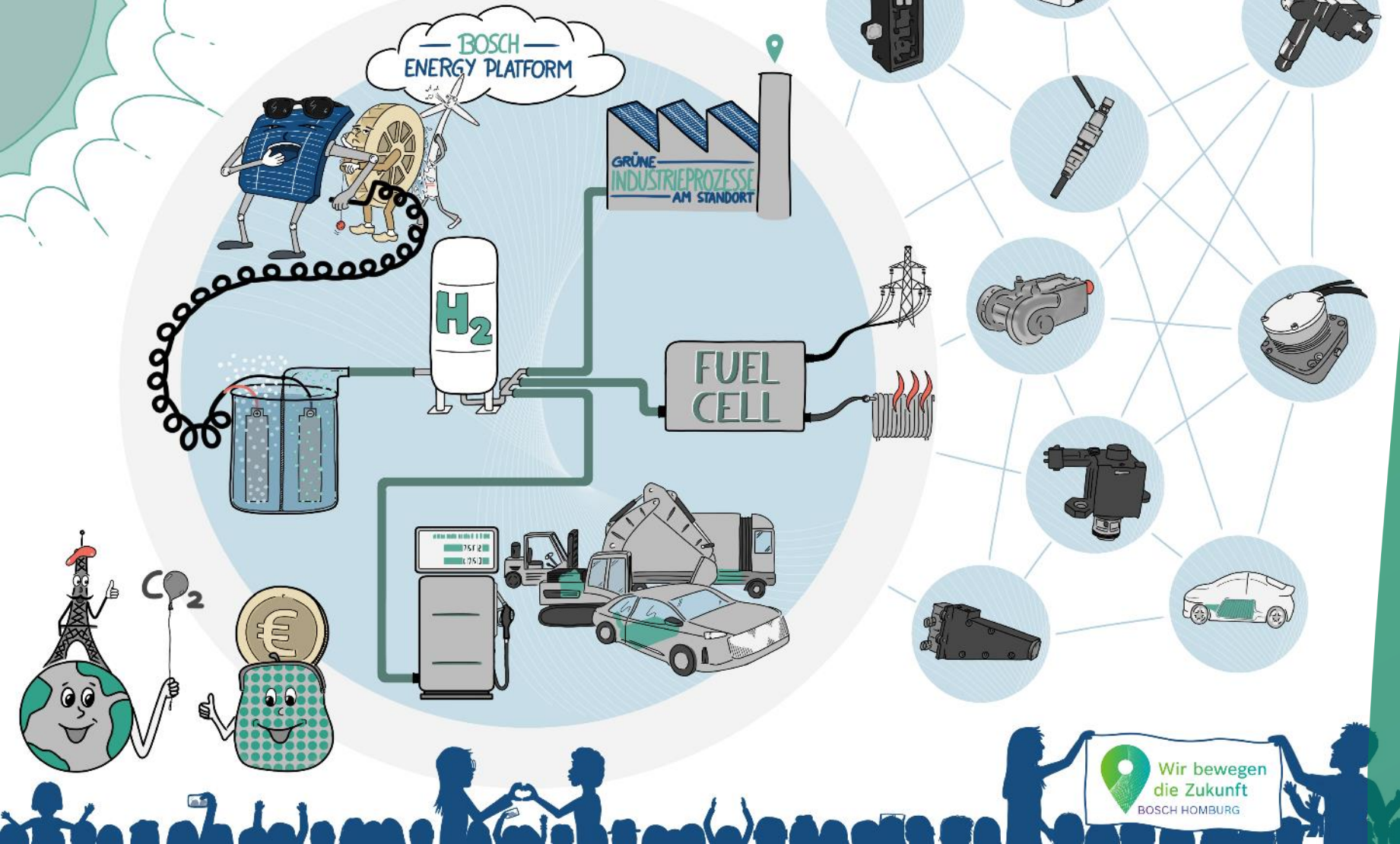


iX5 Hydrogen



H₂ STRATEGIE

BOSCH HOMBURG



Wir bewegen
die Zukunft
BOSCH HOMBURG