



„Hydrogen Buses in Hamburg“

Günter Elste

Chairman of the Board of Hamburger Hochbahn AG

Climate Protection in Hamburg



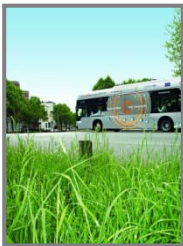
- Hamburg - European Green Capital of 2011- through promotion of energy efficient technologies – as for example fuel cells
- Decrease CO₂-emissions by 40% until 2020 through climate action plan based on values of 1990
- **HOCHBAHN plays an important role for City-owned companies with regard to the practical use of green technologies**



CUTE and HyFLEET:CUTE Performance in Hamburg



Up to 9 fuel cell buses In Operation



Achievements (September 2009)

More than **525.000 km overall** – Cute + HyFLEET:CUTE

Operating hours: around **26.000 h**

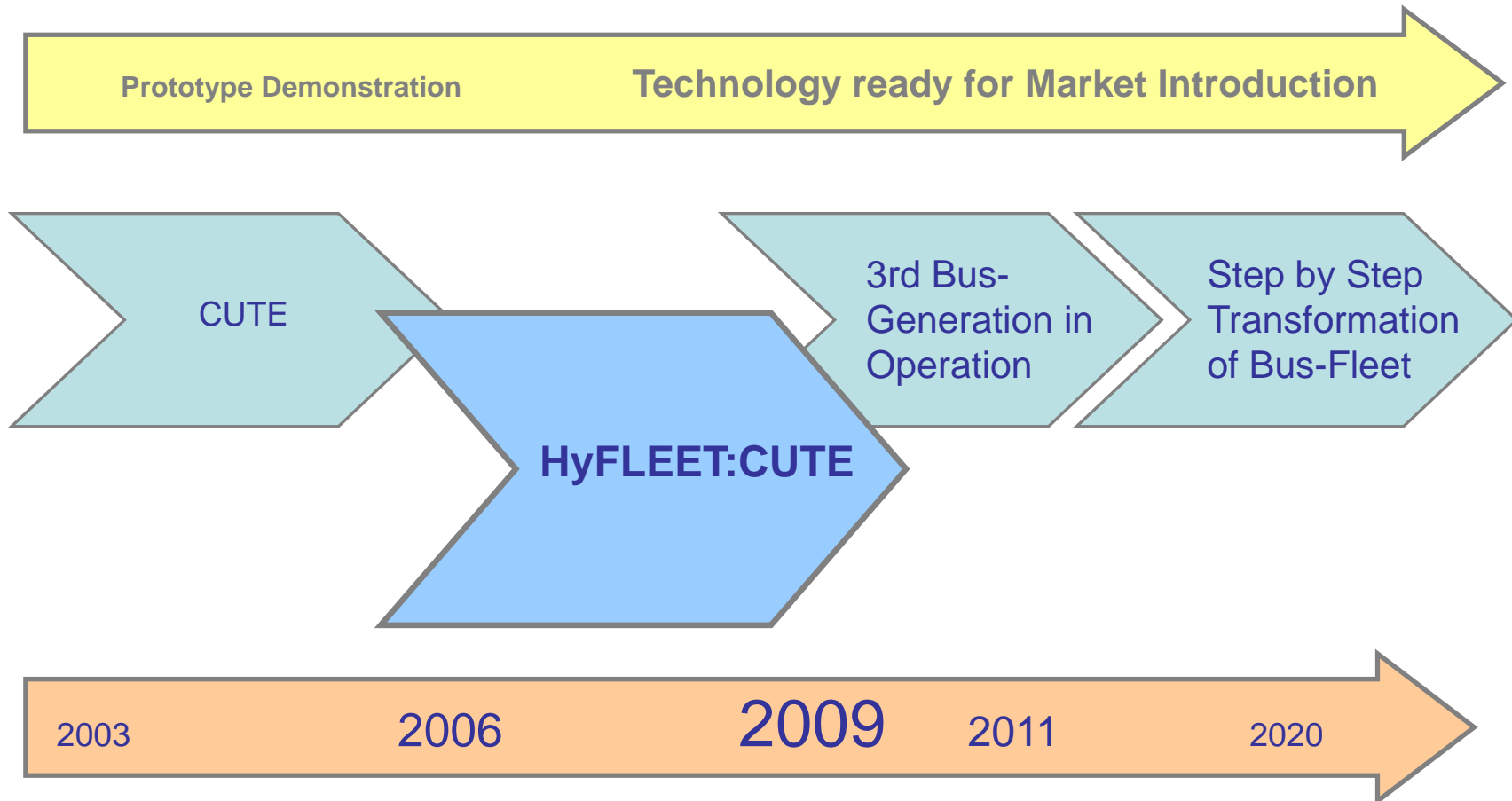
Availability: **up to 96,1%**

More than **1.5 Mio. Passengers**

Lifetime fuel cell system: partly more than **4.000 hours**

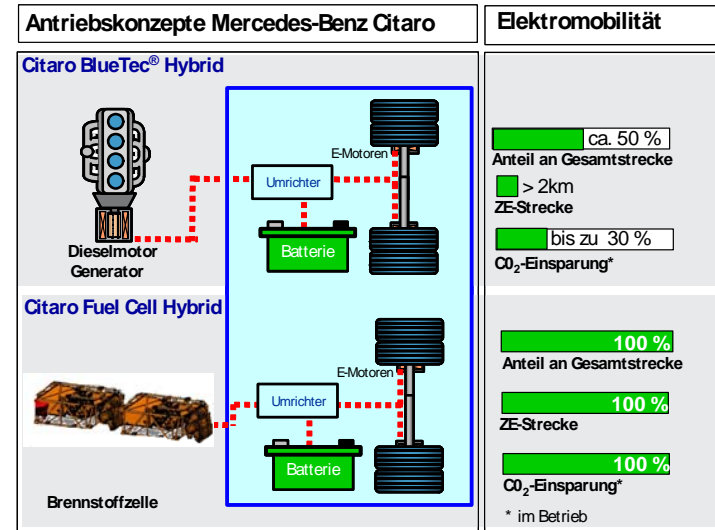
High satisfaction of HOCHBAHN customers and bus drivers with new technology

Fuel cell bus pathway of HOCHBAHN



Fuel Cell & Diesel-Hybrid buses

- Strategy approach of HOCHBAHN: **Serial Hybrid (Diesel and Fuel Cell)**
- One technology platform for Fuel Cell Hydrogen Bus (FCHB) and Diesel Hybrid Bus (DHB)**
- DHB** can operate in battery mode **partly allowing zero emissions** (low noise level & no pollution in sensitive areas)



Quelle: Daimler

- Growing production numbers of DHB allow for substantial Economies of Scale effects, also benefitting cost reduction for FCHB in the mid to long term
- As long as fossil fuels can be purchased on the market at a „reasonable“ price DHB functions as bridge technology to prepare for FCHB
- In the long run HOCHBAHN plans to set new standards in Public Transport by decreasing emissions of bus services to zero using FCHB and preparing in due time for the post fossil age

Long term strategy of HOCHBAHN: Full electrification of all systems of Public Transport in Hamburg

HOCHBAHN sets standards for the implementation of Green Technologies

- Introduction of new DT5 Underground train in late 2010
(Up to 95% of train components recyclable as already with first generation DT4 vehicle)
- Introduction of new Light-Rail-System in 2014
- Constant build up of newest electric Diesel- and Fuel Cell Serial-Hybrid buses from 2015

