



# Sustainable and emission free Railway Mobility by hydrogen – The Mireo Plus H

V4 + CONFERENCE - „Hydrogen – present and future“  
ZalaZone, 9<sup>th</sup> of June 2022

# There are currently various challenges in Commuter Rail for which suitable solutions need to be offered

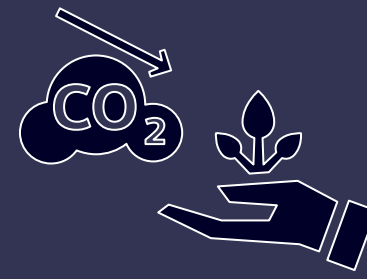
... slow electrification process & increase of customer capacity



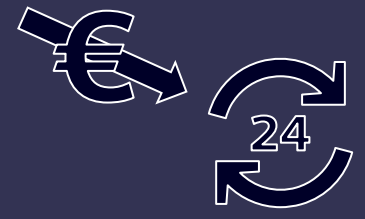
... reducing delays due to operational & technical issues



... increase of system sustainability over lifetime



... guarantee lifetime availability with reduced total costs





Our Hybrid Trains will replace Diesel Multiple Units and add further value to our customers in a unique way.

Especially the high acceleration, best lifetimes of hybrid components and a maximum speed of 160 km/h of Mireo Plus ensure the further rise of regional traffic in favor of passengers and operators.

## Vision

Rail is the most efficient and most popular mode of transport.

Let's double passengers until 2030!

## Mission

We attract people by innovations, CO<sub>2</sub> free technologies and highest comfort



# Hydrogen trains for 100% clean and emission-free operation

## Our solution: the **Mireo Plus H**

Highly efficient **fuel cell from Canadian company Ballard** with high power density and extended service life

**Smart energy management**  
with hydrogen savings up to 15 %



**H2 tank** for ranges up to 800 km



**2-car:** 47 m, max. 130 seats, 600-800 km  
**3-car:** 63 m, max. 180 seats, 800-1000 km

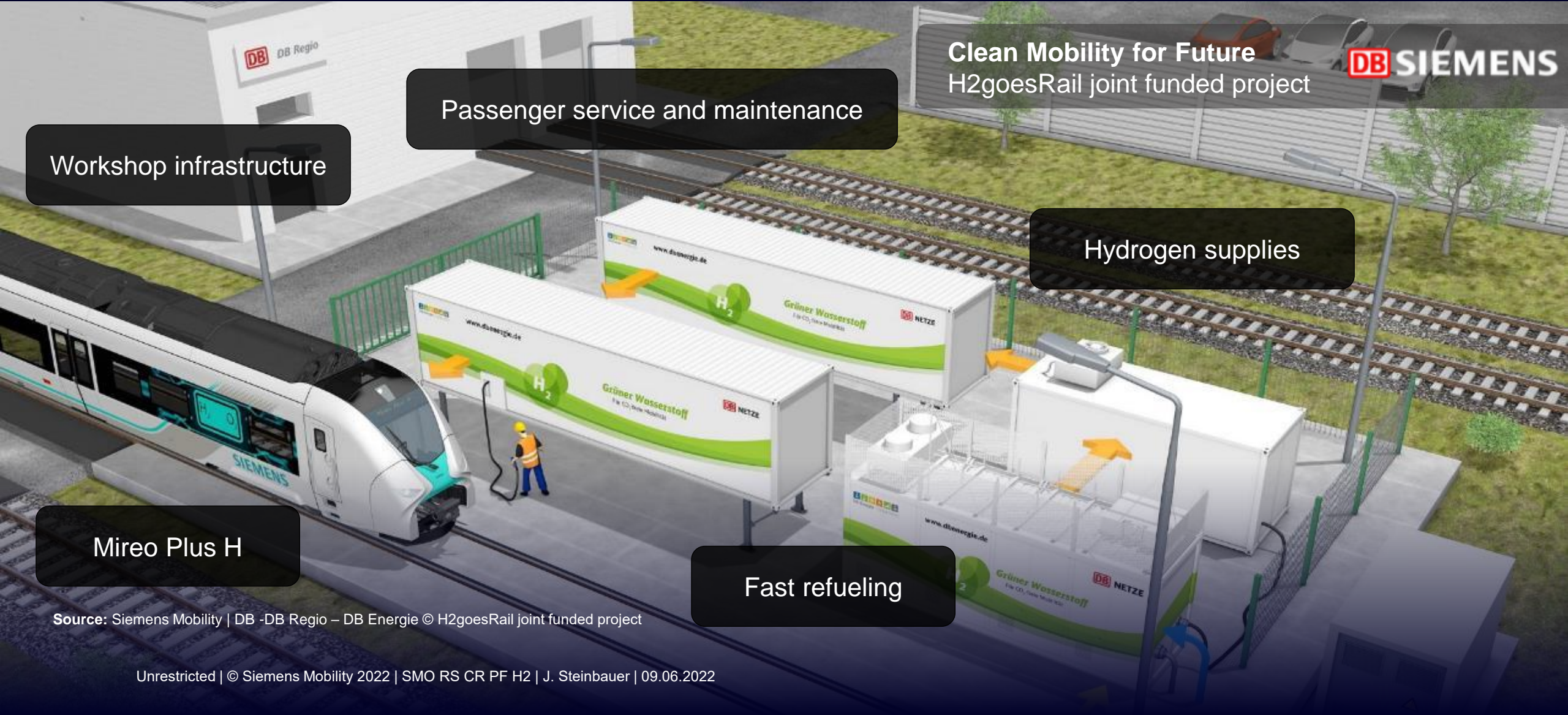


Converter-fed asynchronous machines for **accelerations up to 1.1 m/s<sup>2</sup>** and maximum speeds up to 160 km/h for high cycle frequencies



**LTO** technology for high power charging and long lifetimes of the **battery**

# H2goesRail Project: An example for provision of the complete value chain of H2 - Hydrogen trains are only one part in the system for our customers



Workshop infrastructure

Passenger service and maintenance

Clean Mobility for Future  
H2goesRail joint funded project  
DB SIEMENS

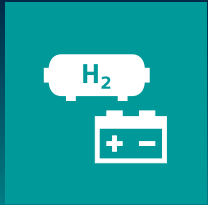
Hydrogen supplies

Mireo Plus H

Fast refueling

Source: Siemens Mobility | DB -DB Regio – DB Energie © H2goesRail joint funded project

# Timeline of development and signed customer projects



**2017**

**X-EMU\***

Start of development

**2018**

**X-EMU**

R&D and testing

**2020**

**Mireo Plus H**

H2goesRail\*

**2021**

**H2 for Bavaria**

1 x 2-car

**2022**

**H2 for Berlin/Heidekraut**

7 x 2-car

Customer (acronym)	-	Deutsche Bahn (DB)	Bayerische Regiobahn (BRB)	Niederbarnimer Eisenbahn (NEB)
Project Start	October 2017 – September 2019	November 2020	July 2021 (MoU) March 2022 (contract)	February 2021 (tender award)
Passenger Operation	-	January 2024	January 2024	Starting from September 2024
Package/ Offer	-	Rolling Stock & Service* by SMO	Rolling Stock & Service* by SMO	Rolling Stock & Service* by SMO

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\*) Development of alternative traction (hydrogen + battery hybrid traction) for Commuter and Regional

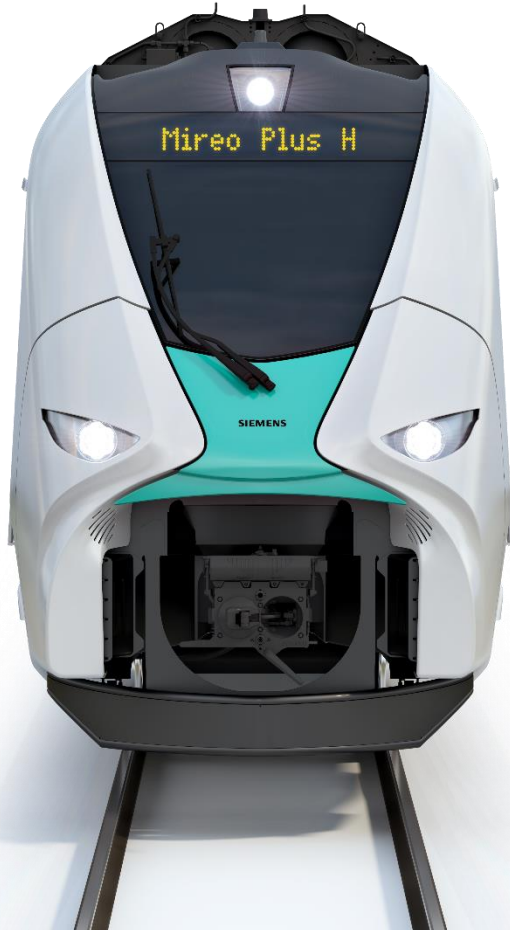
\*\*) Technical Support and Spare Parts Agreement (TSSSA) with kind of full service contract (ECM 1 – ECM 3 responsibility), ECM 4 for hybrid traction system



**Thank you!**

**Siemens Mobility GmbH**  
**Your reliable partner for innovative mobility.**

## Your contact person



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