THE HyFLEET:CUTE PROJECT

- Operation of 33 hydrogen fuel cell powered buses & design, construction and testing of the next generation hydrogen fuel cell bus
- Design, construction and operation of 14 hydrogen powered internal combustion engine buses in Berlin
- Development and testing of a new hydrogen refuelling infrastructure in Berlin
- Continued operation, optimization and testing of existing hydrogen infrastructure
- Assessment of the environmental, social and economic impacts of the H2 powered buses

EXECUTIVE SUMMARY

Bus Technology & Fuel for TODAY and for a Sustainable Future.

HYDROGEN TRANSPORTS

More than 350 million passengers transported
More than 555 thousand kg of Hydrogen refuelled
More than 2.5 billion kilometres driven

4 years of safe operation

More than 8 V million passengers transported


Government Partners
European Commission, www.ec.europa.eu
European Hydrogen and Fuel Cell Technology Platform

Government Partners
Government of Western Australia, Australia, www.dpi.wa.gov.au

Department of Planning and Infrastructure Government of Western Australia, Australia, www.dpi.wa.gov.au

Automotive Companies
Daimler AG, Germany, www.daimler.com
EvoBus GmbH, Germany, www.evobus.com
MAN Nutzfahrzeuge AG, Germany, www.man-mn.com
NEOMAN Bus, Germany, www.neoman.de

Transport Companies
Autobus de la Ville de Luxembourg, Luxembourg, www.vdl.lu
BVG, Berlin, Germany, www.bvg.de
Empresa Municipal de Transportes de Madrid, Spain, www.emtmadrid.es
Hamburgische Hochbahn AG, Germany, www.hochbahn.de

Energy Companies and Infrastructure Suppliers
Air Liquide, Division des Techniques Avancées, France, www.airliquide.com
BP Gas Marketing Ltd., United Kingdom, www.bp.com
Hydrogenics Europe, www.hydrogenics.com
Hydrogen Power, www.hydrogenpower.nl
StatoilHydro, Norway, www.statoilhydro.com
TOTAL Deutschland GmbH, www.total.com

Academic and Consulting Partners
Academic and Consulting Partners

EUROPEAN PARTNERS

International Partnership
for the Hydrogen Economy

For more information, please visit www.hydrogenbus.com

International Partnership
for the Hydrogen Economy
The HyFLEET:CUTE Project

The 43 million Euro HyFLEET:CUTE project has been the World’s largest hydrogen powered bus project. It has involved the operation of 47 hydrogen powered buses in regular public transport service in 10 cities on three continents (see back cover). Thirty-one government, industry research and consulting partners contributed to the project. It commenced in 2006 and concludes at the end of 2009. Its aim was to diversify and conclude at the end of 2009. Its aim was to diversify and conclude at the end of 2009. Its aim was to diversify and conclude at the end of 2009. Its aim was to diversify and reduce energy consumption in the transport system by developing new, fuel efficient hydrogen powered bus technology, and clean, efficient and safe production and distribution of hydrogen as a transport fuel.

“...there is no doubt that Europe and the world are facing a paradigm change in the future as we move from our present fossil fuel based energy systems to a new energy and fuel mix which will include hydrogen. I congratulate all the HyFLEET:CUTE partners for their highly successful and ground breaking work.”

Matthias Ruete
Director-General, Energy and Transport, European Commission

Achievements of the HyFLEET:CUTE Project

In our view,

By any measure, the HyFLEET:CUTE Project has been an outstanding success. The more than 25 million kilometres travelled, the 170,047 hours of bus operation and the 555,951 tonnes of hydrogen dispensed are clear testament to themselves.

It is equally clear that the future of energy for transport is, at best, uncertain and that it may well involve disruptive changes within our communities. Added to this, there is strong evidence of wide-spread and strong public support for governments to implement, or to require the implementation, of clean public transport.

In this context, the fact that the hydrogen public transport vehicle and refuelling technology works reliably and safely and can be commercialised holds significant promise.

However, there are a number of challenges that need to be overcome:

• The bus technology must be able to be operated with minimal special support in a standard public transport bus fleet;
• The purchase price of the buses must be significantly reduced to coincide with commercialisation;
• Procurement decisions should not be based only on first cost, but rather on lifetime operational costs, including external costs associated with carbon fuels and pollutants;
• Hydrogen must be able to be produced cheaply and through renewable means;
• Hydrogen infrastructure, especially the electrolyser and steam reformer units which are the key components of on-site H2 production and also the hydrogen compressors and dispensing equipment, must be able to operate as reliably as the buses.

The future for successful and imminent commercialisation of hydrogen powered public transport lies undoubtedly in more rigorous and broadly based buy-in from industry and the political stakeholders, in both recognising the coming disruption, and planning for it. The general public has already demonstrated strong buy-in, well in advance of these other stakeholders, and is expecting industry and government leaders to catch up soon rather than later.

Hydrogen powered transport projects need to move quickly from development and demonstration to large scale projects involving large fleets of buses. These fleets must be fuelled with hydrogen which is generated through renewable means, and where the buses are fully integrated into normal commercial public transport bus operations. At this point we will finally have achieved a truly sustainable transport initiative.

The HyFLEET:CUTE Partners,

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