

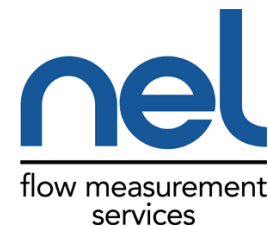
METROLOGY *for* HYDROGEN VEHICLES

Stakeholder Advisory Board Workshop

Indra te Ronde (NEN) – WP 5 (Creating Impact)

SAB Workshop
24 January 2018

Project Team



The goal of Work Package 5 ‘Creating Impact’ is:

“To facilitate the take up of the technology and measurement infrastructure developed in the project by the measurement supply chain (accredited laboratories, instrument manufacturers), standards developing organisations (ISO, CEN/CENELEC) and end users (hydrogen industry, vehicle manufacturers and suppliers).”

(WP5, M1-36)

Projected wider impact of the project

According to the JRP Protocol



▪ **Economic**

- Hinders the build-up of a hydrogen fuelling station infrastructure
- Serious damage to a fuel cell vehicle (impurities)
- Capital expenditure
- Reduce costs of purity analysis
- Commercial analysis laboratories
- Virtual measurement service hub

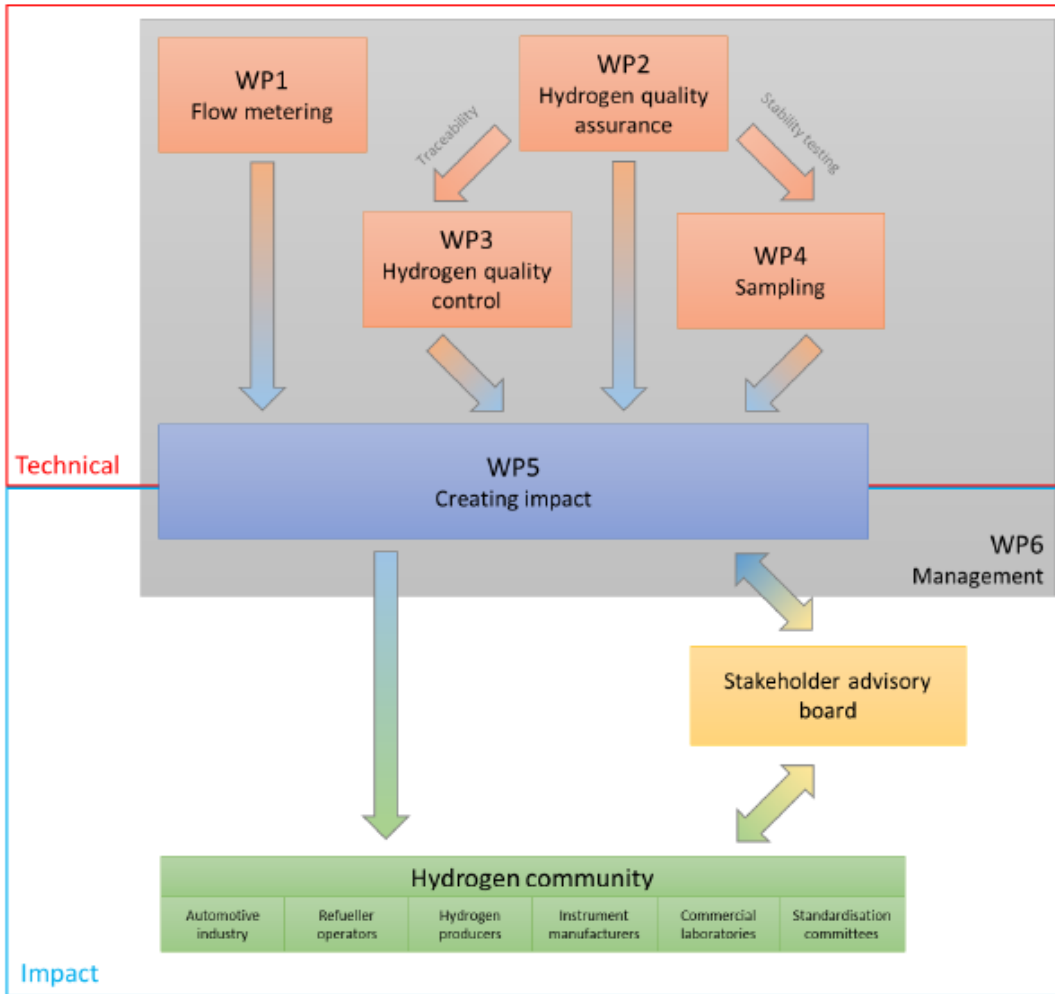
▪ **Social**

- Importance of laboratory accreditation
- Technical workshops
- Best practice seminars

▪ **Environmental**

- Reduce carbon dioxide
- Renewable sources
- Health benefits

WP 5 in relation to the other WPs



NEN:

- **WP 5 leader**
(NEN-team: Natasja/Ellen, Max, Indra)
- Amongst others, responsible for the **SAB** (Stakeholder Advisory Board)
 - Its creation
 - Support to the SAB
 - SAB communication (also via an own 'Sharepoint')
 - Concerns 'Activity' 5.1.1
 - Also this 'advisory' workshop, under 'Activity' 5.2.1

Task 5.1 Knowledge transfer

- Activity 5.1.1 Creation of the SAB
- Activity 5.1.2 Website-> www.metrohyve.eu
- Activity 5.1.3 SAB meetings (#3)
- Activity 5.1.4 Oral presentations
- Activity 5.1.5 Peer-reviewed publications
- Activity 5.1.6 Trade journals
- Activity 5.1.7 Standardization
- Activity 5.1.8 Liaisons
- Activity 5.1.9 Good practice guide



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METROLOGY for HYDROGEN VEHICLES

METROHYVE PARTNERS WORKPACKAGES NEWS & EVENTS DOWNLOADS CONTACT SERVICE HUB

METROLOGY FOR HYDROGEN VEHICLES

READ MORE ABOUT THE PROJECT

Uptake of hydrogen vehicles

Uptake of hydrogen vehicles is an ideal solution for countries that face challenging targets for carbon dioxide reduction. The advantage of hydrogen vehicles is that they behave in a very similar way to petrol engines yet they do not emit any carbon containing products during operation. The hydrogen industry currently faces the dilemma that they must **meet certain measurement requirements** (set by European legislation) but cannot do so due to a **lack of available methods and standards**. The aim of the MetroHyVe project is to ensure that these measurement challenges do not prevent global uptake of hydrogen vehicles to the automotive market.

READ MORE

SAB specific info

- Aim SAB:
“*To clarify the needs of the hydrogen industry and to feed these into the project to ensure that the activities and deliverables directly benefit the end user*”.
- At least 20 member, consisting of stakeholders from hydrogen refuelling, automotive, laboratory measurement and standardisation committees.
- Participation in the SAB is for free of charge
- Set-up mid 2017 / **Still open to join!**
- Kick-off meeting was on 3 July 2017
- ***Today is the 1st SAB Workshop (M6)! (A5.2.1)***



SAB Members	10-jan-18
<u>Organisation</u>	<u>Contact name</u>
Kiwa	Mindert van Rij
Daimler	Sebastian Mock
Daimler	Gabor Toth
ISO TC 158	Adriaan van der Veen
ZBT Zentrum Brennstoffzellentechnik	Christian Spitta
Toyota	Ward Storms
Justervesenet – The Norwegian Metrology Service	Gaël Chupin
CNH2	Mónica Sanchez
Powertech	Liam Quinlan
Agentschaptelcom	George Teunisse
Hyop	Ulf Hafsel
Ekinetix	Jaco Reijerkerk
Olev	Lewis Cletheroe
Gas Analysis Services Ltd	Frank Whelan
Olev	Bob Moran
Gasanalysis	Frank Whelan
Riversimple	Hugo Sprowers
Protea	Andrew Toy
BMW	Manuel Tolosa
BMW	Gerhard Gissibl
AP2E	Etienne Smith
Daimler	Merle Klages
Tiger Optics	Florian Adler
SFEM	Bernard Gindroz
CEN/CLC/TC 6	Francoise de Jong
CEN/TC 268 WG 5	Hervé Barthelomé
PitPoint NL	Erik Büthker
Shell	Oliver Bishop
Shell	Jurgen Louis
KRISS	Woong Kang
ZSW	Markus Jenne
NREL	Michael Peters
H2energy	Philipp Dietrich
GE Oil & Gas	Gerard McKeogh

What do we need for:

- Task 5.1 **‘Knowledge transfer’** from the SAB/today’s participants?
 - Activity 5.1.4 Oral presentations -> *Suggestions for relevant congresses/ seminars for oral presentations? Such as? Missing?*
 - *Gas Analysis 2019 (Rotterdam, the Netherlands)*
 - *World Hydrogen Energy Conference (Rio de Janeiro, Brazil)*
 - *Hannover Messe Trade Fair (Hannover, Germany)*
 - *Analyse Industrielle 2017 / 2018 (Paris, France)*
 - *ISFFM conference in May 2018 (Mexico)*
 - *MEKO conference 2019 (location has to be decided)*
 - ...
 - *Must haves for articles?*
 - Activity 5.1.5 Peer-reviewed publications?
 - *Metrologia, International Journal of Hydrogen Energy, Accreditation and Quality Assurance)*
 - Activity 5.1.6 Trade journals?
 - *Newspapers (either printed or online) focused on automotive, energy or standardisation.*

What do we need for (continued):

■ Activity 5.1.7 'Standardization'

- Information on progress and results of the project will be directly disseminated to the relevant working groups of the standardisation bodies that are responsible for the key standards that have produced the measurement needs of this project. Most technical committees already have representation from the project partners (exchange during (re)development/input to standards such as: ISO 19880-1, ISO 14687, ISO/CD 21087,...):
 - ISO / TC 197 / WG 24 - Gaseous hydrogen fuelling stations / General requirements
 - ISO / TC 197 / WG 27 - Hydrogen fuel quality
 - ISO / TC 197 / WG 28 - Hydrogen quality control
 - ISO / TC 158 / JWG 7 - Joint ISO/TC 158 - ISO/TC 197 WG - Hydrogen fuel analytical methods
 - SFEM / WG Hydrogen
 - CEN / CLC / TC 6 - Hydrogen in Energy systems
 - CEN / TC 268 / WG 5 - Cryogenic vessels – specific hydrogen technologies applications
 - CEN / TC 234 - Gas infrastructure
 - ISO / TC 193 - Natural gas
 - IEC / TC 105 - Fuel Cell Technology
- A link will be made with OIML TC8 SC7 / and also EURAMET TC-MC

And, what could we do...

- What could we do for the SAB/today's participants (Task 5.1 'Knowledge transfer')?:?
 - ...
 - ...

Task 5.2 Training

- **Activity 5.2.1 Stakeholder Advisory Workshops**
- Activity 5.2.2 Hydrogen sampling training courses
- Activity 5.2.3 International workshop for hydrogen flow metering
- Activity 5.2.4 International workshop MetroHyVe
- Activity 5.2.5 e-training course

What do we need for:

- Task 5.2 **‘Training’** from the SAB/today’s participants?
 - These workshops will be open to invitation by the Stakeholder Advisory Board as well as to additional external stakeholders. The workshops will be designed to allow non-project partners to provide comments and their own specific measurement challenges to the project. Invited participants will include stakeholders, automotive manufacturers, laboratories, instrument manufacturers, standardisation committees and NMIs....
 - Thank you already for all your input today!
- What could we do for the SAB/today’s participants (with regard to Task 5.2 ‘Training’)?
 - ...
 - ...

Task 5.3 Uptake and Exploitation

- **Activity 5.3.1 Online survey**
- Activity 5.3.2 Communication and exploitation plan
- Activity 5.3.3 New flow metering measurement service
- Activity 5.3.4 New hydrogen purity measurement services
- Activity 5.3.5 Hydrogen purity primary reference gas mixtures
- Activity 5.3.6 Particulates measurement service
- Activity 5.3.7 Online hydrogen purity analysers
- Activity 5.3.8 Virtual hydrogen measurement service hub

What do we need for:

- Task 5.3 ‘Uptake and Exploitation’ from the SAB/today’s participants?
 - An online survey has been circulated to the wider community to discover new contacts in the hydrogen industry that would benefit from the measurement solutions provided by this project.
 - It has been sent out to the SAB - - -> input welcome!
 - It will be put on websites, such as www.metrohyve.eu.
 - Who more to send to/suggestions?
 - ...
- What could we do for the SAB/today’s participants (with regard to task 5.3 ‘Uptake and Exploitation’)?
 - ...
 - ...



THANK YOU



Indra te Ronde

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