



**EHEC  
2024**  
EUROPEAN HYDROGEN ENERGY  
CONFERENCE

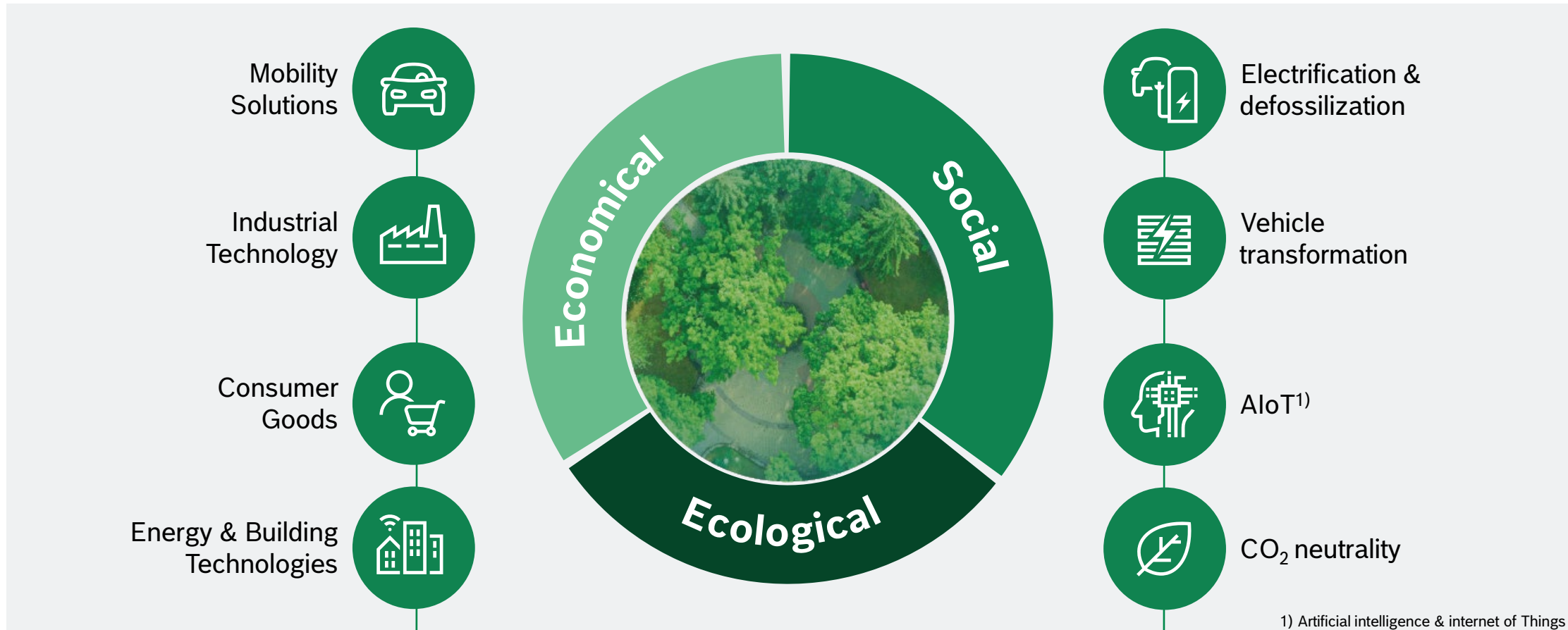
## Industrialized electrolysis as the essential core of a future hydrogen-powered ecosystem

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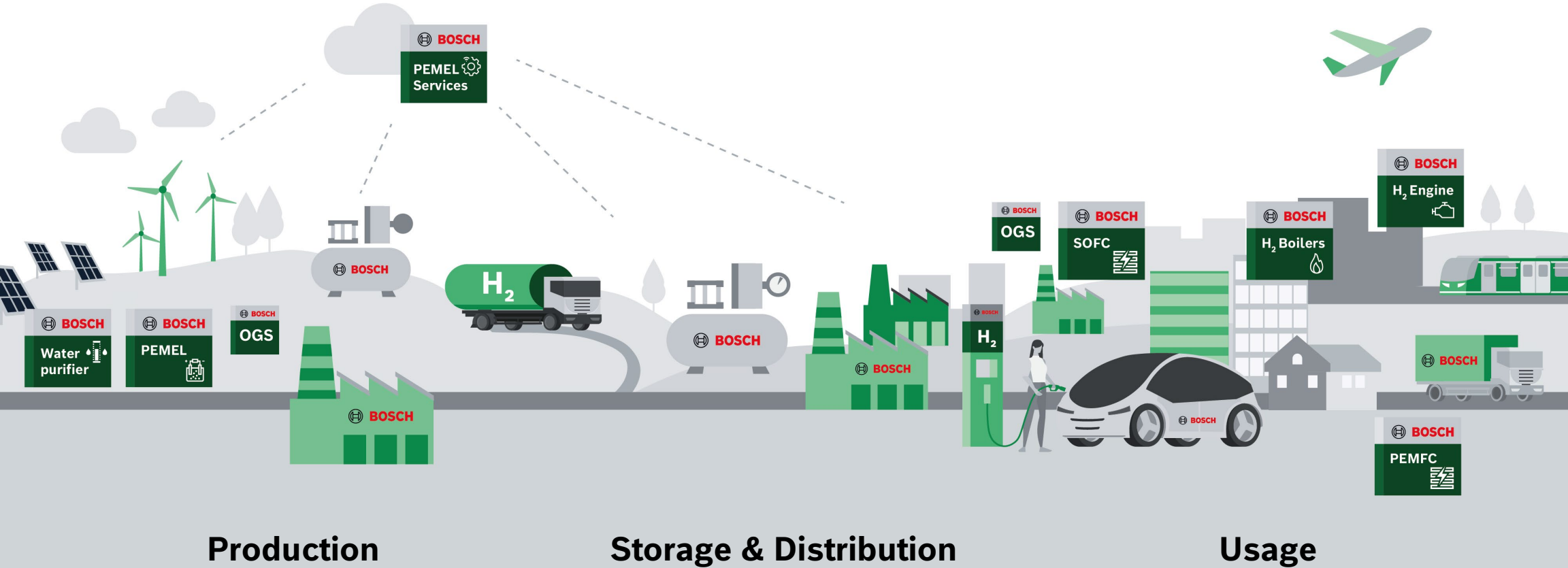
**EHEC | Bilbao | March 6, 2024**

# Our Bosch industry segments & strategic focal areas



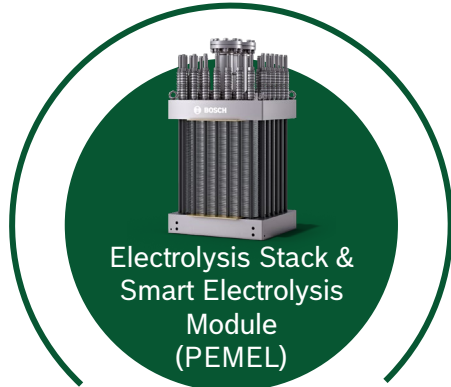
1) Artificial intelligence & internet of Things

# Bosch and the hydrogen economy

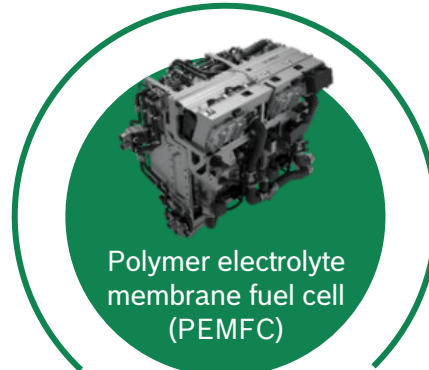


PEMEL = Proton exchange membrane electrolysis; PEMEL Services = Electrolysis services  
OGS = Optical Gas Spectrometer; SOFC = Solid oxide fuel cell; PEMFC = Proton exchange membrane fuel cell

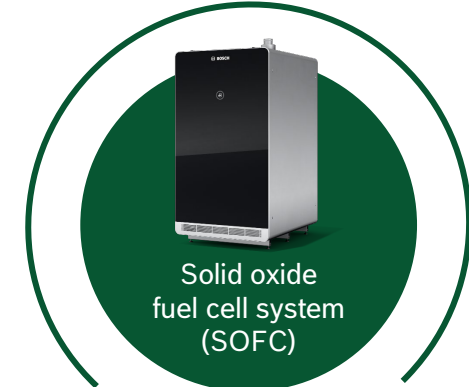
# Bosch electrolysis & fuel cell portfolio



Non-Automotive

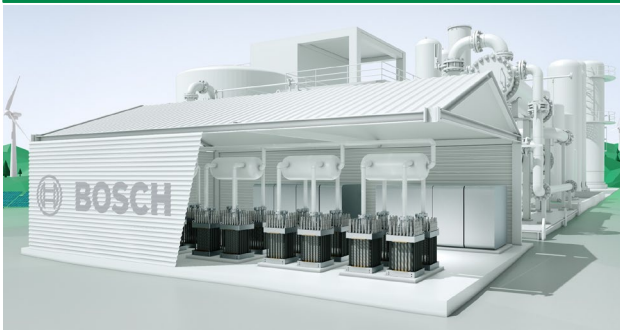


Automotive

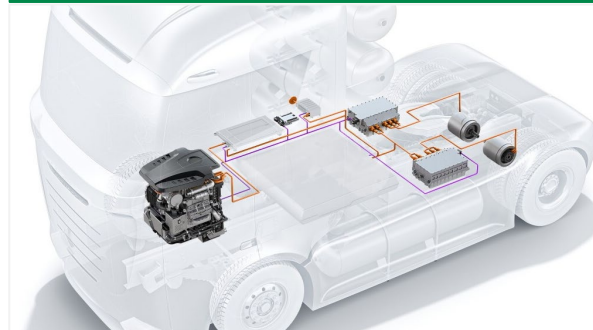


Non-Automotive

## H<sub>2</sub> production



## H<sub>2</sub> usage



## H<sub>2</sub> usage



# The Bosch PEM Electrolysis Stack as efficient heart of electrolysis

## Bosch PEM Electrolysis Stack

 Electricity


 Ultra pure water



  
Digital service portfolio  
for electrolysis system


 Hydrogen (+ oxygen)

## Performance

 **1.25 MW**  
maximum power input<sup>1)</sup>

 **~50 kWh/kg H<sub>2</sub>**  
maximum efficiency<sup>1), 2)</sup>

 **23 kg/h**  
H<sub>2</sub> output at full load

 **> 30 bar**  
H<sub>2</sub> output pressure

All values are subject to development activities & provided on a non-reliant basis.

<sup>1)</sup> Beginning of life; <sup>2)</sup> At partial load; <sup>3)</sup> Levelized cost of hydrogen; <sup>4)</sup> Pre-assembled modules on steel frame

## Customer benefits

- Standardized design for **scaling-up electrolyser** solutions
- Enabling **lowest LCOH<sup>3)</sup>** due to high volume production and efficient stack design
- **High quality and reliability** due to production according to automotive standards
- **Lowest integration & commissioning effort** through compatibility with existing container and skid<sup>4)</sup> designs

# Differentiation is what defines us

## Overall challenges

Strong technical & financial partnerships for large-scale investment

Available performance guarantees vs. project risk profiles

Reliable, high-quality & repetitive availability of electrolysis capacity



## Bosch strengths

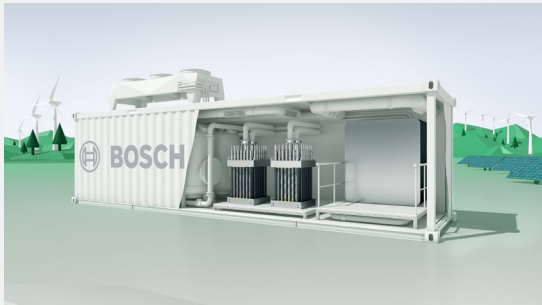
Global footprint, network & industry expertise

Industrialized design & production excellence

Fully concentrated customer orientation during entire project life-cycle

# Maximum scaling effects by best fit for key applications

## Containerized solutions



From 1.25 MW to 5 MW  
per container

Up to four stacks in  
series connection



Digital service portfolio  
for electrolysis system



\* Visualization of the principle

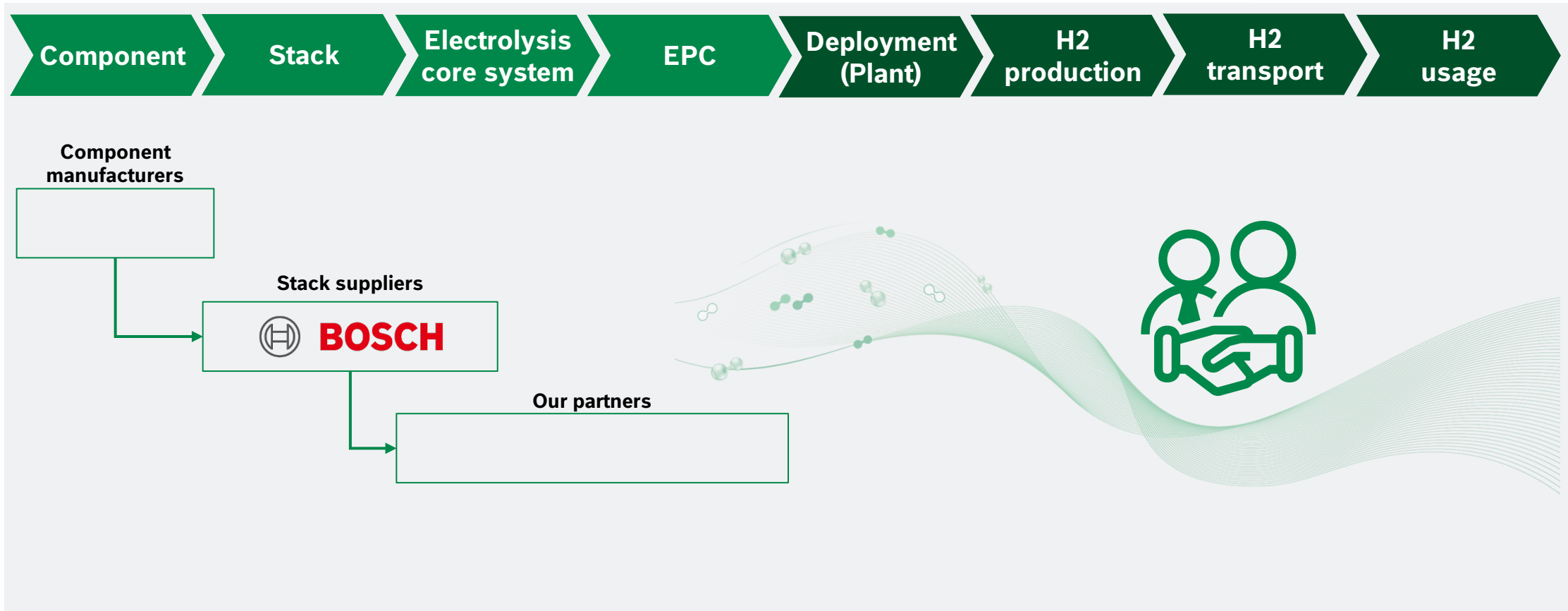
## Plant solutions



For hydrogen plants  
from 10 to 1000 MW

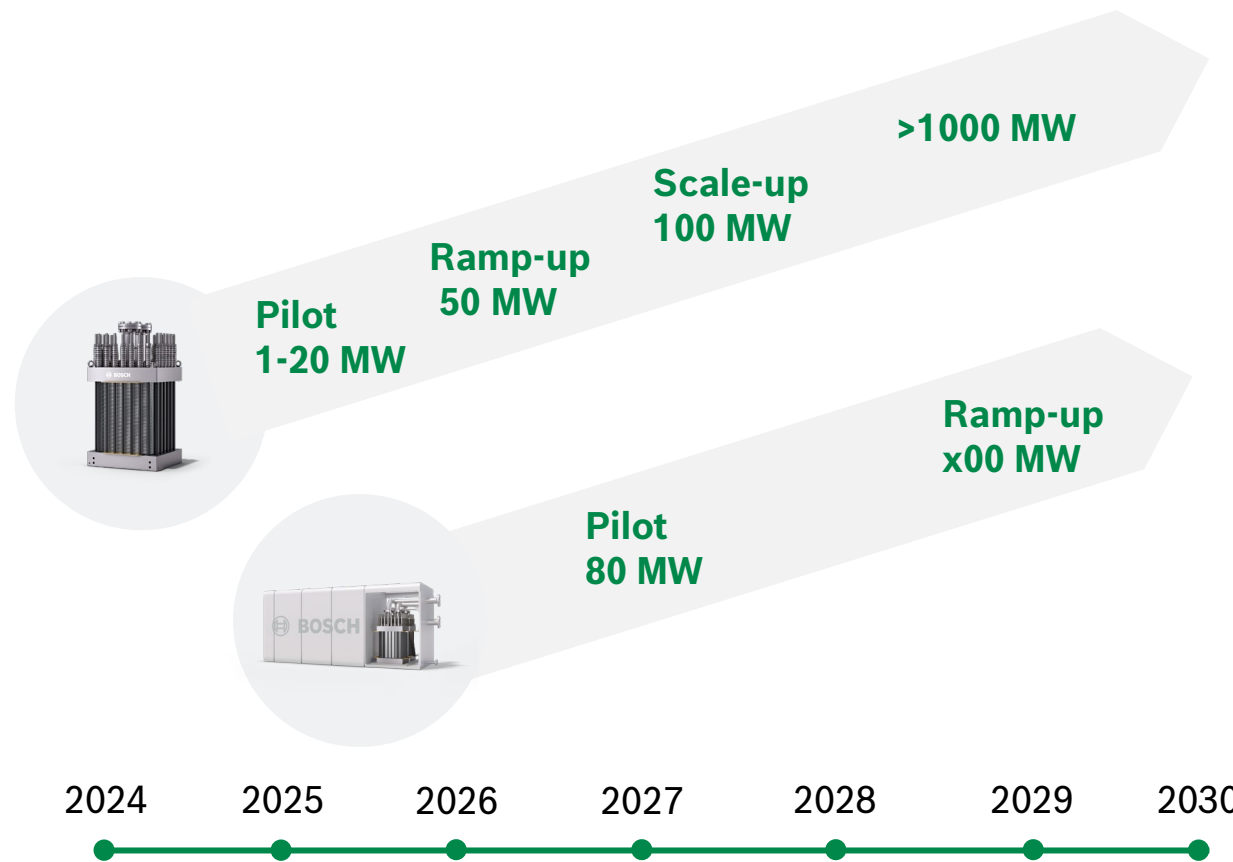
Scaled skid mounted modules  
5 MW or 20 MW

# Key for success: Partnerships along the electrolyzer value chain





# Scale-up with innovation partners for mass production concept





Bosch's innovative electrolyzer technology is based on **over 100 years experience in industrialization and scaling**



Sky-rocketing **market potential** for electrolysis – based on our **eays to adapt solutions**, we help to **grow** your business



Focus on both, **CAPEX** and **OPEX optimization** – target is to achieve attractive **LCOH & TCO**



**Let's explore joint market opportunities through reliable & strong partnerships**

# Thank you for your interest!

Happy to meet you at  
our booth 1B+2B



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