Power to Gas cluster: Minutes meeting 18/09/2019 @ OCAS

Present: Bart Goddyn (Aspiravi), Frank Taelman (Siemens), Vincent Vancaeyzeele (Fluvius), Roy Van Son (Air Liquide), Hans Magits (Atlas Copco), Jonas Cautaerts (Colruyt), Ben Cornelis – Jamie Knoop (E-trucks), Kristof Vanhoorne (Luminus), Michiel Jeremiasse (Suez), Nick Valckx (AGFA), Nicolas Gielis (Fluxys), Koen Van den Brande (Polders Investeringsfonds), Steven Keyzer -Marc Vanderschueren- Filip Van Den Abeele -Elke Leunis – Laura Moli Sanchez (OCAS/Arcelor), Koen De Gussemé (Infrabel), Bruno Geltmeyer (Denys), Dimitri Van Den Borre (Tractebel), Paul Schroé (MBZ), Benjamin Huybs (Nike), Jan Rongé (Cokat), Annelies Gorissen (POM Limburg), Roy Campe (CMB), Christophe Leroy (Remeha), Bart De Borle (Farys), Tim Maeyens (Terranova Solar), Frank Verschraegen (Deme), Koen Vlaeminck (Engie), Bart De Caesemaeker (VLAIO), Isabel François- Adwin Martens (WaterstofNet).

Alfons Krom (Gasunie).

Agenda:

10.00-10.20: Introduction & Presentation new cluster members
10.20-10.40: Cluster news & Status Hyflow *(WaterstofNet)*
10.40-11.25: Hydrogen in an existing natural gas pipeline, which aspects to deal with? *(Alfons Krom- Gasunie, NL)*
11.25-11.45: Status "Hyoffwind: Industrial scale power-to-gas connected to offshore wind energy *(Nicolas Gielis, Fluxys)*
11.45-12.15: OCAS-Applied R&D related to Hydrogen *(Steven Keyzer, OCAS)*
12.15-12.45: Visiting Tour OCAS
12.45-13.30: Sandwich lunch

Content:

@ Presentation of new cluster members
Farys, Remeha en Nike have presented their activities & interest in hydrogen.

- **Farys** is a drinking water utility company in Gent, manages sewerage infrastructure and is also building sports & recreation infrastructure and services for public partners.
  They join the PtG cluster because they want to monitor all possible sustainable alternatives for their high energy consumption.
- **Remeha** is developing H2 boilers and WKK and is already involved in a few test projects in the NL. They join the PtG cluster because they look for interesting test cases for their concepts and want to connect with hydrogen production projects.
- **Nike** has several large logistic centres for the handling of their sporting goods. They join the PtG cluster because they see hydrogen as a possible way to make their distribution centres

more sustainable, i.e. by greening the logistic transport on the sites, possibly with on-site produced renewable energy and hydrogen.

@ Cluster news

- Results are presented of the questionnaire that has been sent in the beginning of July. Feedback was asked on the duration and content of the meetings, the need for information sharing via newsletters, the need for cluster-broad working groups and the participation in a steering group.
  The main conclusions were:
    - There is need for more specific information about technology, projects and worldwide evolutions. The quarterly meeting is too limited in time to fulfil this need.
    - There is a wish for more informal contacts between the members.
    - There is interest in working groups on technical topics, business cases etc..
    - One conference/year and one visit of an international PtG project is desired.
    - More profiling of the hydrogen industry towards authorities is needed

  To fulfil the need, WaterstofNet proposes the following:
    - Extend the 3-monthly power-to-gas meeting with an afternoon session (2/year), with Technical topics, Project presentations, Smaller interactive sub-sessions. Start in Dec. 4 PtG meeting.
    - Send out a newsletter 4/year with info about worldwide projects - products – studies and news from cluster members.
    - Continue the policy team; visit the relevant cabinets once the FL government has been established.

  Remarks from the group:
    - Regarding policy activities, towards EU advocacy is done by Hydrogen Europe which is more powerful => cluster policy activities are only focused on national/regional level
    - There is already an large number of discussion groups available on several hydrogen topics, on different levels and within different organisations. The focus should be on creating projects rather than on working groups.

- Legislation-advocacy activities:
    - Last year a policy paper on the REDII implementation in Belgium, a memorandum on hydrogen and recommendations for the National Energy & Climate Plan have been sent to federal and regional representatives.
    - In the coming months, a visit to representatives from the cabinets and relevant energy-related working groups will be organised, once the new Flemish government is installed.
- Coming events:

- Workshop **permitting hydrogen fuelling stations (VL/NL)** **November 2019** (within WaterstofRegio project)
- **WaterstofRegio conference** **November, 14** @ Den Bosch, Provinciehuis
- Next **clustermeeting** **December, 4** @ Plastic Omnium Brussels

@ Status Hyflow project

- *Hyflow ="creating the flow of hydrogen between Flanders – The Netherlands (Low Lands), facilitated by the ports"*
- The project idea "Hyflow" plans to develop a future "hydrogen corridor" between Zeebrugge and Groningen using existing pipelines, connecting ports, as the backbone for a green hydrogen economy. The option of including part of Germany into the scope is being discussed at the moment.
- At this moment, the project idea is mainly being developed by a consortium composed by the gas transport operators Fluxys and Gasunie and by the 6 ports in the Hyflow region: Groningen, Amsterdam, Rotterdam, North Sea Port, Antwerp and Zeebrugge. Once the setup is more clear, a large number of related project ideas will be connected to it and other companies will join.
- The project idea has been selected by Hydrogen Europe as a possible candidate for being an IPCEI (Important Project of Common European Interest). The submission of the IPCEI proposals is foreseen for April 2020, and must be fully supported by the member state.
- An IPCEI is not bringing direct funding, but allows a project to combine all types of funding up to 100% of the extra costs, without being limited to a certain percentage by state aid rules.
- The next step in the process is the "Hydrogen 4 Climate Action conference" which will be held at the EU, where 6 possible Hydrogen IPCEI candidates will be presented for the EU commission. Hyflow is one of these 6.

@ Hydrogen in an existing natural gas pipeline, which aspects to deal with?
(Alfons Krom- Gasunie, NL)

- Gasunie, or more specifically a daughter-company of Gasunie, is operating a pipeline, that has been converted from natural gas to mainly H2 (80%), between the companies Dow and YARA.
- Gasunie has studied all possible material effects of transporting hydrogen in this pipeline (H2 attack, H2 induced cracking…) and has concluded that operation under similar conditions as for natural gas is possible with hydrogen. Some operating conditions, e.g. pressure changes, are more critical with H2 w.r.t. crack growth, but can be controlled.
- Risk contours around the pipeline are larger if the same calculation methods as today are used. The calculation method is currently under investigation.

- Fluxys (Nicolas) points out that they calculate for H2 with a maximum pressure that is 1/3 of the yield strength of the specific pipeline whereas for Natural gas they allow a pressure of 2/3 of the yield strength. Alfons replies that this is dependent on the purity of the steel.

@ Status "Hyoffwind: Industrial scale power-to-gas connected to offshore wind energy ***(Nicolas Gielis, Fluxys)***

- The project Hyoffwind is a collaboration between Fluxys, Parkwind and Eoly (Colruytgroup); to investigate the feasibility of an industrial scale PtG project in the port of Zeebrugge. The outcome of the feasibility study is foreseen in 2019.
- Several challenges are identified:
  - On the legislative side, injection of H2 is not possible yet in Belgium and there are no standardisation agreements yet with neighbouring countries.
  - For concentration of >2% H2 in the natural gas grid, some gas grid components and applications need modification.
- The main challenge however is the business case; since electricity is significantly more expensive than natural gas, the case for power-to-gas is a difficult one. Grid balancing revenues can improve the case to some extent but the question is whether that revenue is sustainable the coming years.
- A support scheme for injection of hydrogen in the natural gas grid will be required.

@ OCAS-Applied R&D related to Hydrogen ***(Steven Keyzer, OCAS)***

- OCAS is an R&D partner for hydrogen. It is specialised in testing & modelling (simuations) of the interaction of hydrogen and metals. (https://www.ocas.be/expertises/hydrogen-interactions/)
- OCAS is part of the FINOCAS group, a joint-venture between the Flemish Region and Arcelor Mittal Belgium. OCAS is the research centre of Finocas; Finindus is the is its investment company. Finindus is an important shareholder in two other H2 related companies, i.e. Power cell Sweden, that develops and produces fuel cell stacks and systems, and Borit, the Flemish company that supplies bipolar plates for fuel cells.
- OCAS organises the Steel & Hydrogen conferences, of which the next edition is in 2021.
- OCAS is specialised in pipeline mechanics and the H2 induced cracking and stress corrosion cracking tests.
- In the R&D program of OCAS/R&D, topics are included related to hydrogen distribution (pipelines) and hydrogen storage (pressure vessels).
- OCAS is currently involved in a few funded projects related to hydrogen:
  - Hydramicros, hydrogen sensitivity of different advanced high strength microstructures
  - Low cost, high strength Gradient Structure Ferritic Steel for Hydrogen storage pressure vessels. (with a.o. GE research)

At the end of the meeting, the cluster members can join a tour in the laboratories of OCAS