



The CHIC Project

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Where do we come from....

CUTE/ECTOS: 2001 – 2005

- Demonstration of a fleet of 30 fuel cell buses in regular public transport

HyFLEET:CUTE: 2006-2009

- 47 hydrogen powered buses in public transport
- 2.600.000 km* in public service, 555 tons* of H2 refuelled and more than 1 million liters of Diesel replaced
- Fuel cell buses are suitable for operation in public transport
- Development of a new, fuel efficient fuel cell hybrid bus concept

... where do we need to go:

Clean hydrogen transport systems as a commercial reality in Europe

* figures include CUTE and ECTOS fuel cell bus operation



DAIMLER

Objectives of CHIC

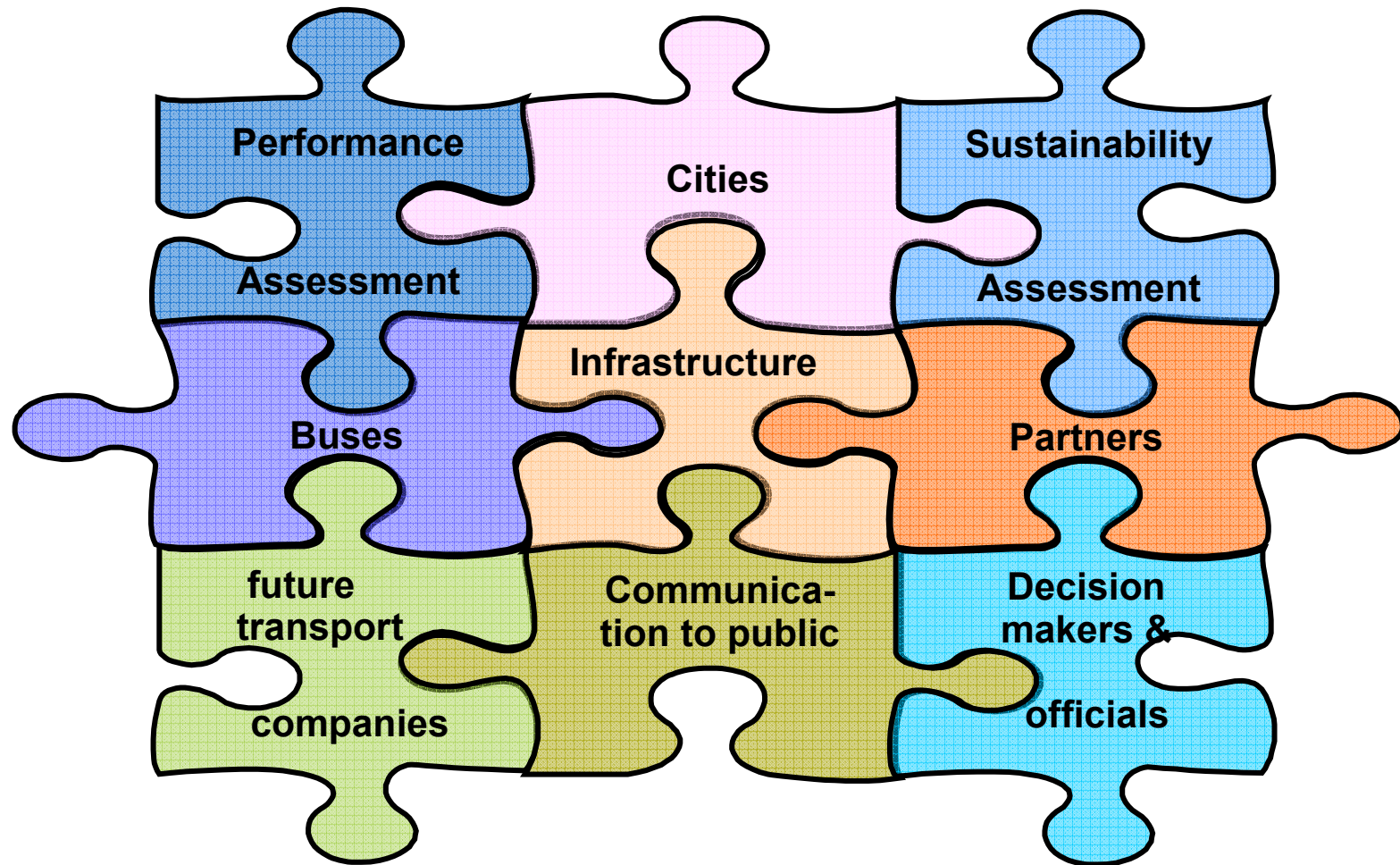
The CHIC project will: implement clean urban mobility in 5 major European regions through the deployment of 26 hydrogen FC powered buses in medium sized fleets, and the enlargement of the hydrogen infrastructure systems

The CHIC project will: facilitate the development of clean urban public transport systems and mobility action plans into 14 new European regions

The CHIC project will: actively collaborate, transfer and secure significant key learning from previous FC projects into the CHIC stakeholders, thereby greatly accelerating the achievement of JTI and EC objectives

The CHIC project will: deliver greater community understanding of 'green' hydrogen powered FC buses, leading to increased political acceptance and commitment

What do we need to reach these objectives?

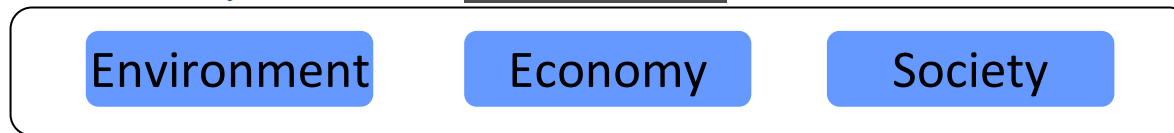


The concept of CHIC

H2 Infrastructure and FC Bus



Assessment

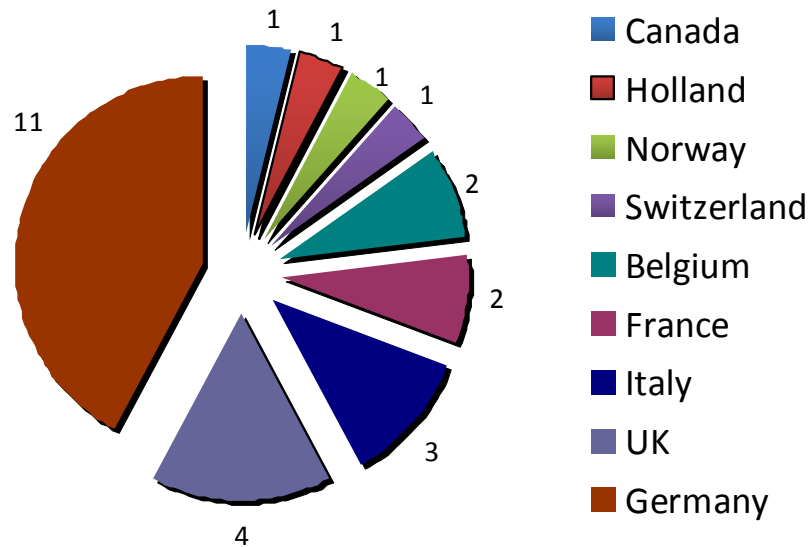


Dissemination

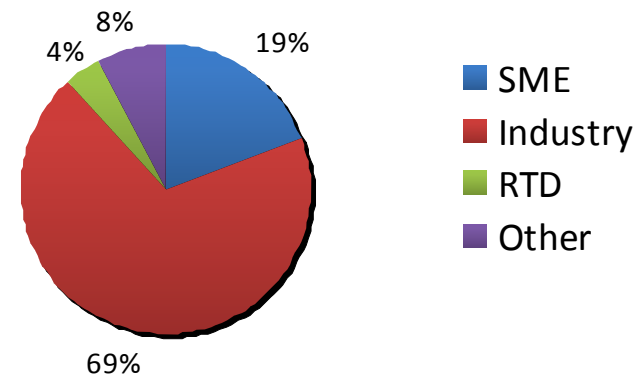


Key Facts

- 26 partners from 9 countries worldwide



Distribution of number of partner types (in %)



The Partners

City representatives for Phase 0, Phase 1, Phase 2



Consultants, Universities and Research



Industry



Key Facts

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- 26 fuel cell buses operated in 5 cities
- at least 3 different bus manufacturers



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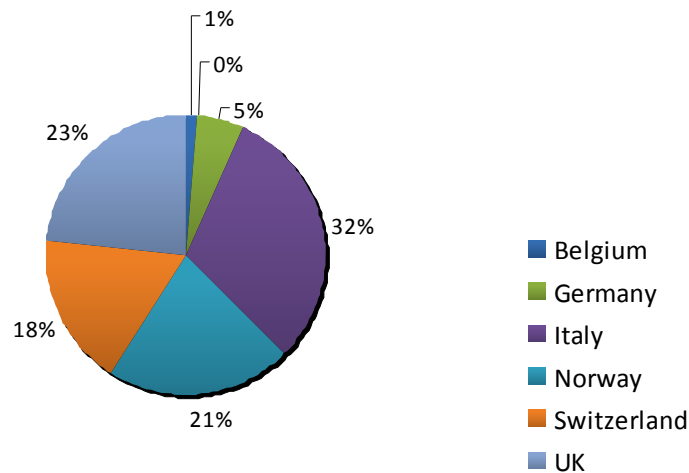
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- 26 fuel cell buses operated in 5 cities
- at least 3 different bus manufacturers
- 2 filling stations per city



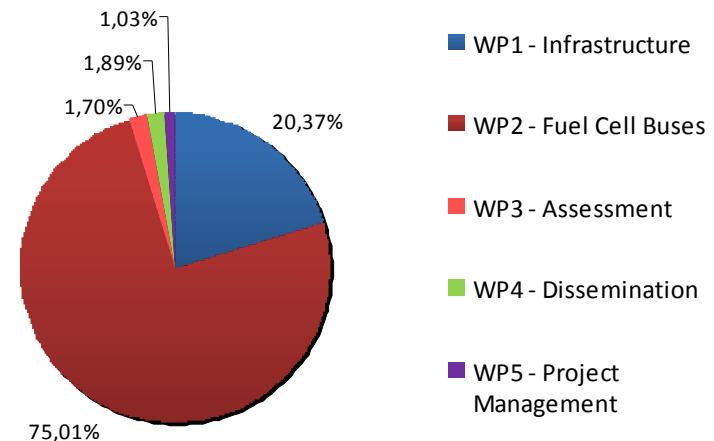
Key Facts

- 26 partners from 9 countries worldwide
- 26 fuel cell buses operated in 5 cities
- at least 3 different bus manufacturers
- 2 filling stations per city
- Demonstration phase 2010-2016
- 26 Mio. EUR funding, 81.8 Mio EUR costs

Distribution of requested JTI funding between countries



Total project costs, split by work package



What are the technical goals of CHIC?

Hydrogen infrastructure goals:

- Hydrogen fueling station capacity of 200 kg/day
- Average availability of fueling station 98% (based on operation time)
- Production efficiency for H₂ between 50 and 70%
- H₂ OPEX costs less than 10 EUR

Fuel Cell Bus goals:

- Fuel cell lifetime greater than 6000 h
- Average availability of all fuel cell buses greater than 85%
- Average fuel consumption less than 13 kg/100 km (dep. on drive cycle)

What assessment of technology and society is done?

- Sustainability assessment of the use of hydrogen powered buses in public transport
 - Performance assessment
 - Monitoring of operation of H2 infrastructure and H2 buses
 - Environmental assessment
 - Environmental profile of the system, incl. LCA
 - Land use and related impacts of fuel production
 - Economic assessment
 - Development/ enhancement of life cycle cost model covering H2 infrastructure and vehicles
 - Target costing for benchmarking with other alternative bus
 - Social acceptance
 - Investigating the causative drivers behind different attitudes and perceptions of hydrogen powered public transport buses

How do we communicate and disseminate the results?

The dissemination of CHIC will be executed at two levels

1. General dissemination including:

- Internal Project Dissemination
- Global Project Level engaging EU and international projects
- Special Events

2. Dissemination to Phase 2 cities to prepare for FC powered bus integration in the near future

Thank you for your attention!

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