

PRHYDE-Protocol for heavy-duty hydrogen refuelling

Call Identifier FCH-04-2-2019:

Refuelling Protocols for Medium and Heavy-Duty Vehicles



01 JAN 2020 - 31 DEC 2021



Horizon 2020
European Union Funding
for Research & Innovation



Goal with PRHYDE



- PRHYDE Work Structure

WP No.	WP Title
WP1	Ethics requirements
WP2	State-of-the-art & specification
WP3	Protocol development
WP4	Simulations
WP5	Experimental validations
WP6	Recommendations and dissemination
WP7	Project coordination

Goal with PRHYDE



■ Approaches to Hydrogen Refuelling today:

- Protocols for LD and MD (SAE J2601) with maximum 60 g/s for public access
- Technical Information Report for H35 MD (SAE J2601-2) with maximum 120 g/s for restricted access

These documents along with national/international supporting standards/procedures helped shape the Hydrogen Infrastructure to what it is today.

For succesful rollout of MD and HD Fuel Cell Electric Vehicles, 60-120 g/s max flow is not sufficient.

Goal with PRHYDE



■ PRHYDE

- Develop elements for protocol which supports refuelling performance in line with fossil parity criteria (if the station is designed to meet those)
- Shall also support a variety of station designs and architecture, i.e. allow the station manufacturer to lean their design towards a specific design intent (performance, cost, etc.)
- Assess margins to allow faster flow, lower pre-cooling of hydrogen, etc.

Goal with PRHYDE



■ Method:

- Examine modifications to existing protocols and hardware: Complete
- Examine the use of new hardware but same approach (APRR): Work-in-progress
- Examine methods to hydrogen refuelling: Work-in-progress

Goal with PRHYDE



- Examine methods to hydrogen refueling:
 - Formula Based Method
 - Performance Based Method

These will be presented later during this webinar

Goal with PRHYDE



- Outcome of Protocol Development Efforts
 - Dissiminate the findings of PRHYDE project
 - Take to standardization body

Gaseous Hydrogen - Fuelling Protocols for Hydrogen-Fuelled Vehicles - NWIP

ISO/TC 197
Working Group: 2021 - 2024

Convenor: US

SCOPE: General design and development process for the definition and verification of fuelling protocols and the implementation of the protocols for dispensing fuel to hydrogen vehicles

Three Parts - Multipart set of documents:

1) Design and development process for fuelling protocols (FR, US)

- *Definition of Requirements*
- *Concept Definition and Evaluation*
- *Development of the Fuelling Protocol*
- *Documentation of the Fuelling Protocol*
- *Implementation of Fuelling Protocols in Dispenser Control Systems*

2) Definition of communications between the vehicle and dispenser control systems (NL, US)

3) High Flow Hydrogen Fuelling Protocols for Heavy Duty Road Vehicles (DE, US)

Presentations on Strategic Approach and Viable Paths

Path forward for PRHYDE



- Upcoming work
 - Draft specification to evaluate methods in Simulated and Test Environments
 - Risk Assessment of new/alterated features and refueling assumptions

Path forward for PRHYDE



- Throughout the PRHYDE Project there will be public webinars (like this one)
 - Keep the industry up to date on our progress
 - Feedback from industry
- PRHYDE Consortium will continue the development effort of method(s) for hydrogen refueling
 - Up to date with industry knowledge and feedback from you

Path forward for PRHYDE



Let us know what you think of what we have presented today:
How do you see the future of hydrogen refueling for HD FCEVs?

Contact



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