

Waterstof Industrie Cluster: Minutes meeting 08/06/2023 @ Callens Waregem

Agenda:

- 9.30-10.00: Arrival & Coffee
- 10.00-10.05: Welcome (Callens) & WaterstofNet
- 10.05-10.40: New WIC members presentations
- 10.40-11.00: 'Geological (white) hydrogen, the ultimate, disruptive solution?', Peter Driessen, independent geo-scientist/Dhow Energy
- 11.00-11.15: News of cluster members
- 11.15-11.35: WIC news
- 11.35-11.50: Education and training needs in our region (incl. Group poll)
- 11.50-12.10: 'Experiences with the Callens 20MW hydrogen steam boiler in a chemical plant' (Bart Goossens, Vynova)
- 12.10-13.10: Tour Callens factory

New members since last meeting

Intertec, APK-Sicim, Parker, Infra Group, Bosch, KULeuven, Saint Gobain, Stahl/Electromach, Resato, Technogas

Presentation new members:

- **TFC (Tranfurans)** : Wim Van Rhijn
 - Processing of agricultural crop waste into biobased chemicals
 - Consumes H₂ (50 tons/year) to convert furfuryl into furfuryl alcohol
- **Geldof-Engicon** : Pieter Van Acker
 - Transport & storage of bulk liquids, solids and gasses.
 - Supplies pressure vessels and storage tanks for LOHC and ammonia
- **Intertec**: Stephaan Maes
 - Provides solutions for the reliable protection of highly sensitive field instrumentation.
 - For H₂ they supply light-weight fibre reinforced shelter containers for electrolyzers, also for use offshore (protection against corrosion).
- **Kalmar**: Bart Van der Cruysse
 - Supplier of cargo handling equipment (reach stackers, straddle carriers, terminal tractors..)
 - The ambition is too convert their fleet to zero carbon equipment (with a.o. hydrogen).

Keynote: 'Geological (white) hydrogen, the ultimate, disruptive solution?', Peter Driessen

News from cluster members:

Air Liquide: Felix Cock

Air Liquide has recently announced the development of an ammonia cracker on the site of BASF in the port of Antwerp.

SWECO Belgium: Sara Vander Beken

Sweco has been engaged by Fluxys to do the engineering of the first 70 km of the Belgian Hydrogen backbone.

New initiative/working group WaterstofNet – FLAG on hydrogen & aviation: Peter Simkens (VKI)

WaterstofNet and FLAG, the Flemish aeronautic cluster, have agreed to cooperate a few years ago.

Now the plan is to set up a structural working group to identify new collaboration initiatives in different segments:

- Flight Segment
 - LH2 fuel tank
 - Combustion engine
 - Fuel Cells
 - Propellant Management systems (pipes, valves, heat exchanger, pumps...)
- Supply Chain -> how to bring H2 to the aircraft?
 - Production
 - Liquefaction
 - refueling
- Ground Segment -> hard to abate ground support vehicles
 - Tow trucks
 - Crash tenders
 - ...

All WIC members that are interesting to cooperate in this WG, can register themselves by sending a mail to the WIC team. The plan is to start in the last week of August with a first meeting (depending on availability of the interested participants).

WIC/WaterstofNet news & info

- The WIC member database has been launched successfully since March. More than 330 members have registered themselves. However, not many members did take the opportunity to add a company presentation in the database. Also the company description should be updated by several partners.
- At the EU level, different policy decisions/activities have been developed further during the past months: there were a few updates on the concept of the Hydrogen Bank, the AFIR (alternative fuel infrastructure regulation) was adopted in its final form, prescribing a minimum number of fuelling stations in every member state..
- On the Belgian level, the Belgian Hydrogen Council is continuing its activities. The Port of Antwerp-Bruges (Tom Hautekiet) has been chosen as the president of the board.
- In the Netherlands, the new national industry association 'NL Hydrogen', was launched on May 25.
- A few updates are given on the activities of the working groups.
- **WIC events in 2023**
 - **WIC meetings 2023**
 - WIC meeting 3: Thursday 21 sept @ Atlas Copco
 - WIC meeting 4: Thursday 7 dec @ Cummins


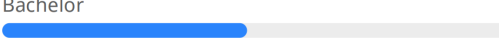

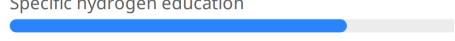
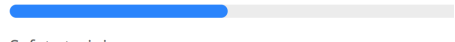

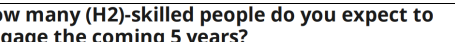

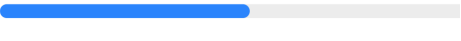




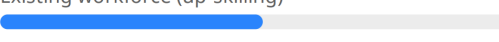


- **WIC/BHC conference** October 16, 2023 in Brussels, Dockx Dome
- **WIC visit NRW** (previsit WN and FIT on June 12-13, 2023, WIC visit postponed to autumn (Nov)
- **Meet & Greet:** to be planned in November
- **Webinars:** if there are proposals for topics, we can organize a webinar
- **Thematic workshops** to be planned in autumn (input is welcome)

Education and training needs in our region (incl. Group poll)

As also discussed during last meeting, WaterstofNet has started to make an inventory of the existing courses/training on hydrogen on different levels of education.

The next step is to make an overview of the main needs from the industry.

In this meeting, we have made a short poll with 7 questions. A number of candidates to dive into this further has come out of this exercise.

<p>What level is most urgently needed?</p> <ol style="list-style-type: none"> 1. Master  2. Bachelor  3. Technician  	<p>How specific are your training needs?</p> <ol style="list-style-type: none"> 1. Specific hydrogen education  2. General technical education  3. Safety training  4. Training on the job 
<p>Is certification an absolute requirement</p> <ol style="list-style-type: none"> 1. No  2. Yes  	<p>How many (H2)-skilled people do you expect to engage the coming 5 years?</p> <ol style="list-style-type: none"> 1. 0-5  2. 5-20  3. >20 
<p>For which type of employees do you have your biggest training need?</p> <ol style="list-style-type: none"> 1. Newcomers  2. Existing workforce (up-skilling)  3. Existing workforce (re-skilling)  	<p>What is the most important topic for your training needs?</p> 
<p>o Would you like to engage in more detailed search for the industrial H2 education needs (name + company)? (8 candidates)</p>	

Keynote 2: Experiences with the Callens 20MW hydrogen steam boiler in a chemical plant' (Bart Goossens, Vynova)

Vynova is using the steam boiler developed by/with Callens, using the hydrogen produced as a by-product in their chlor-alkali production (electrolysis).

The steam boiler is a dual fuel boiler, it can operate on pure H₂, pure methane and on mixtures of both. Having the ability to switch to natural gas is required, since they have chosen not to use any buffer between the H₂ production and the H₂ use. If there is a discontinuity in the hydrogen supply, the boiler has a fall-back option.

Vynova foresees more of these boilers in the future, but looks at own hydrogen production or H₂ import to have sufficient hydrogen for that.

Callens Tour incl. demonstration of the mini-sportscar working on hydrogen, developed by the student team of the VTI in Roeselare, that recently won the third price on the NL championship and will go to Las Vegas for the world champion ship. They need sponsoring for their trip... Warmly recommended.

Present in the meeting

In person

Tim	Theunis	Actemium
Felix	Cock	Air Liquide
Philippe	Alboort	ArcelorMittal Belgium
Chris	Dhulst	Bekaert
Adrien	Theunissen	Besix environment
Tony	Lippens	BIP-ELNEO
Vincent	van Ditshuizen	Bosal Energy
Walter	Van Dael	Bosch Belgium
Jelle	Bauwens	Callens
Bert	De Gryse	Callens
David	Ghettem	Callens
Pieter	Kindt	Callens
Wim	Petrus	Callens
Ivan	Saelens	Callens
Kris	Stappers	Callens
Peter	Vanrobaeys	Callens
Klaas	Verbanck	Callens
Niko	Bonnyns	C-energy
Peter	Driessen	Dhow - Geo-scientist
Kristof	Heyndrickx	Emerson
Wim	Morel	Emerson
Pieter	Van Acker	Engicon
Frank	Volckaert	ERIKS
Jeroen	Dierickx	Ghent University
Josse	Brys	HIMA Benelux
Bart	Van Eyndt	HYLINE - Eiffage Energie Systemes
Stephaan	Maes	Intertec
Bart	Van der Cruysse	Kalmar
Marion	Bechtold	KU Leuven
Hendrik	Cools	Maxon/Honeywell
Frédéric	Noots	MRC Global
Maaïke	Sas	MRC Global
Pascal	Meyvaert	Nippon Gases
Amber	Swinnen	North Sea Port
Steven	Keyzer	OCAS
Steven	Perrault	P&V Panels
Maarten	Asselman	Parker
Maxime	Van Peel	PMV
Georges	Leysen	SEA-Tank Terminal
Mark	Philips	SGS Statutory Services
Johan	De Blicck	Siemens
Wim	Van Den Mosselaer	Siemens Energy

Piet	Van der Biest	Siemens Energy
Caroline	Coorevits	Sodeco
Frederik	Dullaerts	Sodeco
Peter	Smets	SPIE
Geert	Wouters	Stahl/Electromach
Olivier	Bravin	Swagelok
Sara	Vander Beken	Sweco Belgium
Bram	Sezgin	Sweco Belgium bv
Guy	Willemot	Tessengerlo Group
Wim	Van Rhijn	TFC (Tranfurans)
Hans	Hooyberghs	Tialoc
Johan	Dekervel	Total Energies
Guillaume	de Baré	TÜV Austria Belgium
Elisabeth	Prasman	Viessmann
Geert	Celis	Viessmann
Alizé	De Vroey	Virya H2
Sam	Schotte	VIVES Hogeschool
Arne	Vuylsteke	VIVES Hogeschool
Peter	Simkens	von Karman Institute
Bart	Goossens	Vynova
Samira	Farahani	WaterstofNet
Adwin	Martens	WaterstofNet
Stefan	Van Laer	WaterstofNet
Tom	Verlinden	WaterstofNet

Online

Stefan	Wezenbeek	Accelera
Siegbert	Verhulst	Air Products
Rinaldo	Bellingeri	APK Group-Sicim
Joke	Bauwens	ArcelorMittal
Roger	De Vos	Atlas Copco
Mathijs	De Laet	ATS
Sandra	Wauters	BASF
Ted	Straten	Bosal
Bjoern	Van Thienen	Exion
Guy	Verkoeyen	Exion
Hilde	Vanbelle	Fluvius
Victor	Saenz	Fluxys
Wout	Monnens	INEOS Innovyn
Martin	Dorsman	Kelvion
Roy	Niekerk	Kelvion
Wilmar	Martinez	KU Leuven
Veerle	Vandeginste	KU Leuven
Dirk	Vandepitte	KU Leuven

Jan	Rongé	KU Leuven/Solhyd
Pascal	Steiner	LRQA
Mathias	Goris	Luyckx
Pascal	Janssen	Parker Hannifin
Maxime	Peeters	Port of Antwerp-Bruges
Pierre	Faché	Provincie Vlaams-Brabant
Pieter Jan	Jordaens	Sirris
Arjan	Missinne	SWECO
Delia	Riveira Munin	SWECO
Victor	Seynaeve	SWECO
Tom	Van Den Noortgaete	SWECO
Fedrik	Vancraeynest	SWECO
Philippe	Quenon	Tessenderlo Group
Vincent	Mattelaer	Toyota Motor Europe
Lut	Bollen	Vlaamse Overheid
Stefan	Van Laer	WaterstofNet
Liesbet	Vanhoof	WaterstofNet
Franky	Van den Berghe	Willemen Group
Hans	Van Tigchelt	ZIERO

Isabel François

June 8, 2023