

## Proceedings

### of the Mid-Term Assessment Workshop of the European Integrated Hydrogen Project - Phase II [EIHP2]



held at the European Commission's  
CCAB - Centre Albert Borchette  
Brussels, 02 October 2002



**Workshop Schedule  
of the Mid-Term Assessment Workshop  
and Proceedings Volume Distribution List**

- 09:00 - 13:00h: Plenary Morning Session [Volume 1]**
- 14:00 - 16:30h: Breakout Sessions**
- WP 2: Refuelling Station [Volume 2]**
  - WP 3: Refuelling Interfaces [Volume 3]**
  - WP 4: Vehicle [Volume 4]**
  - WP 5: Safety [Volume 5]**
- 16:30 - 17:00h: Summary of Findings by Breakout Group Moderators**
- 17:15h: End of the Day**



## Morning Session - Topics & Contributors

EIHP

- 09:10: “Introduction by the European Commission ” (W. Borthwick, DG Research)
- 09:30: “Refuelling Station - WP 2” (H. Andersen, Norsk Hydro)
- 09:50: “Refuelling Interfaces - WP 3” (F. Isorna, INTA)
- 10:10: “Vehicle” (D. Stoll, BMW)
- 10:40: *Coffee Break*
- 11:00: “Safety - WP 5” (D. Baraldi, EC-JRC)
- 11:20: “Intl. Links and Cluster Activities - WP 6” (M. Jones, BP)
- 11:40: “Clean Fuel Systems - Filling Stations for Natural Gas and Hydrogen” (W. Niessen, Ballast Nedam)
- 12:00: “Gas Storage Systems for Compressed Hydrogen” (S. Rau, Dynetek Europe)
- 12:20: “H2 powered ICE and FC buses in public operations“ (Ch. Gruber, MAN)
- 12:40: “Hydrogen Safety” (U. Schmidtchen, DWV and BAM)



**Moderators: Henrik Andersen, Christian Machens**

- **14:10: “Challenges in development of an infrastructure in Europe - Experience from CUTE ” (M. Jones, BP)**
- **14:30: “Development of a Code for H2 Vehicle Refuelling Stations” (J. Barron, Shell)**
- **14:50: “Hydrogen Filling Station Based on Water-Electrolysis” (Ch. Machens, Vandenborre Technologies)**
- **15:10: “Hydrogen Filling Station Based on NG Reforming” (H. Andersen, Norsk Hydro)**
- **15:30: “Liquid Hydrogen Filling Station” (L. Allidiers, Air Liquide)**
- **15:50: “Gaseous Hydrogen Filling Station” (P. Bout, APCI)**
- **16:10: General discussion and formulation of conclusions/findings**



**Moderators: Fernando Isorna, Friedel Michel**

- **14:10: “Optimum storage pressure for on-board CGH<sub>2</sub> storage issues” (J. Zieger, Daimler Chrysler).**
- **14:35: “High pressure tank refuelling tests” (Serge Chaudourne, CEA).**
- **15:00: “Experiences in > 70 MPa pressure storage” (S. Rau, Dynetek).**
- **15:25: “Nozzles, LH<sub>2</sub> Refuelling connectors devices” (F. Michel, Messer).**
- **15:50: “Elements of Liquid and High Pressure Filling Stations” (J. Wolf, Linde AG)**
- **16:15: General discussion and formulation of conclusions/findings**



**Moderators: Dieter Stoll/ Laurent Allidiers**

- **14:10: “Development of a Regulation for LH2 Vehicles ” (D. Stoll, BMW)**
- **14:35: “Development of a Regulation for CGH2 Vehicles ” (P. Adams, Volvo)**
- **15:00: “Necessary Modifications of Existing ECE Regulations and EC Directives” (R. Bauer, DaimlerChrysler)**
- **15:25: “Development of Procedures for Periodic Vehicle Inspections” (H. Mettlach, Opel)**
- **15:50: “Development of a Standard for Calculation of Safety Valves for Vehicle Applications” (L. Allidiers, Air Liquide)**
- **16:15: General discussion and formulation of conclusions/findings**



**Moderator: Daniele Baraldi**

- **14:10: “Structure of Hydrogen Safety Problems ” (S. Dorofeev, FZK)**
- **14:30: “Properties of Hydrogen in Comparison with Other Fuels ” (L. Shirvill, Shell)**
- **14:50: “Release Scenarios and Modeling of Hydrogen Mixing and Combustion” (A. Venetsanos, NCSRDemokritos)**
- **15:10: “Evaluation of Hazards Associated with Hydrogen Combustion - Achievements and Issues” (S. Dorofeev, FZK)**
- **15:30: “Risk Analysis - Problems and Issues” (H. Rikheim, DNV & S. Nilsen, Norsk Hydro)**
- **15:50: General discussion and formulation of conclusions/findings**

