Forum Hydrogen
Business For Climate

Belfort,
29-30 Sept. 2021

PRESS
PACK

EDITORIAL

"With the first Hydrogen Business For Climate Connect event last January, we demonstrated our ability to bring together all the enthusiasm and expertise that exists around this energy vector, which is one of the keys to the now inevitable energy transition.

Today, the main regional stakeholders from the hydrogen sector in Bourgogne-Franche-Comté share a single ambition: bolstering their position as the leader in France. Our expertise is now well-known and that is thanks to the visionaries who, some 20 or so years ago, had the insight to foresee what is now happening. We some key achievements to them, such as the set-up of a component certification centre, the creation of a tank production unit and the acquisition of the first H2 trains in France, among others.

With each passing day, more companies, industrialists and researchers are joining us, having clearly identified the opportunities we offer. But we need to keep moving forward and aiming higher!

In France's leading industrial region – the cradle of technological innovation – hydrogen is an incredible opportunity to bring new life to our industrial centres. To achieve this, the region has released €100 million to support public and private initiatives and investments. However, the success of the ecological transition and the creation of a powerful industrial sector also means building a hydrogen-driven Europe. With its expertise and geographic position, a region like ours must become a key agent in this project, by forging cross-border relationships with decision-makers, political leaders and businesses.

Combining our know-how with these relationships may well be decisive. And an event like the Hydrogen Business For Climate Forum is an opportunity to further develop these ties".

Marie-Guite Dufay
President of the Bourgogne-Franche-Comté Regional Council

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PROGRAMME

The Hydrogen Business For Climate Forum is being held in Belfort and online.

Wednesday 29 September

08:30-10:00	**Welcome around a coffee** – Exhibition area
10:00-11:00	**Opening plenary**
	> Hydrogen: a commitment for the future of the energy transition – Auditorium
11:00-12:30	**Plenary**
	> A holistic approach to mobility – Auditorium
12:30-13:45	**Lunch** – Exhibition area

13:50–16:00	**Exhibitor and demonstrator area** (indoors and outdoors) – Exhibition area
	B2B meetings – B2B area/Stands/Online
14:00–15:00	**Workshops**
	> Stationary applications – SCHWEITZER LOUNGE > Regulatory aspects along the entire value chain – GIDE LOUNGE > Technologies for using hydrogen – CAMUS LOUNGE
15:00–16:00	**Coffee break** – Exhibition area
16:00–17:30	**Plenary**
	> Industrialisation in "Giga" Mode > Industrialisation in Giga Mode - Auditorium
17:30–18:10	**Plenary**
	> Mike Horn: Keynote speaker – Auditorium
19:30–22:00	**Networking dinner** – Exhibition area

PROGRAMME

Thursday 30 September

08:15-9:00	**Welcome around a coffee** – Exhibition area
09:00-09:30	**Day 2 opening plenary** Auditorium
09:30-11:00	**Plenary** > Hydrogen energy: production/storage/distribution - Auditorium
11:00-11:30	**Coffee break** – Exhibition area
11:30-12:30	**Plenary** > Developing stationary applications
12:30-13:45	**Lunch** – Exhibition area

13:45-16:15	**Visit** of FAURECIA Clean Mobility
14:10-16:45	**Visit** of H2SYS & FC LAB
13:50-16:30	**Exhibitor and demonstrator area** (indoors and outdoors) – Exhibition area
	B2B meetings – B2B area/Stands/Online
14:00-15:00	**Workshops**
	> Aeronautics – SCHWEITZER LOUNGE > Industrial hydrogen – GIDE LOUNGE > Waterway-based applications – CAMUS LOUNGE
14:15-16:45	**Visit** of FAURECIA Clean Mobility
15:00-15:30	**Coffee break** – Exhibition area
15:30-16:30	**Workshops**
	> The jobs of tomorrow – SCHWEITZER LOUNGE > Production and storage technologies – CAMUS LOUNGE

PLENARIES

PLENARY 1
Hydrogen, a key component for the energy transition

With €470 billion committed by the European Commission and some ambitious plans (€9 billion for Germany, €7 billion for France), hydrogen is now undeniably seen as a key component of the energy transition.

In fact, it is a priority area in the Green Deal promoted by Brussels. Although some continue to pit this energy vector against battery-powered electric systems, a project of common interest (IPCEI) has now been launched for hydrogen, involving 22 countries.

Going beyond issues of sovereignty, the aim is to facilitate the emergence of world-class industrial concerns to play a leading role on the markets.

Europe has to establish its position against competitors such as China, South Korea and Japan – countries that have clearly made hydrogen a priority and have taken the lead in this field.

The question is to work out how local initiatives (for example, in France, Bourgogne-Franche-Comté with its strong ambitions and expertise built up over 20 years) can tie in with the national strategies developed by a growing number of EU countries and the various European bodies. The regions have a role to play. They may even decide to work together, whether at a national or even international level.

PLENARY 2
A holistic approach to mobility

Hydrogen is complementary to battery technology and can meet immediate requirements to decarbonise transport. The first vehicles are already on the road, but it is in the heavy mobility sector, especially utility vehicles, buses and lorries (refuse collection vehicles and goods transport) that this energy vector is most likely to develop. Hydrogen offers greater driving range and refuelling takes just minutes.

It can also be used in the rail sector, as an alternative to diesel on non-electrified lines. This is the avenue pursued by Germany. Other countries like the UK, Austria, Italy and France are also looking into this mode of transport. Hydrogen is being explored for air transport too: for example, the French aeronautical recovery plan has set the goal of developing a hydrogen-powered Airbus by 2035. Regional planes and drones will also fly using this form of electrification.

Meanwhile, the maritime sector, which wants to halve its carbon footprint by 2050, is ready to adopt hydrogen. From river barges to cruise liners and ferries, this technology will be setting sail.

Stakeholders supplying hydrogen fuel cells and tanks are now overhauling their organisation. They are seeking to serve these mobility sectors, sometimes combining their offering with refuelling stations. This all-round development should help reduce costs more quickly and encourage the emergence of a shared distribution network.

PLENARIES

PLENARY 3
Industrialisation in Giga Mode

Building on the example of the battery factories – which are expected to relocate cell production too long left to Asia – Europe needs to develop the resources to mass produce fuel cells, tanks and, of course, electrolysers to produce renewable hydrogen. It is time to switch to Gigawatts.

As projects are being developed with potential qualification for the IPCEI (Important Project of Common European Interest) launched by the European Commission, what is the strategy of the industrialists? What role can start-ups play when they offer innovative processes that can also be deployed on a large scale? How do these projects fit in with the roadmaps produced by the regions and countries?

This round table will review the projects underway and the possibilities for cooperation between states. Countries with abundant natural resources are looking to transform this energy into hydrogen and contribute to a zero-carbon society.

The session will also highlight the value in reindustrialising Europe and putting an end to our dependency on other continents (as seen with the semiconductor crisis that continues to impact certain sectors).

PLENARY 4
Hydrogen energy production/storage/distribution

Clear priority is given to hydrogen from renewable energies. A number of projects based on wind and solar energy are being developed to obtain green electricity and thus ensure more virtuous electrolysis. There are even systems to connect wind turbines directly to electrolysers to increase efficiency.

Once obtained, this hydrogen can be injected into existing infrastructure such as gas networks. Operators are also keen to adapt their pipelines to distribute the hydrogen more efficiently, which is then mixed with natural gas.

Hydrogen can also be supplied via short distribution channels. For example, a station attached to a plant that produces renewable hydrogen, or that itself produces hydrogen on-demand with an electrolyser. In terms of storage, hydrogen is generally available in a gaseous state (high or low pressure) or in liquid form. One original form of storage is using underground salt caverns down to a depth of 2,000 metres. The hydrogen is confined in impermeable layers of salt.

WORKSHOPS
IN ENGLISH

WORKSHOP 1
Regulatory aspects along the entire value chain

Facilitated by Laurent Meillaud (journalist specialising in H2 and Mobility)

Regulatory change is essential for the development of hydrogen. This may involve, for example, including hydrogen in the mix of renewable energies, with quantified commitments towards carbon-free production and a certificate of origin.

This is happening in France, in the industrial sector, with a 10% share in 2023 and between 20% and 40% in 2028. At both local and European levels, regulations must be adapted to facilitate the installation of hydrogen refuelling infrastructure, in compliance with safety standards.

Transport and storage are also impacted by the regulations, which may eventually authorise hydrogen injection into the existing gas grids in mixture form.

WORKSHOP 2
Stationary applications

Facilitated by Heathcliff Demaie (Hydrogen and Energy project manager, University of Lorraine)

Making the most of renewable energies is the *raison d'être* of hydrogen technologies. Apart from the industrial and transport applications, hydrogen is also developing in sectors such as residential and commercial property and IT. Serving as a backup generator or supplying electricity and heat to off-grid areas, hydrogen will play a role in decarbonising what are known as stationary applications.

What are these stationary applications? What is the technical and commercial viability of these projects? What factors are key to the successful roll-out of these technologies? These are the kinds of questions we will address in this workshop.

WORKSHOP 3
Technologies for using hydrogen

Facilitated by Bruno Jamet (Head of Energy and Propulsion, Pôle Véhicule du futur)

Hydrogen is a versatile energy vector able to meet multiple requirements (heating, electricity storage and production, conversion to mechanical energy, etc.). One of the key elements in this conversion is the hydrogen fuel cell – with it, electricity, heat and steam can be produced from hydrogen.

Other technologies are currently undergoing promising development, including hydrogen combustion engines.

The fuel cells are built into a "system" where the auxiliary systems, such as the air loop, cooling, hydrogen loop, power electronics and so on, play a fundamental role.

The race is on to meet mobility needs, particularly heavy mobility, where high-power cells are required to drive lorries, trains and ships, as we await the possibility of onboard integration for aircraft.

WORKSHOP 4
Industrial hydrogen

Facilitated by Heathcliff Demaie (Hydrogen and Energy project manager, University of Lorraine)

It is difficult to eliminate carbon from certain sectors such as the chemical, cement and steel industries, but they could benefit from the use of hydrogen in their processes, on condition that the hydrogen production is low carbon. This can be achieved using water electrolysers powered by renewable energy. The efficiency and availability of these installations are increasing and the European Commission's target for 2024 is to support the installation of at least 6 GW of low-carbon hydrogen electrolysers, equivalent to 30 times current capacity. The next step involves initiatives linking Europe, North Africa and Ukraine, for 2x40 GW. Alongside heavy transport, industry is one of the targets of this strategy.

Production, transport, storage, processes. What are the main applications of low-carbon hydrogen in the industrial sector? Where are these technologies at currently, in technical and economic terms? How can we secure these innovative projects that require significant investment? These points, and others, will be discussed by our experts.

WORKSHOPS

WORKSHOP 5
Waterway applications

Facilitated by Daniel Hissel (Vice-President, University of Franche-Comté, Deputy Director of the French National Hydrogen Network (FRH2 CNRS), head of the SHARPAC, FEMTO ST research team)

In the heavy mobility category, ships will also increasingly integrate hydrogen. There are projects for reducing the carbon footprint of ocean liners and for ensuring zero-emission navigation in the fjords of Norway or in submarine mode, so the waterway sector is likely be one of the first fields of application.

As an alternative to diesel, hydrogen fuel cells could be integrated into shuttle boats or barges for transporting goods. Boats like these already exist in France. Another application is shore power, where the fuel cell can provide electric current.

Both waterway and maritime projects are popping up all over Europe.

WORKSHOP 6
Production and storage technologies

Facilitated by Bruno Jamet (Head of Energy and Propulsion, Pôle Véhicule du futur)

Renewable hydrogen can be produced by water electrolysis with electricity, but also with a range of other processes such as pyro-gasification and thermolysis. The latter process uses wood chips, which are natural and renewable, as a raw material. The specific conditions of each project determine the most relevant solution.

Once produced, the hydrogen needs to be stored. This is where the tank manufacturers step in. One of the leaders in this field is French company Faurecia, an automotive supplier that has started to assemble this kind of product for Hyundai lorries in Switzerland, for example. Underground caverns, in the gas networks, can also be used for storage.

WORKSHOP 7
The jobs of tomorrow

Facilitated by Daniel Hissel (Vice-President, University of Franche-Comté, Deputy Director of the French National Hydrogen Network (FRH2 CNRS), head of the SHARPAC, FEMTO ST research team)

We need to prepare now for future hydrogen-related jobs.

This is already happening in Belfort, where a specialised Master's degree is available for engineers. However, it is also necessary to help technicians in the transport sector (buses, lorries and soon cars) to adapt, since they will be required to carry out maintenance (on vehicles and stations).

This workshop will review the needs to be met and the profiles of new jobs created.

WORKSHOP 8
Aeronautics

Facilitated by Christophe Turpin (CNRS Director of Research at the Laplace Laboratory)

As the first fuelling stations are being installed in French airports (and soon in the Netherlands), initially to supply buses and other land-based vehicles, the aeronautical sector is working on its hydrogen conversion.

At first considered for power generation onboard aircraft, since the Covid crisis and the aeronautics recovery plan, hydrogen is now being considered for propulsion applications.

This revolution will affect small passenger aircraft as well as airliners. For example, Airbus is working on a hydrogen-powered aircraft for 2035.

Alongside hydrogen production and fuel cell capacity, tests and regulations are also key issues.

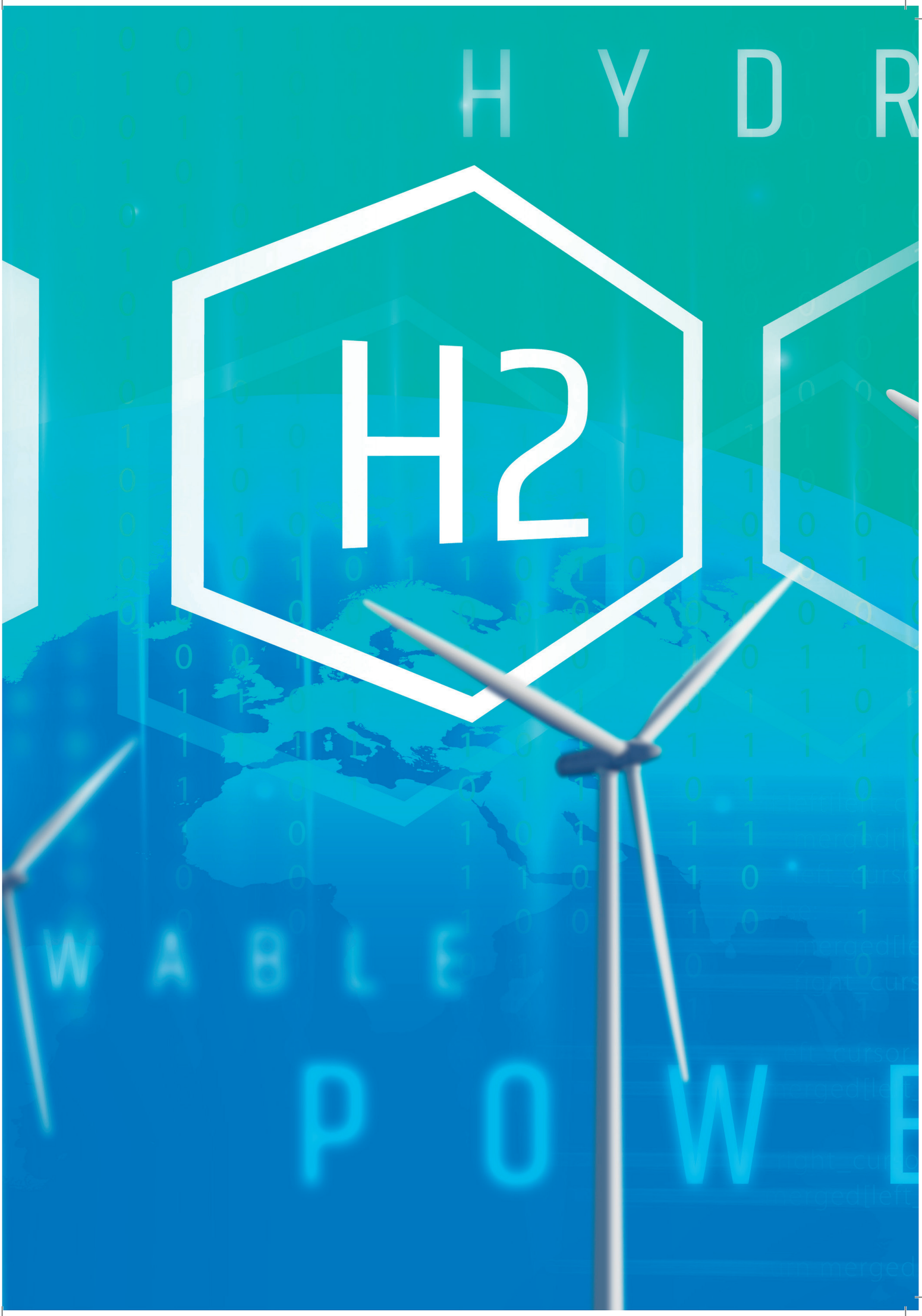
PLENARIES

PLENARY 5
Developing stationary applications

Hydrogen is used to supply electricity to installations far from the grid, such as mobile phone relays in some countries or mountain huts. It can also be mixed in gas pipelines (up to 20%) for cooking or heating.

Another approach is to integrate a hydrogen fuel cell into boilers. Obtained from natural gas, hydrogen can then be used for heating and hot water with no CO_2 emissions. Eco-neighbourhoods are popping up all across Europe, where positive energy buildings use photovoltaic sensors to produce electricity, and any surplus can then be converted into hydrogen to fuel mobility needs. Locally, Belfort-based start-up H2SYS produces hydrogen-powered generators.

These are used to supply energy to construction sites as well as outdoor sites for sports events or concerts. Larger generators can take over in the event of a power failure in sensitive facilities such as hospitals and data centres.


H Y D R
H2
W A B L E
P O W E

EXHIBITORS

Our GOLD partners

- Alstom
- EDF
- ENGIE
- McPhy
- Rougeot Energie

Our PLATINUM partner

- faurecia inspiring mobility

- ALCRYS
- Apsys
- Avions MAUBOUSSIN
- Banque des Territoires
- DAM Group
- DYG Energy
- Emerson
- FillnDrive

Gaussin

CITELE GROUP

HEXAGON Purus

FEMTO-ST Institute

KST Motorenversuch GmbH & Co KG

Lhyfe

Mob'Hy

ODZ CONSULTANTS

Powidian SAS

Schrader Pacific Advanced Valves

STREIT Groupe

University of Franche-Comté

University of Lorraine

Belfort-Montbéliard University of Technology

Xydrogen

GUESTS AND SPEAKERS

Mike HORN
Keynote Speaker

Acknowledged as one of the greatest adventurers of our times, Mike Horn has teamed up with Cyril Despres, Vaison Sport and a team of researchers from the CEA to develop the "GEN Z0146" project with the sole purpose of winning the Dakar rally raid in 2023 with water vapour as the sole emission, thanks to a hydrogen fuel cell. He will share his experience of the 2021 Dakar, in which he took part to collect key information on exploiting the necessary capacity and performance from a vehicle to enable the "GEN Z" car to challenge its ICE-powered rivals.

"Protecting the planet to leave a future for the younger generation"
29 September, 17:30.

Nicolas Aumar
Division Director
ROUGEOT ENERGIE

Stéphane Aver
Chairman and CEO
Aaqius

Lucas Bertrand
Business Development Manager
ITM Power

Christian Bestien
Business Development Manager
Haffner Energy

Bart Biebuyck
Executive Director
FCH JU

Philippe Boucly
President
France Hydrogène

Jean-Marie Bourgeais
President
POWIDIAN

Thierry Breton
European Commissioner
for the Internal Market
European Commission

Linda Brussaard
Electrical Systems Expert
EASA

Damien Buet
Vice-President
Zero Emissions Division
Faurecia

Cécile Cohas
Innovation & Research
Manager
Voies navigables de France

Christophe de Fitte
Managing Director
BDR Thermea France

GUESTS AND SPEAKERS

Julien Étienne
Managing Director
EKPO

Sébastien Faivre
CEO and Co-Founder
H2SYS

David Fernandes
Business Strategy & Development
Microsoft Corporation

Capella Festa
Chief Operating Officer
Genvia

Pierre-Étienne Franc
Co-Founder and General Manager
Five T Hydrogen Invest Fund

David Gallezot
President and Chief Technical Officer
Avions Mauboussin

Max Gantet
Project Leader
Bouygues Energies & Services
BU Smart Energies

Christophe Gaussin
CEO
GAUSSIN

Mohammed Ghazali
Secretary General
Ministry of Energy, Mines and Environment/Energy and Mines department

Matthieu Guesné
Founder
Lhyfe

Roland Hequet
VP Hydrogen Strategy & Origination
John Cockerill

Jacques Hoffner
Business Development Director
Zero-Emissions Division
Faurecia

David Holderbach
Chairman
HYVIA

Franz Huber
Strategic Product Platforms
Linde Material Handling GmbH, KION Group AG, ITS EMEA, Fenwick

Stéphane Kaba
Smart & Green Mobility Director
Alstom

Carina Krastel
Commercial Director at European Green Hydrogen Acceleration Center (EGHAC)
EIT InnoEnergy

Jérémie Lagarrigue
Managing Director
EODev

Yane Laperche Riteau
Business Development Director
Ballard Power Systems Inc

Chris Lefrère
Hytrucks Project Manager
WaterstofNet

Bruno Lestrade
Industrial Customer Account Manager & mosaHYc Project
GRTgaz

Peter Mackey
Vice-President
Strategy & Policy Support
Air Liquide Hydrogen Energy

El Amine Mernissi Cherigui
Research Engineer
APERAM

Ignacio Morandé
ProChile Director
Embassy of Chile

Nenad Nikolić
Business Development Manager
McPhy

GUESTS AND SPEAKERS

Martin O'Neil
Vice-president of Product Management, Head of the GE Decarbonisation Centre
GE Gas Power

Yohann Perrot
Business Development, Marketing and Product Manager
Busch Clean Air

Julien Poillot
Director of Innovative Projects
VICAT

Caroline Poulet
Hydrogen Operations Officer
ENGIE Solutions

Luc Poyer
CEO
McPhy

Cécile Prévieu
Deputy Managing Director
ENGIE

Philippe Rosier
Managing Director
Symbio

Christelle Rouillé
Managing Director
Hynamics

Dominique Sadoul
Advanced Powertrain & Energy Vice President
STELLANTIS

Dr-Ing Schaadt Achim
Head of
Thermochemical Process
department
Institut Fraunhofer
for Solar Energy Systems ISE

Jan-Erik Starlander
Head of Relations
with Territories
France Hydrogène

Prof. Nadia Yousfi Steiner
Professor/Researcher
FEMTO-ST

Karine Vernier
CEO FRANCE
EIT InnoEnergy France

Verdino Vincenzo
Product Development
Punch Hydrocells

Dr James Walker
Hydrogen Development Manager
European Marine Energy Centre
(EMEC)

Benno Weinberger
R&D Manager
and Hydrogen Referee
Ineris

Christelle Werquin
General Delegate
France Hydrogène

Jeon Yongwon
CEO
EN Co.

DEMONSTRATORS
INSIDE THE EXHIBITION AREA

FAURECIA
Hydrogen storage systems suited to heavy-duty vehicles

ENOGIA
Prototypes

SYMBIO
StackPack

AVIONS MAUBOUSSIN
Mock-up of the Alerion M1h

DAM
Test bench

EMERSON
Hydrogen Skid

FEMTO-ST
Hy-DATA,
backup supply for data centres

GEN-Z

And more to discover in the exhibition area...

Hydrogen storage system Faurecia

This hydrogen storage system is the demonstration of a complete, fast and robust system with high quality standards.
Comprising five 350-bar type IV tanks, it is suited to utility vehicle applications.
The design and assembly of the system includes the high-pressure tanks, chassis, auxiliary systems, pipelines and connectors, electronics, leak testing at the end of the line and other checks.

StackPack Symbio

H2Motive StackPack 150 is a compact hydrogen fuel cell solution designed for high output and low heat rejection. This cutting-edge technology and versatile control strategy offers optimised performance and durability for every application. StackPack 150 is fully compliant with the applicable regulations and standard ISA 26262.

Gen-Z demonstrator

The genesis and challenges of an ambitious, resolutely forward-looking project, backed by an explorer, a professional driver and a team of scientists from the CEA to demonstrate the performances of hydrogen mobility with a demonstrator tested in extreme conditions.

DEMONSTRATORS
OUTDOORS

Light mobility

EIFER
Toyota Mirai

FRAUNHOFER
Toyota Mirai

STELLANTIS
“Hydrogen Fuel Cell Zero Emission” technology

SYMBIO
Kangoo

Heavy mobility

GAUSSIN
ATM H2 and Yard Automation with trailer

SAFRA BUS
from the city of Auxerre

Educational area

Developed by:
- University of Franche-Comté, FC Lab, Femto-ST
- Engie

With the demonstrators:
Pragma bicycle
Mobitech
H2SYS

This area will be open to school visits and the general public.

ATM H2 from GAUSSIN

The ATM 38T vehicle has met with great success among logistics centres and operators. It is one of the group's flagship products. The vehicle's advantages:

- Zero carbon emissions
- Driving range extended from 8 hours in electric mode to 15 hours with hydrogen
- Dual charging solution – electric and hydrogen
- Vehicle can run on electrical power or hydrogen

Stellantis demonstrator

Discover the HYDROGEN FUEL CELL ZERO EMISSION technology launched by STELLANTIS in the compact van segment.

SITE VISITS

FAURECIA Clean Mobility site

The visit of the FAURECIA Clean Mobility site will present the Faurecia group and its ambitions in the hydrogen sector. It will also be an opportunity to discover the hydrogen tank pilot production line, to find out how Faurecia produces its tanks and to learn about the challenges to overcome with hydrogen tanks.

H2SYS site

H2SYS specialises in fuel cell systems and generators that deliver power of up to 130 kVA – while operating silently with no emissions during use – and suited to numerous applications (construction works, events, backup supply, etc.). The visit will be a chance to discover the new production line, talk to staff and watch a demonstration of the new very high-power electro-hydrogen generator.

FC LAB site

A visit of the FC Lab and its facilities. This Hydrogen-Energy facility houses 600 m^2 of equipment and a test bench used exclusively to test hydrogen components and systems. Here, certain environmental constraints, such as temperature and vibrations, can be reproduced in the laboratory. The platform is also involved in the design and production of prototypes.

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About Hydrogen Business For Climate

The Hydrogen Business for Climate Forum is a transnational event organised by the Pôle Véhicule du Futur Competitiveness Cluster, with backing from the French State, the Bourgogne-Franche-Comté region, the City of Belfort and Grand Belfort and the Pays de Montbéliard Agglomération, in partnership with the AER BFC (the Regional Economic Agency of Bourgogne-Franche-Comté), the ADN FC (the Economic Development Agency of Nord Franche-Comté), the CCI, the EEN (Enterprise Europe Network), FC Lab, the ADEME, EIT Innoenergy, France Hydrogène and Hydrogen Europe. Its mission is to bring about the hydrogen energy transition in France and Europe.

To learn more, visit: https://hydrogenbusinessforclimate.com

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Organisé par

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En partenariat avec