

Waterstof Industrie Cluster: Minutes meeting 03/03/2021 (digital meeting)

Present in the call:

Vincent Mattelaer	Toyota Motor Europe	Wim Van Den Mosselaer	Siemens Energy
Freddy Bergsma	Toyota Motor Europe	Frank Taelman	Siemens Energy
Luc Vercauteren	Toyota Motor Europe	Sofie Marivoet	De Vlaamse Waterweg
Thomas Bogaers	Van Vollenhoven	Roger De Vos	Atlas Copco
Joep Fassaert	Van Vollenhoven	Hans Magits	Atlas Copco
Stefan van der Spek	Hyzon Motors EU	Leander Hanegreefs	Fluxys
Ben Cornelis	E-trucks	Pieter Jan Jordaens	Sirris
Marcel Meeus	Umicore	Sébastien Piret	Colruyt
Gert Nelissen	Borit	Ludo Sweron	Colruyt
Nick Valckx	Agfa	Dirk Abel	Renewi
Paul Schroé	MBZ	Peter Simkens	VKI
Cathy De Graeve	Oil tanking	Koen VLAEMINCK	Engie
Francisco Lopez	Solenco Power	Koen Van den Brande	Polders Investeringsfonds
Marc HEYLEN	Altran	Wouter Everaerts	Denys
Steven Keyzer	OCAS	Ruud Bouwman	VDL
Filip Van Den Abeele	OCAS	Maxime Peeters	PoA
Adrien Theunissen	Besix	Gilles Decan	PoA
Daniel Van De Gucht	Besix	Jean-Paul MOSSOUX	Tractebel
Herman Van Damme	G&V	Dimitri VAN DEN BORRE	Tractebel
Carmen Horr�	G&V	Vincent Vancaeyzeele	Fluvis
Kitty Geens	G&V	Marc Heylen	Altran
Yannick Sijssens	Tessenderlo Group	Kristof Vanhoorne	Luminus
Philippe QUENON	Tessenderlo Group	Gertjan Wauters	Perpetum
Filip Van den Borre	Dept Omgeving	Tony Vanswijgenhoven	Covess
Rob Cornelissen	POM Limburg	Gunter Verhestraeten	Bureau Veritas
Roy Campe	CMB	Hans Rymenants	Hitachi-ABB
Louis Vercauter	CMB	Raymond Daems	Hitachi-ABB
Axel Seifert	Plastic Omnium	Wessel Hof	Hitachi-ABB
Jan Rong�	K.U. Leuven	Jean-Marc Chamberland	Solvay
Filip Van Caneghem	Farys	Vincent Schouten	Nedstack
Bart De Borle	Farys	Guido De Roo	POM W-VL
Roland Hequet	John Cockerill	Peter Smets	Spie
Thomas Cools	Eneco	Jan Vliegen	WN
Josse Brys	Hima	Davine Janssen	WN
Ferdi van den Br�le	Hima	Isabel Fran�ois	WN
Sven Audenaert	Hima	Adwin Martens	WN
Martijn Noordegraaf	Hima	Samira Farahani	WN
Alexander Jordaens	Deme	Yannick Van den Broeck	WN
Wouter van der Laak	Everfuel		

Agenda:

10 – 10.30 AM : Presentation new members: Sirris, HIMA, G&V and Everfuel

Hydrogen in buildings

10.30 – 10.50 AM : Results project Hoogeveen (Jan-Jaap Aué -**guest speaker**- Hanze Groningen)

10.50 – 11.10 AM : Presentation BatHyBuild project (Jan Rongé, KU Leuven)

Hydrogen in heavy duty

11.10 – 11.30 AM : Presentation development and production of heavy duty FC vehicles by
Hyzon Motors Europe

General info

11.30 – 11.50 AM : News from the cluster

11.50 – 12 noon : Questions – news from cluster members

Discussion/Q&A @ presentation Jan Jaap Aué, Hoogeveen project

Jan Jaap presents the status of the Hoogeveen project in the Netherlands, in which a plan for heating of a two districts (one new built of 80 homes and one of 160 homes of 30 years old) is developed. The concept analysed in this project, is a district that is connected to a hydrogen grid, with hydrogen boilers in the houses.

The presentation shows the different aspects that have been analysed in this project: the technology choices, safety, supply of hydrogen, the business cases, the public acceptance of a hydrogen solution...

For the long term (>>2030), the conclusion is that the societal costs of using hydrogen in a distribution grid (when a hydrogen network is available; H₂ cost about 3€/kg) is not very high compared to alternatives, depending on the situation.

Hydrogen as a renewable gas is most interesting to implement in existing, older buildings that are well insulated but are not suited to convert to a low temperature heating system.

End-report is available

https://www.waterstofhoogeveen.nl/fileadmin/waterstof_hoogeveen/PDF/Plan_voor_waterstof_in_Hoogeveen.pdf

Some questions that have been discussed:

- Will people also use hydrogen for cooking? => NO
- What is the pressure level in the piping system? => 100 mbar
- Are you considering fuel cells and heat pumps instead of boilers? => focus was on boilers due to Bekaert Heating, as a supplier of H₂ boilers, being a partner
- Who generates the hydrogen? => H₂ will be supplied from the Hystock site in Zuidwending.
- How to overcome the high cost price for hydrogen in the first phase of the pilot project when there is no hydrogen network with low cost H₂ available yet? => funding by the NL government (RVO, through program Aardgasvrije wijken). Starting point is that the customer does not pay more than in the reference situation with natural gas

Discussion/Q&A @ presentation Jan Rongé, BathyBuild project

Jan presents the results of the pre-feasibility study “BatHyBuild”, which was initiated in the WIC in the beginning of 2020 and executed by the KULeuven and WaterstofNet, with support of Fluvius and Ingenium.

The study has investigated if and how hydrogen can help to make the heat and power supply in buildings in Flanders climate neutral in a cost-effective way. Taking into account the costs for the residents and for society (including infrastructure underground), hydrogen has been compared with other options such as heat pumps and heat networks in various use cases.

The conclusions are that hydrogen, if available at low cost in an existing distribution grid, is a good solution in older buildings that are not suited to convert to a low temperature heating system. Also in new built houses with low energy consumption, this can be a good solution if a gas grid is available. When no gas grid is available, the all-electric solution with heat pumps has the lowest system cost and energy cost.

The fact that hydrogen solutions relieve the electricity grid at peak production moments (summer) or inject electricity into the grid (fuel cells/CHP) at peak consumption moments (winter) will also be valuable for the overall system, but cannot be properly quantified and valorised yet.

In general, producing either electricity or hydrogen with PV or hydrogen panels makes the cases always more favourable.

A public report on BathyBuild will be available before the end of March and will be spread via the WN website (newsflash)

Some questions that have been discussed:

- Has a sensitivity analysis wrt hydrogen price been done? => yes, H2 prices varied from 80-110€/MWh, effect (together with other sensitivities) indicated by error bars in the results graphs
- Hybrid options are also interesting from the security of supply point of view..? Was this considered too in your analysis? => Hybrid heat pump was calculated, but did not seem very interesting due to higher Capex, but the assumptions and opportunities might be studied in more detail
- The KULeuven was recently in the news regarding hydrogen panels and injection in the gas grid.. Is this linked to a follow-up of BathyBuild ? => no direct link, distribution grid would be more logical, but in general several aspects of hydrogen in the gas grid can be tested with the project with Fluxys. All info available on www.solhyd.org

Discussion/Q&A @ presentation Stefan van der Spek, Hyzon Motors Europe

- Last summer, the US company HyzonMotors has founded a EU subsidiary “Hyzon Motors Europe” in Groningen, in partnership with Holthausen Clean Technology.
- Holthausen was already active as a pioneer in hydrogen with a number of fuel cell vehicles (e.g. the H2esla).
- Hyzon has developed a number of trucks, that soon will be available in Europe: Hyzon HyMAX160,-250, -450 depending on the motor power.

Some questions that have been discussed:

- Can you give some idea on the driving range for the 3 different trucks ? => with 30kg H₂ on board we obtain: HyMax-160 with 375 km ; HyMax-250 with 320 km ; HyMax-450 with 280 km standard. If you have the possibility to take more hydrogen cylinders you can extend the total range up to 450/500 km for now
- Are you also looking at liquid hydrogen in the medium term, as an alternative for the 350 bar compressed H₂, for long distance heavy duty trucking? => not on short term
- There was a report by Scania one month ago that they've realized hydrogen heavy-duty vehicles don't have a good business case and they're going to stop investment in it => we believe in hydrogen as a promising route.
- Can you tell something about the type of end-users in NewZeeland ? => More information about the initiative in New Zealand you can find all information on our website: <https://hyzonmotors.com/hyzon-motors-and-hiringa-energy-advance-partnership-to-decarbonize-heavy-road-transport-in-new-zealand/>
- PRHYDE project and ISO will look into a 700 bar heavy duty fuelling protocol. Are you not looking into 700 bar gaseous fuelling? Range would increase considerably => The challenges are the pricing with building heavy duty with higher pressure tanks and also the HRS stakeholders have the challenge. With a lot of offtake with hydrogen under a higher pressure the HRS should adapt to this too. We believe that 350 bar gives a lot of opportunities and we need to accelerate but also establish first. In Germany there is a growing demand for the 700 bar. They have already a lot of 700 bar stations but the question remains if they are ready for heavy duty trucks to take the Hydrogen . But for us it is possible because we also build light commercial vehicles on 700 bar.

News from the WIC/WaterstofNet:

- New employee at WaterstofNet for reinforcement of the WIC support team: Samira Farahani.
- New WIC members since previous cluster meeting in Nov 2020: Sirris, Covess, John Cockerill, Plug Power, G&V, Everfuel, Hima, Hitachi ABB, POM Oost-Vlaanderen, Bureau Veritas
- New working groups on 'Mobility' and 'dissemination of H₂ for the broader public', more news and call for candidates will follow later.
- Overview EU/B/NL/FL funding and open calls has been setup; will soon be available on the WIC portal.
- Coming events
 - **WIC Webinar**
 - **March 25, 16.00-17.30**
 - Subject: EU H₂ organisations, CertifHy + 1 other topic tbc
 - **Cluster meetings 2021, June 2, Sept 8, Dec 8 ,**
 - Wednesday 10.00-12.00 (virtual); 9.30-14.00 (real life)
 - **Meet & Greet event, April 22 (tbc)**