

15th World Hydrogen Energy Conference 2004

Yokohama, Japan, 27. June – 2. July 2004



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AcceptH2

**Public Acceptance and Economic Preferences Related to
Hydrogen Transport Technologies in Five Countries**



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www.lbst.de



1 **Project AcceptH2**

- Overview
- Partners
- Survey methodology

2 **Existing studies in the field**

3 **Preliminary ex-ante results of AcceptH2 surveys**

- Knowledge about H₂
- Attitudes towards H₂
- Support for trial and introduction of H₂ vehicles
- Willingness to pay

4 **Conclusions**



- **Timeline** January 2003 – June 2005
- **Objectives**
 - Assessment of **knowledge, perceptions, values and use** of hydrogen buses and hydrogen in general.
 - Variation **across the populations** of the five cities
 - **Perceived economic value** of environmental benefits
 - **Recommendations** for future demonstration and commercial projects
 - **Dissemination** of results
- The European part is financed by the **European Commission**
Additional funding and in-kind support is provided by the **Government of Western Australia**

Project AcceptH2



Partners

LONDON

- AcceptH2 partner(s):
Imperial College, London, UK
- Bus operator: **Transport for London (CUTE)**
- Start of bus operation: **01/2004**



TfL

BERLIN

- AcceptH2 partner(s):
L-B-Systemtechnik, Munich, Germany
Universität des Saarlandes, Saarbrücken, Germany
- Bus operator: **BVG, Berlin**
- Start of bus operation: **05/2004**



BVG

OAKLAND

- AcceptH2 partner(s):
University of California, Davis, USA
- Bus operator: **AC Transit, Oakland, CA/USA**
- Start of bus operation: **2005**

LUXEMBOURG

- AcceptH2 partner(s):
Universität des Saarlandes, Saarbrücken
L-B-Systemtechnik, Munich, Germany
- Bus operator: **Ville de Luxembourg (CUTE)**
- Start of bus operation: **10/2003**



Ville de Luxembourg

PERTH

- AcceptH2 partner(s):
Murdoch University, Australia
Western Australian Department for Planning and Infrastructure
- Bus operator: **Path Transit (STEP), Perth**
- Start of bus operation: **08/2004**



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- Surveys are undertaken **before and after** the introduction of the buses
- Ex-ante survey is administered **by telephone** except in Oakland (ex-post survey approach has yet to be decided)
- **Bus users and non bus users** are interviewed (in Luxembourg and Berlin only bus users)
- A set of **largely identical questions** is applied
- Interviews consist of **four parts**
 - Use of buses
 - Hydrogen attitudes and knowledge
 - Environmental attitudes and knowledge
 - Willingness to pay
- Sample size: 414 London, 345 Berlin, 300 Luxembourg/Perth each



- **7 studies reviewed on H₂ acceptance**
- **Geographical scope**
 - 6 Germany
 - 1 Great Britain
- **Results**
 - Hydrogen is widely perceived as being environmentally benign
 - Experiences with hydrogen in every-day life supports acceptance and adoption of hydrogen technology

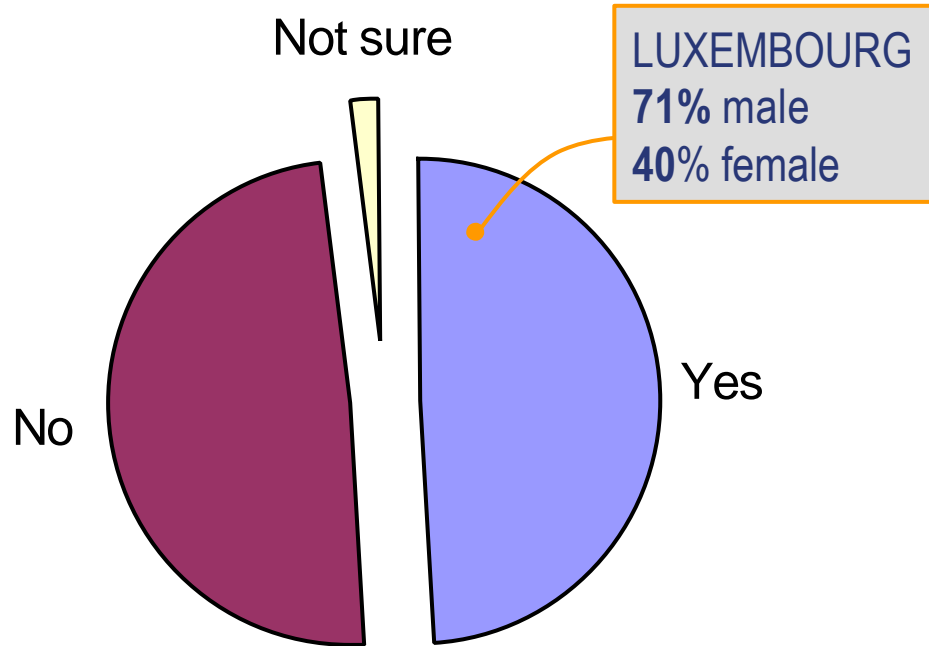
Preliminary ex-ante results AcceptH2

Knowledge about hydrogen

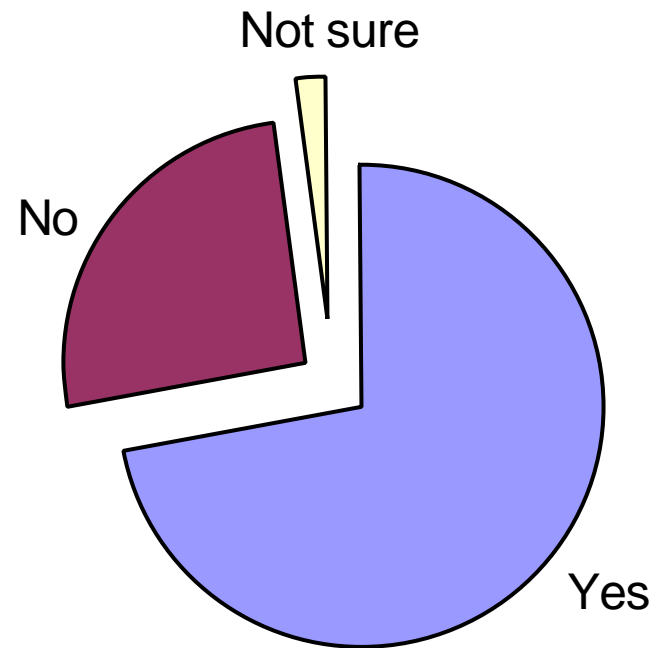


“Did you know that car companies are developing hydrogen powered vehicles?”

LONDON / LUXEMBOURG / PERTH



BERLIN

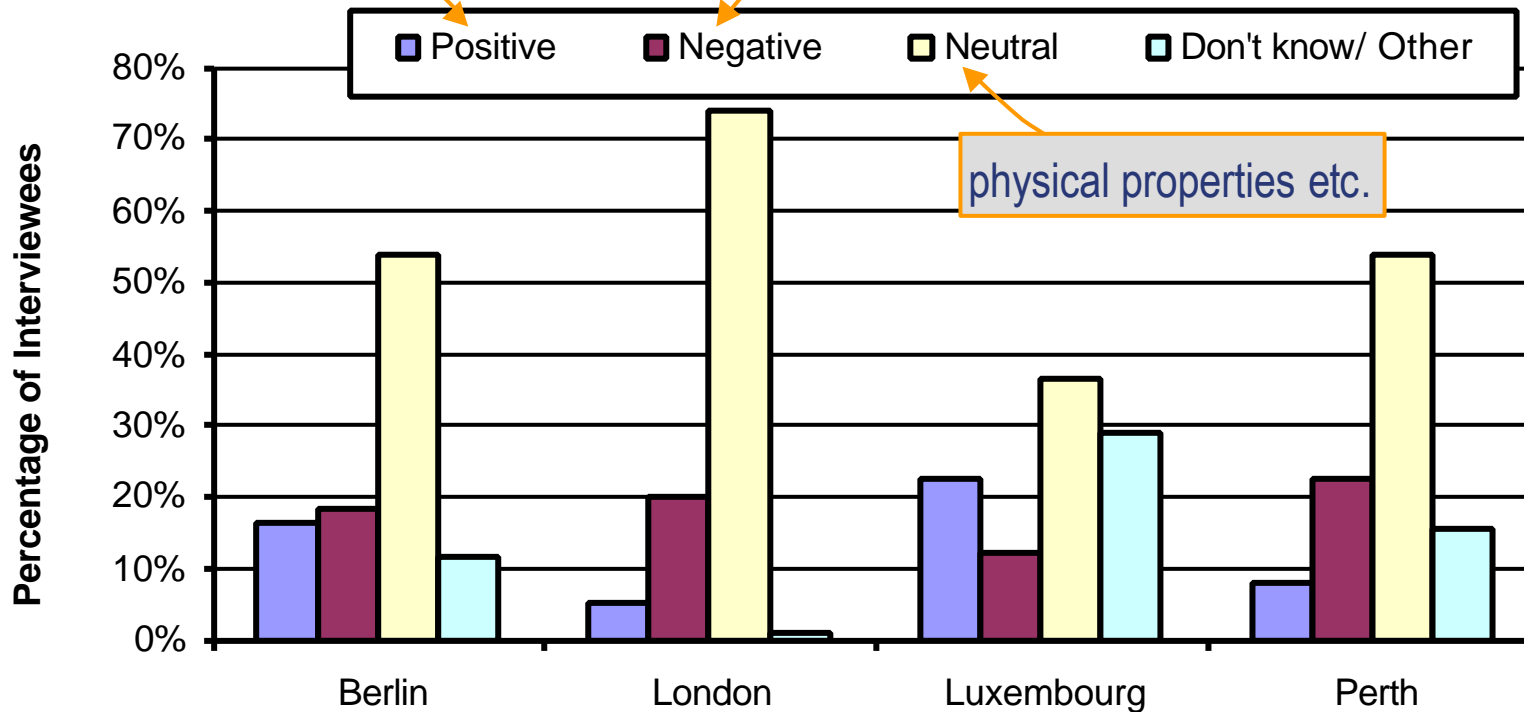




Free associations with 'hydrogen'

environment, clean etc.

bomb, explosive etc.



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Free associations with 'hydrogen'

The often cited 'Hindenburg Syndrome' does NOT exist.

Occurrence of 'Hindenburg', 'Dirigible' or similar terms:

| | |
|------------|----|
| BERLIN | 0% |
| LUXEMBOURG | 0% |
| PERTH | 2% |

(London not available)





Free associations with 'hydrogen'

People associate 'Bomb' / 'Hydrogen bomb' with hydrogen

BERLIN

44 out of 64 negative associations
(12.8% of all interviewees)

LUXEMBOURG

19 out of 36 negative associations
(6.3% of all interviewees)

PERTH

50 out of 68 negative associations
(16.7% of all interviewees)

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Preliminary ex-ante results AcceptH2

Support for introduction of hydrogen vehicles



“Do you think that it is a good idea that Berlin/London/Luxembourg/Perth is trialing Hydrogen fuel cell buses?”

BERLIN / LONDON /
LUXEMBOURG / PERTH



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Preliminary ex-ante results AcceptH2

Support for introduction of hydrogen vehicles



“How would you feel about hydrogen powered vehicles being introduced in Berlin/London/Luxembourg/Perth?”

- | | |
|---------------------|--|
| BERLIN / LUXEMBOURG | <ul style="list-style-type: none">• > 60% 'Support'• 20-30% 'Further information' |
| LONDON / PERTH | <ul style="list-style-type: none">• 35-45% 'Support'• 50-60% 'Further information' |
| GENERAL | <ul style="list-style-type: none">• 1% 'Oppose' (14 out of 1,359)• 1-10% 'Don't care' |

LUXEMBOURG

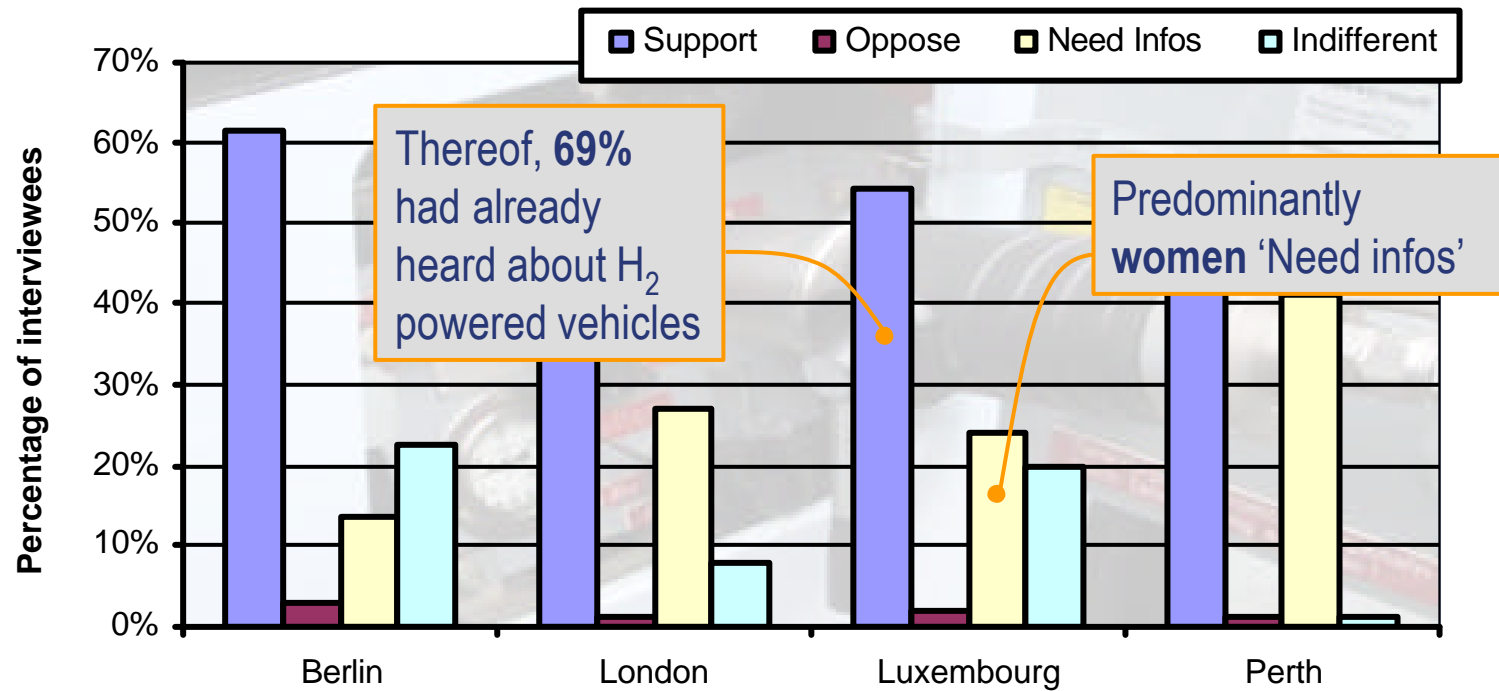
- 71% of supporters had already heard about H₂ vehicles
- Predominantly women require 'Further information'

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Attitudes towards hydrogen



“How would you feel about hydrogen stored and included as a fuel option at your local petrol station?”



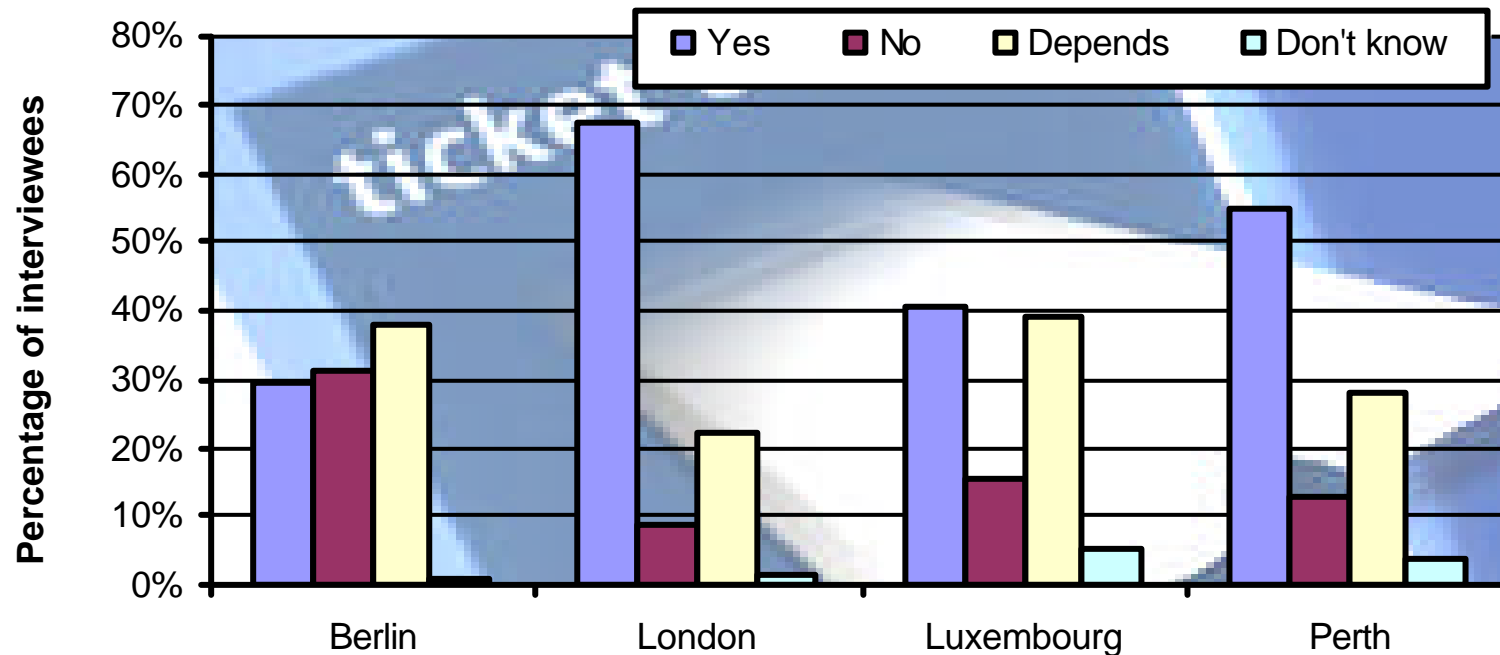
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Willingness to pay



“If H₂ buses could only be introduced if there was a small increase in bus fares, would you, in principle, support their introduction?”



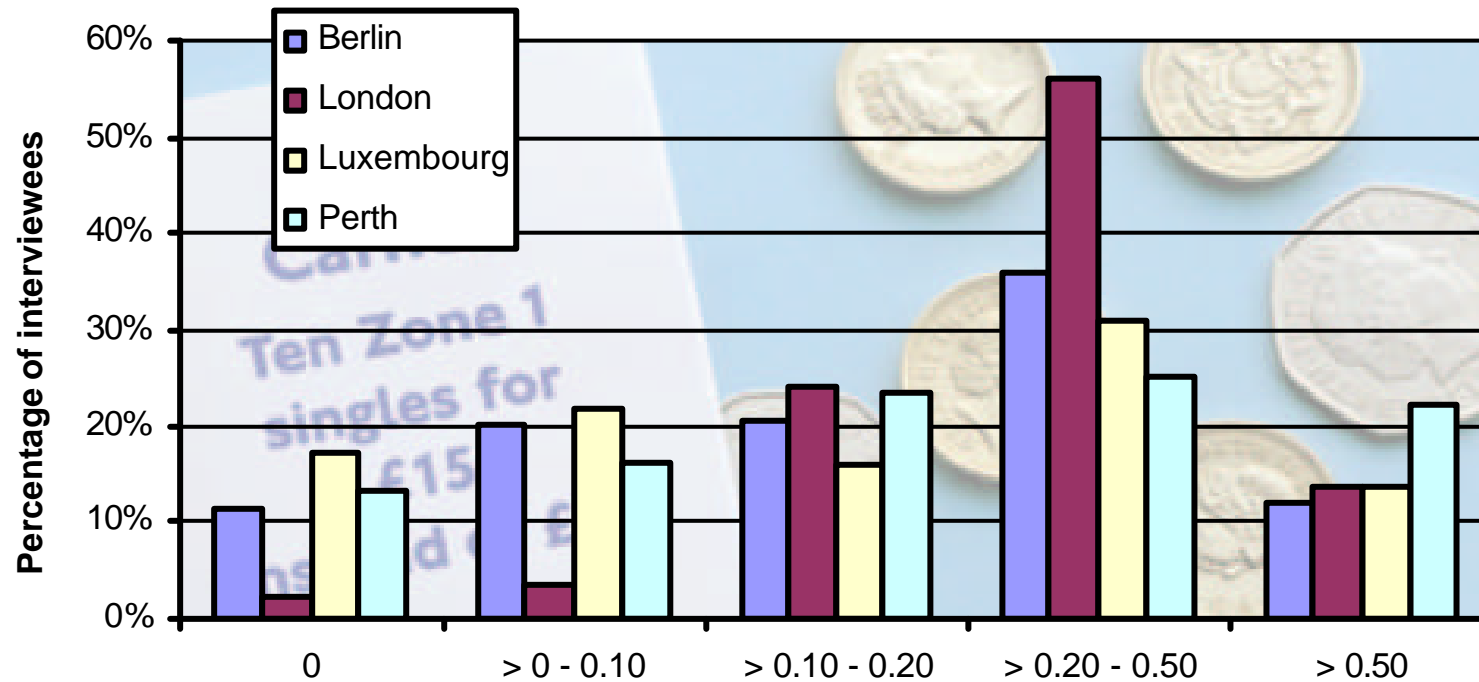
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Preliminary ex-ante results AcceptH2



Willingness to pay

Willingness to pay an extra charge per single fare in national currency



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* excl. protest responses

Picture: TfL

Median*: 0.20€ (Berlin, Luxembourg), 0.30£ (London), 0.50\$ (Perth)
In EU cities, people strongly disagree to pay additional taxes (except Perth)

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Conclusions

Preliminary ex-ante data from Berlin, London, Luxembourg, Perth



- ➔ The preliminary results are in **general accordance** with former acceptance studies in the field
- ➔ People **overwhelmingly support** the trial of hydrogen buses; Support for a broad-scale introduction at additional costs is **lower**; there is practically **no fundamental opposition**
- ➔ A large number of respondents would be **willing to pay an extra charge** if this is initially required
- ➔ Negative and neutral associations as well as ‘don't know’ statements generally **outnumber positive associations** by far; **'Hindenburg' is NOT an issue; 'Hydrogen bomb' IS an issue**
- ➔ A significant group of people ‘**need more information**’ or state that their support would ‘**depend**’ on certain conditions

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Thank you!

For upcoming information please visit

www.AcceptH2.com