

# Deliverable 4.4

Report on policymaker workshops



ZERO EMISSION

## JIVEs / MEHRLIN projects



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Main author(s): Hydrogen Europe  
Contributor(s): Michela Bortolotti and Amy Allsop

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## Table of content

1. Executive Summary.....	3
2. Description of Activity .....	4
3. Key messages.....	4
4. Policymaker workshops.....	5
5. Conclusion .....	19

## Approval process

Steps	Status
Work Package Leader	Approved
Coordinator	Approved
Clean Hydrogen Partnership	Pending

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## 1. Executive Summary

Since the beginning of the JIVE project, there have been four policymaker workshops: two in-person and two online. These workshops are targeting policymakers with the scope to increase awareness on the benefits of zero emission transport as well as how EU projects are contributing to achieve a decarbonised Europe. Additionally, the workshops are organised together with other CH JU funded projects in order to increase the knowledge sharing as well as achieve a greater impact. Often, the topics of each workshop are tailored taking into account also the regulatory agenda at EU level, to ensure relevance of the topics discussed as well as a higher policymaker presence.

The first workshop occurred in 2018 to present the project and the fuel cell bus technology to Polish policymakers. The workshop was attended by 22 participants, including representatives from the Polish Ministry of Energy, Parliament, and Development Fund. The presentation covered the context, overview, and progress of the JIVE project. The risks, challenges and lessons learned were also tackled to finally look at the next steps and collaboration opportunities. Poland is a significant producer of hydrogen, and the workshop was an opportunity to share information about the H2-START project with an audience interested in the topic.

The second workshop occurred in 2019 during the European Week of Regions and Cities. In this annual event, cities and regions showcase their ability to create growth, implement EU policies and prove the importance of local and regional governance. A workshop on fuel cell buses was held during the 2019 event, where speakers from Norway, Germany, France, and the Netherlands discussed their experiences with the technology as a solution to decarbonising transport and offer zero tailpipe emissions.

The third workshop occurred in 2020 and was held online due to COVID-19 restrictions. The FCH JU (now Clean Hydrogen Partnership), Hydrogen Europe, and several hydrogen road transport projects held a roundtable discussion on the role of hydrogen in achieving carbon neutrality by 2050. The event was attended by MEPs, government representatives, and experts in hydrogen. The FCH JU was praised for its role in promoting hydrogen mobility in Europe, and one of the outcomes was a call for increased funding in research and innovation partnerships. The event was closed and attended by 36 participants, including 6 parliamentary assistants. Element Energy and Hydrogen Europe wrote and shared an article summarising the event on social media.

The fourth workshop was held in February 2023. The focus of this edition was to share best practices and data collected by several EU-funded projects focused on demonstrating and commercialising hydrogen-powered mobility applications, including cars, buses, and trucks. The workshop also addressed legislative packages like AFIR to decarbonise the transport sector. Two polls were conducted, and results showed that most participants were highly interested in policy recommendations for boosting hydrogen mobility and that currently the biggest perceived challenge for EU Member States to ramp up the hydrogen mobility market is cost. An article about the workshop was drafted and published by each project.

Overall, the workshops organised so far have been successful in bringing together EU projects involved in clean mobility and EU policymakers. The profile of the Clean Hydrogen Partnership and its importance in supporting cleaner transportation has also been raised as well as the awareness and knowledge around the benefits of fuel cell vehicles.

## 2. Description of Activity

Workshops for policymakers are part of the JIVE Task 4.3 - *Dissemination to policymakers*, which aims to inform and involve EU policymakers in the success of the JIVE projects. Key elements of this activity include a series of up to 5 yearly round tables to be organised around the theme "policy development for zero-emission buses". These meetings will be addressed to Members of the European Parliament, representatives of the relevant Directorates-General and other influential people in Brussels, and guests from European Member State Ministries. The aim will be to raise awareness among key influencers and decision-makers of the ability of hydrogen and fuel cell buses to address many of Europe's pressing environmental challenges and the possible need for new policies/regulations to support the adoption of zero-emission buses.

## 3. Key messages

The main message that these workshops aim to share with the policymakers is that fuel cell buses should be considered as playing a role in the decarbonisation of public transportation. However, there are still some roadblocks which need to be dealt with to ensure the smooth development of the technology across Europe.

More specifically, the key messages are as follows:

1. Fuel cell buses offer a zero-emission solution at the tailpipe: no air pollution and less noise.
2. Fuel cell buses' technological readiness has the potential to offer the same flexibility as diesel and compressed natural gas (CNG) buses.
3. Hydrogen can be produced from renewable energy resources, in which case CO<sub>2</sub> emissions are drastically reduced.
4. Fuel cell buses are to be seen as part of a whole, i.e., as part of a hydrogen ecosystem. This approach will enable hydrogen refuelling stations to be used optimally.
5. The hydrogen industry can have a positive impact on local jobs and the local energy availability. As hydrogen can be available locally, this enables to:
  - Have no oil dependency.
  - Attract businesses in different territories and help create new business opportunities as well as business cases enabling a broader roll out of hydrogen solutions.
6. Nevertheless, regulatory bottlenecks should be solved to further support the roll out of fuel cell bus technology at the EU and national levels.

## 4. Policymaker workshops

### H2-START project workshop: Experience from fuel cell bus deployment in Europe | 21 December 2018

The first workshop was on 21 December 2018 and addressed to Polish policymakers. Poland has a significant hydrogen market and is the world's fifth-largest producer<sup>1</sup> (with an annual hydrogen production of approximately one million tonnes). Poland produces 14% of all European hydrogen<sup>2</sup>, predominantly used in industrial processes. This workshop was the perfect opportunity to present the project and the technology.

Michael Dolman (Element Energy) and Sabine Skiker (Hydrogen Europe) gave a presentation covering the context, overview, and progress of the JIVE project, collaboration opportunities, risks, challenges, lessons learnt and plans. The audience consisted of 22 participants, including policymakers from the Polish Ministry of Energy, Parliament, and Development Fund. The attending companies/organisations were the following:

- Grupa Lotos S.A.
- WiseEuropa
- Ministry of Energy
- Climate-KIC
- URSUS S.A.
- Polski Fundusz Rozwoju (Polish Development Fund)
- URSUS S.A.
- Grupa Azoty S.A.
- JSW S.A.
- Klaster Wyżyna Motoryzacyjna i Maszynowa
- ZTM Warszawa (Municipal Transport Company Warsaw)
- MPK Lublin (Municipal Transport Company Lublin)



Figure 1 Workshop attendees

<sup>1</sup> <https://cms.law/en/int/expert-guides/cms-expert-guide-to-hydrogen/poland>

<sup>2</sup> <https://cms.law/en/int/expert-guides/cms-expert-guide-to-hydrogen/poland>

## European Week of Regions and Cities | 7 – 10 October 2019, Brussels (BE)

The European Week of Regions and Cities is an annual four-day event during which cities and regions showcase their capacity to create growth and jobs, implement European Union cohesion policy, and prove the importance of the local and regional level for good European governance.

The event is a European networking platform for regional and local development experts. The exchange of good practices in economic development and social inclusion, cross-border cooperation, public-private partnerships, regional innovation, and community-led local development have become some of its many topics.

Over the years, the event has become a key event in EU Regional Policy. It welcomes some 6,000 participants in October each year (local, regional, national, and European decision-makers and experts) for more than 100 workshops and debates, exhibitions, and networking opportunities.

Hydrogen Europe and JIVE deployment sites organised a workshop on 8 October 2019, 9:15-10:45 am, entitled “*Fuel Cell Buses: Clearing the Way for Zero Emission Transport*” dedicated to sharing the experience with fuel cell buses from public transport operators, public transport, and regional authorities. Lionel Boillot, Clean Hydrogen Partnership, moderated the session, which included the following speakers:

- Oyvind Michelsen, County director for planning, business development and environment, Akershus city council, Norway
- Jens Conrad, Head of department alternative technologies, Regionalverkehr Köln GmbH, Germany
- Mélanie Pédeutour, project manager, Pau Béarn Pyrénées Mobilités, France
- Erwin Stoker, Program Manager Public Transport Development, OV-bureau Groningen Drenthe, Netherlands

The following insights were provided by each of the speakers:

The county of Akershus in Norway set the context: “*transport represents 75% of the county’s emissions; there is a need to act now*”. The public transport authority surrounding Oslo has ambitious targets to tackle transport emissions: all buses must be emission-free by 2028. The ten fuel cell buses to be procured for the JIVE 2 project will be part of the solution, and green hydrogen produced from hydropower will be used. For the site, safety and having mature technology are crucial elements to consider when considering fuel cell technologies<sup>3</sup>.

In the region of Cologne, a total number of 50 fuel cell buses will be deployed shortly and operated by RVK. The average bus fleet of RVK travels 250-300 km/day, which makes it very suitable for fuel cell buses given their longer range, similar to diesel. Furthermore, 10 to 20t of by-product hydrogen is available in the region to power the fleet (and many more buses) at an affordable price. The main challenges for this innovative technology are the upfront costs, lack of knowledge, or political

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<sup>3</sup> To be noted: unfortunately, Akershus had to withdraw from the project.

commitments. Ways forwards are to educate decision-makers, remind them of their climate goals and offer fuel cell buses as one of the solutions. Other vital aspects are to seek funding and show OEMs that there is enough demand.

The city of Pau, 182,000 inhabitants in Southwest France, will deploy eight 18 m fuel cell buses in its new Bus Rapid Transit route. The public transport authority has used an innovative procurement strategy based on performance criteria, out of which the fuel cell bus option (together with the infrastructure) was selected. This bus is much more than a bus. It contributes to an extensive transformation of public space. It is the backbone of a significant urban project aiming to promote public transport over passenger cars.






Ambitious plans are in place in Groningen-Drenthe, in the Northern part of the Netherlands. This region will stop gas extraction by 2022 and strives to become a hydrogen hub – this includes large plans for green hydrogen production (from wind and excess hydropower), hydrogen transport, storage and use in different applications, including mobility. Two fuel cell buses have been operating since 2018 and have travelled over 65,000 km. Twenty more buses are planned by the end of 2020. In addition, a separate tender was opened for the supply of green hydrogen, which will be provided to the operator at the competitive cost of €3.5/kg.

All in all, this policymaker workshop emphasised on two major points:

- Fuel cell buses offer a flexible zero-emission alternative to decarbonise transport and clean city air that can fulfil different operational needs.
- More and more European cities are embracing the technology, making hydrogen suitable for different environments and purposes:
  - as a cheap by-product hydrogen is used by front-runner operator (Cologne region),
  - Transforming the public space by deploying a Bus Rapid Transit System with fuel cell buses (Pau).
  - Turning a whole region into a hydrogen valley, integrating fuel cell buses (Groningen-Drenthe).



Figure 2 Speaker panel

	<p><i>“We don’t see competition between battery electric buses and fuel cell buses, the best suited vehicles will be used according to the needs”.</i></p> <p><b>Oyvind Michelsen</b></p>
	<p><i>“If you are interested in deploying this type of technology, a lot of knowledge is already available. Come and talk to experimented PTOs and project partners such as the JIVE project that will be happy to share their experience”.</i></p> <p><b>Jens Conrad</b></p>
	<p><i>“Deploying fuel cell buses requires higher investment than other zero-emission solutions. However, in the long run, the Total Cost of Ownership (TCO) is equivalent (after 15 years of operation)”.</i></p> <p><b>Mélanie Pedoutour</b></p>
	<p><i>“We are looking at hydrogen for regional and long-distance public transport. Our fuel cell buses have a range of over 300 km. On top of buses, we are also investing in garbage trucks, taxis, street cleaning vehicles, and investigating the option of fuel cell trains”.</i></p> <p><b>Erwin Stoker</b></p>
	<p><i>“Fuel cell buses are used by several operators from Norway to Italy in various conditions, and more and more cities express interest to deploy them as part of zero-emission transport solutions for their inhabitants.”</i></p> <p><b>Lionel Boillot</b></p>



## Digital Roundtable on Hydrogen Mobility: Road Transport | 17 November 2020

A high-level roundtable on hydrogen mobility took place on Tuesday, 17 November 2020, bringing together MEPs, government representatives and experts on hydrogen to discuss the contribution of hydrogen to the European Green Deal objective of carbon neutrality by 2050.

The event was a partnership between the FCH JU (now Clean Hydrogen Partnership), Hydrogen Europe and the EU's flagship projects demonstrating hydrogen road transport applications: [H2ME & H2ME 2](#), [JIVE](#) & [JIVE 2](#), [ZEFER](#), and [H2Haul](#). Speakers specifically highlighted the instrumental role that the FCH JU has played in kickstarting hydrogen mobility in Europe and the importance of securing sufficient funding in the next research and innovation partnership.

Hydrogen Europe designed the visual materials, which consisted of banners for email invitations and Zoom. The banners included all the vehicles addressed by the projects (cars, taxis, buses and trucks).



Figure 3 Roundtable zoom banner

The following speakers participated in the event:

- MEP Marian-Jean Marinescu
- Bart Biebuyck (Director of the FCH JU)
- Herald Ruijters (Director in DG MOVE, European Commission)
- MEP Christophe Grudler
- Adam Mutwil (Head of division, electromobility, charging and hydrogen infrastructure, German Ministry for Transport and Digital Infrastructure)
- MEP Ismail Ertug
- Lorenz Jung (Chief Project Officer, H2Mobility Deutschland)
- Lisa Ruf (Senior Principal Consultant, Element Energy)
- Patrick Cnubben (Manager, New Energy Coalition)
- Mr Marco Liccardo (Head of Trucks Global Product Line, CNH Industrial/IVECO)
- Jorgo Chatzimarkakis, Secretary-General of Hydrogen Europe, moderated the event.

The agenda was as follows:



<b>15.20</b>	<b>Registration online and setting up</b>	
<b>15.30</b>	<b>Welcoming words</b>	Mr Jorgo Chatzimarkakis, Hydrogen Europe Mr Bart Biebuyck, FCH JU
<b>Keynote speeches and introduction to the Hydrogen Mobility Roundtable</b>		
<b>15.35</b> <b>15.40</b>	<b>The role of hydrogen in the road transport sector</b>	MEP Marian-Jean Marinescu
<b>15.45</b> <b>15.55</b>	<b>H2 Mobility initiatives in Europe today: the momentum</b> <i>Presentation of the flagship EC-funded H2 mobility initiatives</i>	Mr Bart Biebuyck, FCH JU
<b>15.55</b> <b>16.00</b>	<b>Hydrogen mobility in the context of the Sustainable and Smart Mobility Strategy</b>	Mr Herald Ruijters, DG MOVE, European Commission
<b>The role of H2 mobility in road transport: overview of the flagship initiatives in Europe</b>		
	<b>Why hydrogen matters in mobility?</b> <i>Hydrogen contribution for a carbon-free transport sector</i>	MEP Christophe Grudler,
<b>16.00</b> <b>16.15</b>	<b>Presentation of the German H2 Mobility strategy</b> <i>Views from the German Council presidency</i>	Mr Adam Mutwil, German Ministry for Transport and Digital Infrastructure
	Q&A	
<b>Key next steps for building a Europe strategy and infrastructure</b>		
	<b>AFID review: what is at stake?</b> <i>AFID boosting the hydrogen infrastructure network</i>	MEP Ismail Ertug,
<b>16.15</b> <b>16.35</b>	<b>The example of the German hydrogen infrastructure</b> <i>Building a network based on local demand for all applications. Case study from H2ME</i>	Mr Lorenz Jung, H2Mobility Deutschland
	<b>Recommendations for policymakers from the flagship H2 mobility initiatives funded by the EC</b> <i>H2ME / ZEFER/ H2Haul /JIVE and many more</i>	Ms Lisa Ruf, Element Energy
	Q&A	
<b>Best practices and European collaboration</b>		
<b>16.35</b> <b>16.50</b>	<b>Regional deployment for hydrogen ecosystems</b> <i>The Hydrogen Region initiative</i>	Mr Patrick Cnubben, New Energy Coalition
	<b>Clustering EU competitiveness towards mass commercialisation: From H2Haul to mass market</b>	Marco Liccardo CNH Industrial
	Q&A	
	<b>Reflections on the day and closing remarks</b>	Mr Jorgo Chatzimarkakis Hydrogen Europe
<b>17.00</b>	<b>End of event</b>	

There were 36 participants, including 6 European parliamentary assistants. The small number of participants is explained by the fact that it was a closed round table. The MEP speakers belong to major political parties (EPP, Renewal, S&D).

MEPs and representatives from the European Commission struck a positive tone on the role hydrogen must play as an enabler of both transport decarbonisation and a renewably powered society and stressed its convenience and flexibility of use. Additionally, participants commented on how they expected hydrogen technology development to foster European industry competitiveness and secure future-oriented jobs, as well as to retain employment across Europe. All speakers noted that a robust European legislative and financial framework (e.g. CEF blending) would need to be established to allow hydrogen mobility technology to be rapidly scaled across Europe in the coming years so it can fulfil its potential.

The event was a partnership between the European Commission’s Fuel Cells and Hydrogen Joint Undertaking (FCH JU), Hydrogen Europe and the EU’s flagship projects demonstrating hydrogen road transport applications: H2ME & H2ME 2 (passenger cars and light commercial vehicles), JIVE & JIVE 2 (buses), ZEFER (passenger cars in commercial use) and H2Haul (trucks). Speakers specifically highlighted the instrumental role that the FCH JU has played in kickstarting hydrogen mobility in Europe and the importance of securing a sufficient amount of funding in the next research and innovation partnership. Element Energy and Hydrogen Europe co-wrote an article dedicated to the highlights of the event, it was [published](#) on the fuel cell buses website and shared on social media.

	<p><i>“We need crucial binding targets on sustainable transport infrastructure”. Only Netherlands responded positively to binding targets. Even Germany and Austria were against binding targets. The whole EU needs to move towards this.”</i></p> <p><b>MEP Ismail Ertug</b></p>
	<p><i>“Policy moves over the next years will determine whether Europe can be a hub of hydrogen going forward, or whether it will go back over to China.”</i></p> <p><b>MEP Marian-Jean Marinescu</b></p>

	<p><i>“Germany Treasury is centralising fresh money towards transport ministry to allow hydrogen mobility programmes (€1.6bn to 2024).”</i></p> <p><b>Adam Mutwil</b></p>
	<p><i>“The fuel cells and hydrogen joint undertaking has been a huge success – commission and parliament can be very proud of what the JU achieved. €2bn since 2008; 41% of budget went to transport.”</i></p> <p><b>Bart Biebuyck</b></p>
	<p><i>“Why does hydrogen matter in mobility? Because it opens new options for decarbonising and allows new opportunities for Europe to lead globally”.</i></p> <p><b>MEP Christophe Grudler</b></p>

## Hydrogen Mobility: Road Transport workshop | 2 February 2023

Several EU-funded projects ([ZEFER](#), [JIVE](#), [JIVE2](#), [H2ME2](#), [H2HAUL](#), [MEHRLIN](#), [REVIVE](#), [HECTOR](#), [3EMOTION](#)) focusing on various mobility applications aim to demonstrate and enable the commercialisation of hydrogen-powered cars, buses, and trucks. This workshop's objective was to share best practices, experience and data collected throughout the duration of the various projects to validate these zero-emission vehicles' positive impact on their deployed locations. The workshop also addressed legislative packages that aim to contribute to the decarbonisation of the transport sector, such as the Alternative Fuels Infrastructure Regulation (AFIR).

The workshop was originally to take place during the 2022 European Hydrogen Week. However, due to time constraints, it was postponed to 2 February 2023.



Figure 4 Family picture

## Agenda

Time	Item	Speaker
10.00	Opening remarks	Daniel Fraile   Chief Policy Officer, Hydrogen Europe
<b>1. Hydrogen Mobility</b> Moderator: Daniel Fraile   Chief Policy Officer		
10.05	Hydrogen mobility initiatives in Europe	Bart Biebuyck   Executive Director, Clean Hydrogen Partnership
10.15	Tackling emissions from road transport	Beatriz Yordi   Director Carbon Markets & Clean Mobility, DG CLIMA
10.25	Q&A + Poll	
<b>2. Hydrogen refuelling infrastructure &amp; solutions</b> Moderator: Bart Biebuyck   Clean Hydrogen Partnership		
10.35	Deployment of refuelling infrastructure: why AFIR is crucial	MEP Ismail Ertug

10.45	Deployment of refuelling infrastructure: National and local network	<b>Nikolas Iwan   CEO, H2Mobility Deutschland</b>
10.50	Scaling up Green Hydrogen production for transport case study: Barcelona HRS	<b>Sabela Sarandeses, Business Developer Manager Green Hydrogen   Iberdrola</b>
10.55	<b>Q+A</b>	
11.00	<b>Break</b>	
<b>3. EU projects (ZEFER, JIVE, JIVE2, H2ME2, H2HAUL, MEHRLIN, REVIVE, HECTOR, 3EMOTION) Moderator: Luca Feola   Clean Hydrogen Partnership</b>		
11.05	Recommendations for policymakers from the EC-funded mobility flagship initiatives (ZEFER, JIVE, JIVE2, H2ME2, H2HAUL, MEHRLIN, REVIVE, HECTOR, 3EMOTION)	<b>Lisa Ruf   Consulting Director at Element Energy</b>
11.15	Hydrogen urban transport in Europe – Taxi	<b>Mathieu Gardies   Founder of HYPE (H2ME2 &amp; ZEFER)</b>
11.20	<b>Q+A</b>	
11.25	Hydrogen urban transport in Europe - Buses	<ul style="list-style-type: none"> <li>▪ <b>Jérémie Neillo   Head of the Transport Operations Department in Pau – (3Emotion)</b></li> <li>▪ <b>Wouter Tettero   Consultant at Rebel Group (JIVE2)</b></li> </ul>
11.35	<b>Q+A</b>	
11.40	Hydrogen refuse vehicles & heavy-duty infrastructure in Europe	<ul style="list-style-type: none"> <li>▪ <b>Dimitri Van den Borre   Project Manager at TRACTEBEL - ENGIE GROUP (REVIVE)</b></li> <li>▪ <b>Patrick Huber   Chairman of H2 ENERGY HOLDING INC (H2Haul)</b></li> </ul>
11.50	<b>Q+A</b>	
11.55	<b>Closing remarks</b>	
12	<b>End</b>	

92 people registered for the event, among which 59 attended representing a participation rate of 64%. Furthermore, 47% of the participants were based in Central and Eastern Europe (CEE). The high participation rate from the CEE region could be linked to the CEE Hydrogen Bus Roadshow, which took place between November 2022 and January 2023. For this event, Hydrogen Europe had invited the national coordinators of the roadshow.

Daniel Fraile, Chief Policy Officer (Hydrogen Europe), opened the session by giving an overview of the most recent legislation at the EU level, such as the “Fit for 55” package and the Renewable Energy Directive.

The next session was led by Bart Biebuyck, Executive Director of the Clean Hydrogen Partnership, and Beatriz Yordi, Director of Carbon Markets and Clean Mobility at DG CLIMA. Mr Biebuyck underlined the importance of research projects to ensure the successful uptake of hydrogen. Furthermore, he explained that the various hydrogen-related mobility projects that have occurred in the past, are continuing also in the present and future as progress made by past projects has been used by newer ones to progress the uptake of hydrogen.

Ms Yordi touched upon how emissions from all modes of transport must be reduced rapidly and significantly to meet the targets set in the Green Deal. She also referred to ETS I and II which are expected to motivate and financially support the transition from fossil-fuelled mobility to alternative fuel mobility, with hydrogen as a solution for all

modes of transport. In conclusion, she added that clean mobility, including hydrogen-based fuels, especially in long-haul commercial operations, is an option not to be regretted.

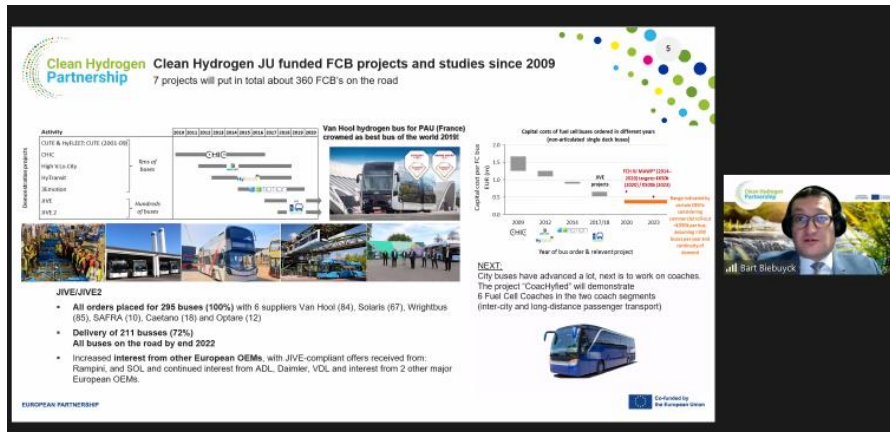


Figure 5 Bart Biebuyck presenting FCB projects

After the first session, two polls were launched:

- **POLL 1 – What interests you most about today’s session? What brings you here?**
  - I am not very familiar with hydrogen road transport applications, and I am looking for high-level information. **(14%)**
  - I am particularly interested in the policy recommendations for boosting hydrogen mobility. **(49%)**
  - I am curious to learn from the hands-on experience of EU projects deploying hydrogen vehicles and infrastructure. **(30%)**
  - I want to contribute to the discussion with my hydrogen experience at a policy level. **(8%)**

The results of this first poll demonstrated that most participants were interested in policy recommendations for boosting hydrogen mobility. EU policies can put forward a comprehensive framework to support hydrogen uptake, to help cost-effectively decarbonise the EU and reduce its dependence on imported fossil fuels.

- **POLL 2 – What is the biggest challenge for EU MS to ramp up the hydrogen mobility market?)**
  - Green hydrogen availability in Europe **(17%)**
  - Cost **(46%)**
  - Lack of policy instruments (e.g., CCFD) **(12%)**
  - Market immaturity **(24%)**

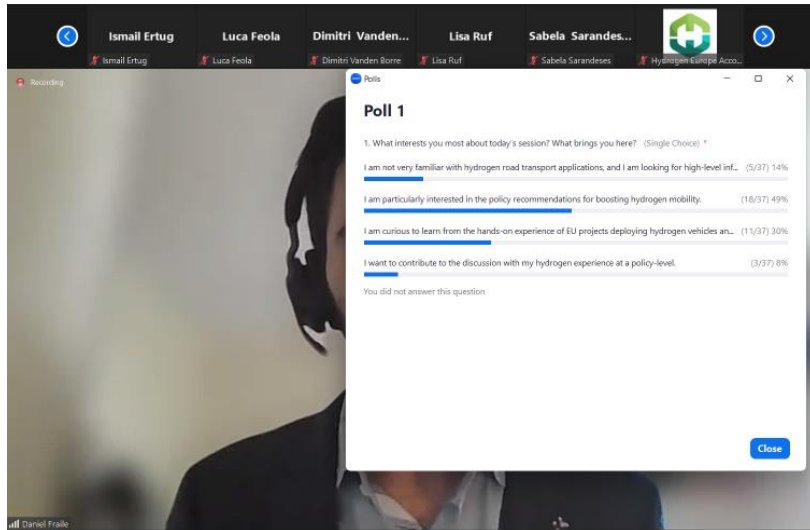







Figure 6 The first poll

The results of the second poll showed that participants believed that the biggest challenge for EU Member States to ramp up the hydrogen mobility market is cost.

	<p><b>On AFIR:</b> <i>“Minimal infrastructure across Europe must be specified, so there is no time to lose. Member States need to agree and support to motivate the industry to invest in hydrogen..”</i></p> <p><b>Daniel Fraile</b></p>
	<p><i>“Hydrogen buses demonstration projects have contributed to create competition and economies of scale for OEMs, bringing prices down from €1.8M per bus to €500k”</i></p> <p><b>Bart Biebuyck</b></p>
	<p><i>“The Green Deal is set in stone with a very ambitious policy and clear targets for a net zero economy, but much remains to be done. The Commission yesterday adopted an industrial plan for a green deal in which hydrogen plays an important role.”</i></p> <p><b>Beatriz Yordi</b></p>



	<p><i>"AFIR want to set more ambitious targets for HRS. However, Member States want less HRS than the European Parliament. This shows that some Member States still need convincing on the performance of hydrogen"</i> <b>Ismail Ertug</b></p>
	<p><i>"A Delegated Act on green hydrogen that includes a clear definition of green hydrogen and an AFIR with ambitious and binding targets for hydrogen infrastructure are what governments need to succeed"</i> <b>Nikolas Iwan</b></p>
	<p><i>"The HRS in Barcelona produces green hydrogen on-site, and eight buses are refuelled daily. Demand is expected to increase to 60 buses. As a result, more users (not only buses) can use the HRS, including trucks."</i> <b>Sabela Sarandeses</b></p>
	<p><i>"Demonstration projects bring a lot of knowledge to the sector and improve market readiness of the technologies."</i> <b>Lisa Ruf</b></p>
	<p><i>"Very positive feedback from taxi drivers, who are very satisfied with the use of hydrogen cars. Drivers can switch from diesel to hydrogen without changing their working habits. Taxis require intensive and random conditions of use. Taxi passengers are satisfied with their comfort."</i> <b>Cyprien Pelissou</b></p>

An article about the workshop was drafted by CENEX, published by each project, and shared on social media.

The main outcomes of the workshop were:

- Hydrogen mobility is gaining traction as a key solution to decarbonise the transportation sector, and industry leaders are highlighting its importance to policymakers.

- One of the key issues highlighted was the need for hydrogen refuelling infrastructure. The automotive industry highlighted the need for member states to have more hydrogen refuelling infrastructure stations.
- There is also the need for the entire full chain of hydrogen technologies, from trucks and buses to stacks and tanks, and highlighted hydrogen as a solution for hard-to-abate sectors.
- While the cost remains a challenge for the hydrogen mobility market, clarity of policy direction is required to increase investment in decarbonising transport.

## 5. Conclusion

In conclusion, the JIVE project has successfully organised four policymaker workshops since its inception in 2017. These workshops have provided a platform for policymakers to learn about hydrogen-powered mobility applications and legislative packages aimed at decarbonising the transport sector. The workshops have also enabled the sharing of best practices and data collected by several EU-funded projects focused on commercialising hydrogen-powered mobility applications. Despite the challenges posed by COVID-19, the JIVE project successfully held an online roundtable discussion in 2020, attended by MEPs, government representatives, and experts in hydrogen. These workshops have played an essential role in promoting hydrogen mobility in Europe and advocating for increased research and innovation partnerships funding. The JIVE project continues to play a crucial role in accelerating the adoption of zero-emission public transport, ultimately contributing to Europe's carbon neutrality goals.

**Project coordination:**

**elementenergy**

an ERM Group company

**Project dissemination:**



The **JIVE and JIVE2 projects** have received funding from the Clean Hydrogen Partnership (formerly known as FCH JU) under Grant Agreement No 735582 and 779563.

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The **MEHRLIN project** is co-financed by the **European Union's Connecting Europe Facility**.

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