

Waterstof Industrie Cluster: Minutes meeting 21/09/2023 @ Atlas Copco

Agenda:

- 10.00-10.05: Welcome by President Oil-free Air Division Atlas Copco
10.05-10.40: New WIC members presentations
10.40-11.00: Guest speaker Markus Hagedorn, H2Pro: E-TAC, a revolutionary hydrogen production method
11.00 11.20: Guest speaker Marjon Castelijns, Darel: Condor project; swappable H2 containers for inland navigation
11.20-11.35: News from cluster members
11.35-11.40: Coming WIC events
11.40-11.45: Break
11.45-13.15: Atlas Copco activities & factory tour (+bus transfer)
13.15-14.30: Network lunch at to Salons Van Edel

New members since last meeting

Van Moer Logistics, Klinger Belgium, H2V, Chiyoda, Bosch NL, IMEC, Soluforce, Nens Power

Presentation new members:

- **Parker** : Kurt De Lannoy
 - Motion & control technologies
 - Components for the hydrogen market : coolers & chillers for e.g. electrolysers, stack seals; in the future also full utility containers for use in electrolysers
- **VK Architects + engineers** : Tom Langerlaert
 - Building projects in different sectors, e.g. living, healthcare, industry, infrastructure
 - Ambition to use green hydrogen in buildings, as alternative for heat pumps in refurbished apartments in densely populated areas.
- **Helicus**: Alexander Roets
 - Supplier of automated drone services/logistics a.o. for supply of hospitals
 - Ambition to establish network for automatic hydrogen refuelling of drones
- **Somarine**: Kathline Versavel
 - Service provider in inland navigation (supply/design of barges ...)
 - Looking for ways to lower emissions of inland navigation, a.o. by green methanol or hydrogen
- **Hyster Yale**: Niek Willems
 - Provider of zero emission port equipment, both battery electric and hydrogen
 - Regarding hydrogen, they work with Nuvera, manufacturer of H2 fuel cells. This results in H2 portfolio with H2 reachstacker & toploader (already in operation) and a H2 empty container handler & terminal tractor (in progress).
- **Euroports**: Matthijs Luyckx

- Port infrastructure operator, mainly handling bulk cargo
- Have 1000+ vehicles (Diesel) that need to be decarbonised with 40% by 2030, possibly using hydrogen.
- **AWE (Associated Weavers)** Michel Van Campenhout
 - Supplier of 'wall to wall' carpet
 - For the drying process a large amount of natural gas is used, which could (partly) be replaced by hydrogen in the future.

Keynote: Markus Hagedorn, H2Pro: E-TAC, a revolutionary hydrogen production method

info@h2pro.co

- Mission: enable affordable green hydrogen this decade
- Breakthrough patented electrolyser technology, with three advantages compared to conventional technology:
 - Very high efficiency (>95%), due to split of the process in a hydrogen generation step (endothermic) and a oxygen generation step (exothermic), that balance out regarding heat production/consumption, such that no external heating or cooling is required.
 - No membrane needed, which makes the production process more robust and easy to manufacture
 - No precious metals, Ni based anode.
- Status: running prototype of 10kgH₂/day; next step is a 0,4MW pilot; upscaling to 25-50MW planned

Keynote: Marjon Castelijns, Darel: Condor project; swappable H2 containers for inland navigation

marjon.castelijns@darel.nl

- The Condor H₂ project facilitates the transition to zero-emission inland and near shore shipping by advancing collaboration across the value chain and remove hurdles that come up when switching to hydrogen-electric ships.
- A plan/ambition for scaling up the number of 100% zero emission ships is proposed, with 15 ships in 2030 and 200 ships in 2050 converted/build.
- One of the important components on the ships is the hydrogen storage on board, which is proposed to be a standardised & containerised solution that can be loaded on the ship and swapped at inland container ports, i.e. the 'tanktainer'.
- Several WIC members are member of the Condor H₂ consortium, either as investor, as H₂ supplier, as Fuel cell supplier, as port or as stakeholder. WaterstofNet is coordinating the work on the tanktainer.
- Regarding the regulation & standardisation of the tanktainer, Condor provides input (industry insights) to the CCNR/CESNI and works with classification societies to discuss the requirements.
- New members in the consortium are welcome, for a certain entrance fee. Within WIC, Tom Verlinden is the contact person

News from cluster members:

Agfa: Nick Valckx

Agfa received funding from the EU ETS innovation fund for the construction of an industrial-scale ZIRFON production facility (GIGA-SCALES project), that will be able to produce membranes for 20GW/year alkaline electrolyzers. The production line is planned to be operational in 2025.

Engie: Koen Vlaeminck

Also Engie received funding of the EU ETS innovation fund, to set up a production unit for synthetic methane (Colombus project) in Charleroi, with 100MW electrolysis from John Cockerill and CO₂ supplied by the Carmeuse Lime factory. The e-methane will be injected in the gas grid, the heat will be used for district heating and the oxygen will be used in the factory of Industeel.

VKI: Peter Simkens

The decision on the location of the VKhylab has been made. There will be two locations, i.e. Antwerp (Next gen district) and Charleroi (Clean district) , each with their own focus area.

News from WIC/WN

- Bert De Colvenaer is the new CEO of WaterstofNet. Adwin Martens takes up the function of Corporate Strategic Officer.
- Events for Oct/Nov /Dec:
 - **WIC meeting 4: Thursday 7 dec @ Cummins, Oevel Belgium**
 - **WIC/BHC conference** : October 16 in Brussels !!
 - **WIC visit NRW** : 08/11 - 09/11
Extended registration deadline : 29/09
 - **Hydrogen Academy** : 25/09 – 20/11
 - **Webinars:**
 - 28/09 topics for coming call Clean Hydrogen JU
 - 02/10 Roadmap H2 Import Coalition
 - **EU Hydrogen week** (Brussels) : 20/11 – 24/11
- On the topic of Skills & education in H₂, the analysis of industrial needs has been discussed in a workshop with a number of WIC members. **A more general questionnaire will be sent around to all WIC members.**

Atlas Copco visit.

Present in the meeting
In person

Tim	Theunis	Actemium
Marc	Van der Linden	Actemium
Thomas	Van Damme	Actemium
Nick	Valckx	Agfa Gevaert
Felix	Cock	Air Liquide
Christophe	Galimont	Air Liquide
Roel	Michaux	Amadys
Koen	Christianen	Anglo Belgian Corporation
Wouter	Everaerts	APK group
Philippe	Alboort	Arcelor Mittal
Joke	Bauwens	Arcelor Mittal
Roger	De Vos	Atlas Copco
Hans	Magits	Atlas Copco
Jef	Verelst	Atlas Copco
Kjel	Van Lint	Atlas Copco
Mercedes	Hernandez	Atlas Copco
Michel	Van Campenhout	AWE (Associated Weavers)
Bert	Vanpee	B.I.P. Elneo
Jasper	Jansen	Ballast Nedam
Rutger	Leenknecht	BASF
Sam	Khaki	Bekaert
Chris	Dhulst	Bekaert
Adrien	Theunissen	Besix Environment
Daniel	Van De Gucht	Besix Environment
Ted	Straten	Bosal
Caro	Roeffen	Bosch
Patrick	Bakker	Bureau Veritas
Steven	De Bruyn	Bureau Veritas
Roman	Latsuzbaia	Bureau Veritas
Danny	Vancoppenolle	Bureau Veritas
Pieter	Kindt	Callens
Jasper	Smets	Chevron Phillips Chem.
Tony	Vanswijgenhoven	Covess
Stefan	Wezenbeek	Cummins
Marjon	Castelijns	Darel
Bart	Verboomen	Deme
Tony	Lippens	Elneo
Wim	Morel	Emerson
Erwin	Theys	Eneria
Bob	Van Schoor	Engie
Koen	Vlaeminck	Engie

Guy	Verkoeyen	Exion hydrogen
Björn	Van Thienen	Exion hydrogen
Jeroen	Schmidt	Eriks
Steven	Gagelmans	Euroports
Matthijs	Luyckx	Euroports
Frederiek	Patoor	Geldof
Patrick	Van Bortel	H2V
Alexander	Roets	Helicus
Jorgen	Oorts	Hima
Axel	Puystiens	Hima
Markus	Hagedorn	HPro
Roy	Neha	Hyster Yale
Niek	Willems	Hyster Yale
Stephaan	Maes	Intertec
Peter	Gysen	Intertek
Erwin	Caljon	KBC Bank
Ben	Roels	KDG Hogeschool
David	Dierickx	Klinger
Bert	Dirix	KU Leuven
Jan	Rongé	KU Leuven
Dirk	Vandepitte	KU Leuven
Pascal	Steiner	LRQA
Niels	Tobback	Messergroup
Christian	ter Horst	Nedstack
Arnoud	van de Bree	Nedstack
Sylvain	Demolder	Nenspower
Arie	Meerkerk	Newes
Pascal	Meyvaert	Nippon Gases
Charlotte	Herman	North Sea Port
Steven	Keyzer	OCAS
Koen	Pellaers	P&V Panels
Kurt	De Lannoye	Parker
Pascal	Janssen	Parker
Koen	Van den Brande	Polders Investeringsfonds
Jeroen	Heerink	R.Stahl
Sato	Hirota	Saint-Gobain Omniseal Sol.
Mark	Philips	SGS
Geert	Van Overloop	Shipster
Johan	De Blicck	Siemens
Wim	Van Den Mosselaer	Siemens Energy
Piet	Van der Biest	Siemens Energy
David	Gay	Sirris
Joris	Van Dyck	Solenco Power
Hugo	Vandenborre	Solenco Power
Amedée	Somers	Somarine
Jean	Aerts	SPIE

Peter	Smets	SPIE
Geert	Wouters	Stahl Electromach
Sam	Eeman	Stahl
Filip	Leonard	Storm
Olivier	Bravin	Swagelok
Piero	Wattier	Swagelok
Davy	Didden	Sweco Belgium
Floris	Mariën	Sweco Belgium
Wouter	Wittevrongel	Sweco Belgium
Laurent	Femont	Technogas
Guy	Willemot	Tessengerlo Group
Stefaan	Janssens	Tialoc
Guillaume	Lassaux	Tractebel Engie
Loïc	Roosens	Tractebel Engie
Wim	Van Rhijn	Transfurans
Anja	De Jonghe	TUV Austria
Arjen	Mascini	UGent
Kobe	Van Doorselaere	Van Moer Logistics
Tine	Van Proeyen	Van Moer Logistics
Ruud	Bouwman	VDL
Marijn	Van der Linden	VDL
Merlijn	Erbuer	Virya H2
Tom	Langerart	VK Architects & Engineers
Peter	Simkens	von Karman Institute
Sander	Ram	VVM De Lijn
Bert	De Colvenaer	WaterstofNet
Isabel	François	WaterstofNet
Davine	Janssen	WaterstofNet
Chris	Lefrère	WaterstofNet
Adwin	Martens	WaterstofNet
Stefan	Van Laer	WaterstofNet
Liesbet	Vanhoof	WaterstofNet
Tom	Verlinden	WaterstofNet
Tim	Theunis	Actemium

Online

Lieve	Van Bellinghen	Air Products
Vince	White	Air Products
Rinaldo	Bellingeri	APK group-Sicim
Eric	De Coninck	ArcelorMittal
Elaine	Lippens	Artevelde Hogeschool
Pieter	De Raemaeker	Atlas Copco
Mathijs	De Laet	ATS
Rene	Peperkamp	Croonwolter&Dros

Sander	Ram	De Lijn
Herman	Van Damme	G&V
Alain	Hanneuse	Ineos
Frederik	Van Praet	Jan De Nul
Roy	Niekerk	Kelvion
Martin	Dorsman	Kelvion
Bart	Van Duffel	KULeuven
Marion	Bechtold	KULeuven
Dirk	De Keulenaer	Messer Group
Vincent	Schouten	Nedstack
Steven	Perrault	P&V Panels
Tom	Baur	POM West-Vlaanderen
Mark	Philips	SGS
Pierre	Fache	Smart Hub Vlaams Brabant
Caroline	Coorevits	Sodeco Valves
Olivier	Bravin	Swagelok Belgium
Piero	Wattier	Swagelok Belgium
Fedrik	Vancraeynest	SWECO
Johan	Dekervel	TotalEnergies
Yassine	Makhoukh	Toyota Belgium
Vincent	Mattelaer	Toyota Motor Europe
Marc	Meeus	Umicore
Nicole	Schichtel	Umicore
Lut	Bollen	Vlaamse overheid-EWI
Liesbet	Vanhoof	WaterstofNet
Stefan	Neis	WaterstofNet

Isabel François
September 22, 2023