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# THE HYDROGEN EUROPE QUARTERLY

THE GREEN DEAL INDUSTRIAL PLAN

Issue Q2 2023





# Welcome!



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## The Hydrogen Europe Quarterly Magazine

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## From the CEO

**Welcome to the third issue of the Hydrogen Europe Quarterly, and the second of 2023. Progress in the hydrogen space continues to accelerate, thanks to the hard work of our valued members across Europe.**

I am delighted to present the latest issue of our in-house magazine covering the many important developments of the last few months. We look forward to continuing to provide you with timely updates and relevant analysis on the hydrogen sector.

The Green Deal Industrial Plan presents the building blocks for a decarbonised Europe and the beginnings of the pathway to get there. The Net Zero Industry Act, the Critical Raw Materials Act, and the pilot auction for the European Hydrogen Bank have grabbed the headlines and the hearts of Europeans who are serious about the energy transition.

But there is still plenty of work to do, and plenty of improvements to be made, as we learn in our main story from interviews with Nils Aldag (Sunfire), Philipp Walter (Heraeus), Pascal Juéry (AGFA), and Christian Mohrdieck (cellcentric) – each of them representing different parts of the hydrogen value chain and thus providing a complete analysis with their experience and insight.

A fascinating and in-depth Q&A with Ørsted's Olivia Breese on the company's vast experience sheds more light on the challenges and opportunities we face in Europe. In this issue readers will also find an interview with European Commission Executive Vice President Frans Timmermans and his views on hydrogen. The Dutch statesman has been an important decision maker in Europe's journey to

maintain a leading role in hydrogen innovation.

The Hydrogen Europe Quarterly's national and regional member spotlights feature the work of Hydrogen Poland and Hydrogen Center Bavaria. Poland is one of Europe's most industrialised countries and, by consequence, one of the bloc's largest consumers of hydrogen. Meanwhile, the German state of Bavaria hosts some of Europe's leading innovators – many of whom are committed to hydrogen as a solution.

Finally, you can expect key analysis from our own team, with a review of the recent RefuelEU Maritime and FuelEU Aviation regulations and a deep dive on the European Hydrogen Bank, as well as a look at the vast potential of ammonia and, finally, the challenge ahead for Europe on the issue of critical raw materials.

Please do enjoy this issue of the Hydrogen Europe Quarterly! I look forward to our continued collaboration in building a better, more sustainable world.

# The Green Deal Industrial Plan

**The story of the last few months has been the flurry of legislative developments at the EU level with a direct impact on the hydrogen economy. From the announcement of the Net Zero Industry Act, Critical Raw Materials Act, and European Hydrogen Bank, to finally receiving clarity on the Renewable Energy Directive and Delegated Act and progressing on road, maritime and air transport. Suffice to say, it's been quite the rollercoaster journey here at Hydrogen Europe. We spoke to Nils Aldag, CEO of Sunfire, Pascal Juéry, CEO of AGFA, Philipp Walter, Senior Vice President New Business Development of Heraeus, and Christian Mohrdieck, CCO of cellcentric, about what it all means.**

For all the criticism the EU receives – justified and less so – we should all be proud to live and participate in a union that appears to be trying (at least) to take the threat of climate change seriously. The European Green Deal, announced in 2019, has yielded an ever-growing list of policies, regulations and directives designed to decarbonise Europe's economy, create long-term energy security, and prepare for a post-fossil future. Whether they will succeed or not is still open to debate, but we can be reasonably confident that the desire to reach net zero by

2050 – and thus be the first region in the world to do so – is sincere.

All the interviewees for this article agreed that the Green New Deal announcement also heralded in the era of hydrogen and a huge increase in attention and demand. Now, four years on, interest in the sector has “gone through the roof”, in the words of Heraeus' Philipp Walter.

Pascal Juéry, whose company AGFA supplies membranes to the sector, demonstrated the point: “In 2020 we had about 20 companies looking at our products. A year later it was 50, then 70, and now we have more than 100 customers worldwide.”

Green and clean hydrogen are clearly a crucial component of Europe's ambition. The transition cannot be done without also decarbonising that which cannot be electrified, and hydrogen is best placed to do so. The EU was right to declare its commitment to the technology with European companies currently being innovative leaders of the sector. Making it a central cog in the Green Deal Industrial Plan (GDIP) makes sense both for our climate goals and our future economic and employment prospects.



March 30's revision of the Renewable Energy Directive (RED3) is the perfect starting point for today's progress report. Legislators set targets for 42% of the hydrogen used in industry to come from renewable fuels of non-biological origin (RFNBOs) by 2030, and 60% by 2035. The EU currently uses 9.7 million tonnes of hydrogen – nearly all of it grey – every year. To cut that by more than half in just over a decade will be no small feat, but it shows a commitment to a sensible approach, that is, to clean up the existing supply of hydrogen as a matter of priority.

In RED3, the decarbonisation of transport sees a sub-target of 5.5% of the fuel mix to be composed of advanced biofuels and RFNBOs (combined binding target). Fuel suppliers will be free to choose their preferred fuel, but they must guarantee at least 1% is sourced from RFNBOs – which will lead to approximately one million tonnes of RFNBO demand.

### Net Zero Industry Act (NZIA)

Europe is committed to clean hydrogen, and so as a result must be committed to making its production possible. The NZIA puts electrolyzers and fuel cells in full scope, upgrading them to strategic technologies for reaching 55% reduction of emissions by 2030 (compared to 1990), and the 2050 net-zero target. The act will speed up permitting processes for manufacturing projects in Member States and will act as a catalyst for private and public investments for clean technologies.

This is excellent news for Europe's leading manufacturers, such as Nils Aldag's company Sunfire, which he co-founded in 2009. The legislation "is targeting mature companies who can roll out at large scale. With us being one of the biggest electrolyser suppliers in Europe, this will benefit us very much," he told the Hydrogen Europe Quarterly.

Aldag calls the inclusion of electrolyzers as a strategic technology "a very important element" and notes the domestic production capacity targets it also sets, though believes they are "not very ambitious" and cautions, wisely, that the measures "must live up to the pledge". The founder and CEO also raised the point that, while the NZIA ambition to speed up permitting is obviously welcome, "too many adjacent measures are too slow." Indeed, in the labyrinth that EU regulation can resemble, no law is acting on its own without the influence of many others.

AGFA's Juéry also commended the move: "NZIA is really loosening the regulatory burden of multiple areas – it's a very positive change," he said.

"For us as a key supplier to industry, we're delighted to see it because it will speed up development and we're already seeing that with our customers," he added.

### Critical Raw Materials Act (CRMA)

On a continent lacking in many of the rare earths and raw materials needed to manufacture some of the most essential clean tech, securing access to the mines of our international partners is paramount. This is particularly important when our global economic rivals, like China and the US, already have in many ways a head start, as well as being better endowed with resources within their own vast borders to begin with.

"It's so important that the EU has good standing in critical raw materials," said Christian Mohrdieck, CCO at the Daimler-Volvo joint venture cellcentric. "Safeguarding the supply chain of such materials is very important for us."

The CRMA is the first step towards this mammoth endeavour, setting the basis for a renewed European approach to the use of raw materials and the revival of Europe's sustainable materials market, focusing on the extraction, processing, recycling, monitoring and diversification of critical ores, minerals and concentrates, while strengthening its international outreach to current and future partners.

Among other provisions, the act proposes:

- the establishment of a two-tier criticality list of materials: strategic (highest priority for the clean transition) and critical (raw materials with considerable economic importance and supply risk with a mild level of disruption);
- EU targets for the extraction (10%), processing (40%) and recycling (15%) of ores, minerals, concentrates of Strategic Raw Materials (SRMs) by 2030 to take place in the European Union. Most importantly, the EU should aim to avoid excessive reliance on third countries suppliers, establishing a threshold of maximum 65% of imports on a single material from a specific external supplier; and
- the possibility of granting the status of Strategic Projects to those with a demonstrated ability to bring meaningful contribution to EU security of

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**In the labyrinth that EU legislation can resemble, no law is acting on its own without the influence of many others**”



supply of SRMs, a certain degree of technical feasibility and proof of sustainability practices.

Noble ambitions indeed, but there is still a long way to go.

“The intention to simplify things with this legislation is certainly very welcome,” said Heraeus’ Philipp Walter, “but speaking as a supplier of critical materials to manufacturers, some challenges are not being tackled well enough and could be better supported by legislation.”

“CRM Act is currently a lot of words, but concrete measures, like for iridium, are missing. Overall, it’s the right intention, but the path forward is not clear,” he added.

Walter pointed to an all too familiar refrain: the complexity of European legislation which can undermine its ambitions.

### **Simplicity, simplicity, and more simplicity**

In one way or another, all the interviewees expressed the need for a simpler, easier to understand approach to the regulation. Nobody was in denial of the need for some regulation but, as readers will have seen in the previous issues of this magazine, there are stakeholders with business decisions to make who are looking longingly across the Atlantic to the US, and the straightforward nature of its hydrogen legislation. One topic that came up is the issue of fluopolymers and its inclusion in the per- and

polyfluoroalkyl substances (PFAS) restrictions. A necessary component of electrolyzers and fuel cells everywhere, as well as all along the value chain, its status within PFAS – despite a completely different and reduced toxicity profile compared with others – is a potentially sector-ending matter.

“Replacing fluoropolymers will not be possible in the given timeframe. Even a derogated ban will hinder the growth of the hydrogen economy,” argued Walter.

“The intention of all these programmes is very good, and we fully support the targets, but implementation is sometimes cumbersome. The EU should pay more attention to how complex we set up processes,” said Mohrdieck, who is overseeing the creation of a fuel cell engine for trucks that is also intended to be sold to competitors once completed.

The cellcentric CCO was not hesitant to echo what many European stakeholders are thinking: “If the PFAS ban goes ahead, our factory investment plans need to be reassessed.”

European legislators cannot ignore the risk of an investment diaspora. And the consequences go further. The scars are still visible from having let our head-start on solar photovoltaic slip to China. The onus must surely be on staying ahead of the competition – with regulation that reflects this.

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**The complexity of EU legislation can undermine its ambitions**



"Investors ask themselves the question: Do we invest further in Europe? Or do we increase capacity in the US? We have indications that investments in the EU are set on hold or directed to other regions," mused Walter, "I would hope there is still a chance to turn around the barriers that hinder investments in the EU, but this is really urgent. We cannot wait."

"Our regulations make it longer for projects compared with the US," said Juéry, "Certainly, a lot has happened in Europe, but the last six months are a response to what happened in the US."

"The proposed legislations cover the right landscape, but the scale is not yet sufficient for the challenge ahead," said Aldag, "The key question to ask ourselves in Europe is how we turn those great companies in the hydrogen space into global leaders that export their technologies all over the world."

"We are still a leader, but we must be aware that the speed, pragmatism and boldness in implementation is crucial and while it's better it still must be improved."

### Funding and financing

Through the European Hydrogen Bank, the Important Project of Common European Interest (IPCEI) programme, as well as a range of mechanisms from the Emissions Trading Scheme to the Innovation Fund, are all contributing to helping companies in this young industry meet the bottom line. Not to mention, if we may, the Clean Hydrogen Partnership (CHP), formerly the Fuel Cells & Hydrogen Joint Undertaking.

Aldag's Sunfire, active for nearly 15 years, is "almost a child of the CHP."

"We were selected for funding and had a clear execution pathway. We used the financing we received from the Joint Undertaking to convince a steelmaker like Salzgitter in 2015 to install our electrolyser in their steelworks. Without this support it would have been much more complicated. The fact that the partnership continues and there is still budget for innovative companies, like the one we were, is amazing. Sunfire is a great example of why this tool is needed."

Now a much larger company than the 2009 start-up it began as, the company has raised around €500 million, taking on a huge amount of risk and looking for where they might get support for its much larger-scale activities.

One can point to the IPCEI programme, no doubt targeting commercial and industrial scale projects, but there was muted enthusiasm for

those who have been through it. Aldag himself noted that, after two years "we haven't seen a single euro" as they wait for approvals at the national level. Meanwhile cellcentric is applying as well with Mohrdieck saying "this requires a lot of stamina".

So in comes the European Hydrogen Bank. Originally slated to have a budget of €3 billion, the first pilot auction will stand at €800 million with no announcement thus far on additional funding.

"It's a relatively simple and pragmatic tool but the scale element is not there," says Aldag. "€800m is not enough but the EU knows that".

"It is a good support function, but it depends on whether industry is taking a pro-active position and pushing the technology. Without that, the bank and Europe will not be successful," said Mohrdieck.

It is clear to all that the journey is not over, and while the building blocks may be in place, and the speed of progress has increased, there is still much to do.

"With the GDIP, Europe has created the conditions and the ambition for hydrogen, but it's the fear of missing out that drove us," said Juéry. Despite that, he says, "Our customers view this positively. Let's be happy about that."

"What's important is that the EU is advancing with its eyes open." ●

# Funding the transition: an Interview with Olivia Breese, Senior Vice President, Power-to-X, Ørsted

With the building blocks in place for the creation of a true hydrogen market for Europe, our focus must now shift to the financing of the first batch of projects that will help set the tone for the future hydrogen economy. For a nascent and innovative technology, what is needed is a robust support network at the national and supranational level. We spoke with Olivia Breese, senior vice president, power-to-x, at Danish energy giant Ørsted, to get her view on whether the current framework is sufficient, and how it can be improved.

To begin, please describe Ørsted's journey in developing an interest in hydrogen and investing in it.

Our starting point is our vision of creating a world that runs entirely on green energy. The electricity sector has been on this journey for a long time, but the transformation of heavy industry and transport aren't as straight forward. Back in 2018, we decided to establish a renewable hydrogen focus group in Ørsted, consisting of four people, which has now grown into Ørsted P2X, and the focus has also expanded from hydrogen to derivate e-fuels as well. We started identifying opportunities in Europe, which is our home market, and since then we've rapidly expanded our portfolio of project options and taken final invest decision on two projects, H2RES of 2MW in the Copenhagen area, and FlagshipONE of 70MW electrolyser capacity in Sweden.

What is Ørsted's plan for its hydrogen/power-to-x business in the next 5 years?

We of course want to grow our presence in the field, as P2X will really be a cornerstone technology in combatting climate change, but we've deliberately not set any investment or capacity targets, as the P2X market is developing so fast. We currently have an option pipeline of several gigawatts of electrolyser capacity, and we are continuously looking into new opportunities.

Since we started looking into renewable hydrogen and e-fuels, the European and global targets for

P2X have increased dramatically, and Ørsted and the sector as a whole need to scale-up production capacity fast to meet these targets. A key part of doing this is through partnerships, both with OEMs but just as importantly with offtakers. Our focus is on bringing renewable hydrogen and e-fuels to hard-to-electrify sectors such as industry and heavy transport, and we've already entered landmark partnerships with offtakers such as shipping company Maersk on a large methanol project on the US Gulf Coast.

What is Ørsted's view on the legislative developments in Europe thus far? Have the Renewable Energy Directive, Net Zero Industry Act, and other policy advances done enough?

Europe has just decided to take the most ambitious and comprehensive approach to decarbonisation in the world. We have seen that in the Renewable Energy Directive, the ReFuelEU Maritime and revised Emissions Trading Scheme (ETS) Directive, and the RefuelEU Aviation package and later, hopefully, the 4th Gas package will be finalized with equally positive outcome. We believe that the approach taken by EU in setting



**Olivia Breese**

Senior Vice President, Power-to-X, Ørsted



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**Speed and simplicity should be the guiding principles in unlocking state aid and Union funding to renewable hydrogen projects**

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targets and incentives for both production and demand side is the right way forward to facilitate the ramp-up that we so urgently need.

Overall, it's very positive that the EU and Member States have committed to getting the IPCEI process rolling, which has not been an easy task.

I'm also glad to see the support from European policymakers for ensuring our renewable hydrogen supply chain in the Net Zero Industry Act. The Net-Zero Industry Act can best deliver for Europe's green transition if it focuses on truly net-zero technologies like electrolysers, wind, and their supply chains.

Clearly, a number of lessons were learnt from the first waves, especially when it comes to the length of the notification process and administrative requirements faced by projects. But we're confident that the EU and Member States are taking those learnings into consideration in designing future support schemes. I think we're already seeing some of these learnings in the Temporary Crises and Transition Framework (TCTF), and in the preliminary sketch of the European Hydrogen Bank.

To sum up, the way to scale and commercialise renewable hydrogen technologies is to simplify and speed up the introduction of conducive regulatory frameworks and ensure access to funding that will help get green molecules to offtakers faster.

**What is Ørsted's view on the European Hydrogen Bank? Is the proposed structure satisfactory? What are some of the aspects in need of improvement?**

**How have you found the experience of securing Important Project of Common European Interest (IPCE) status for your Green Fuels for Denmark project? Are you applying (or have you applied) for IPCEI status for more projects?**

I firmly believe that Europe can leverage its regulatory frameworks and market policies to help close the cost gap to fossil-based fuels and do so competitively. The European Hydrogen Bank could become an important piece of this framework. Again, speed and simplicity should be the guiding principles in bringing the bank to life,

Ørsted has been part of the IPCEI process with our Green Fuels for Denmark project in Copenhagen and our Haddock project in the Netherlands.

as this will allow hydrogen projects to take final investment decision and start delivering green molecules to hard-to-electrify sectors.

The European funding landscape available for renewable hydrogen projects have quite lengthy processes, which means that the world might have changed a lot from application to award. We've seen that with the inflation in energy prices in the past year, which have put pressure on projects across the industry. It is our hope that the European Hydrogen Bank can in the first rounds of auction serve to alleviate some of this pressure by allowing projects to cumulate already secured funding with funding from the European Hydrogen Bank.

In addition, we propose to give projects the flexibility to source electricity in the ways offered under the Delegated Acts to REDII, without adding additional prequalification requirements to submit Power Purchase Agreements (PPAs) or similar agreements. We as an industry – together with the Renewable Hydrogen Coalition and Hydrogen Europe, stand ready to contribute to the work ahead of us on designing the bank.

### **How can the current state aid structure be improved for hydrogen projects?**

I understand the motion in Europe to respond effectively to new incentives schemes in other regions, including in the US with the Inflation Reduction Act (US IRA). We must in order to stay on track for our decarbonisation goals ensure that the right framework regulation and policies are in place to ensure the much needed build out of renewables and scale-up of renewable hydrogen.

Speed and simplicity should be the guiding principles in unlocking state aid and Union funding to renewable hydrogen projects. To me, this means a number of things: Early transparency in criteria and process, which allows for better project planning; Pre-qualification criteria that are on the one hand strict enough to ensure only serious bidders participate, but that are also not so strict that healthy projects are excluded; and lastly a competitive process and short timeframes for notification and administration.

### **How can Europe ensure a successful and profitable hydrogen market for the future?**

In short, the way to scale and commercialise renewable hydrogen technologies is to simplify and speed up regulatory frameworks and ensure access to funding that will help get green molecules to offtakers faster.

Europe has now set ambitious targets for

decarbonisation which sends a clear signal, but now it's time for execution. One very important piece of the puzzle will be regulatory frameworks and incentives that ensure the swift ramp-up of both production and consumption of renewable hydrogen. This includes an acceleration of the renewables buildout with cost-reflective tariffs, introduction of simple and effective funding schemes for both production and offtake; as well as build-out of hydrogen infrastructure, and ensuring that we have the definitions and standards in place to facilitate trade. ●



## PROMINENT HYDROGEN PEOPLE

# Frans Timmermans

In each issue of the Hydrogen Europe Quarterly, we interview a prominent person in the hydrogen sector to talk about their involvement and interest in hydrogen, as well as about the key issues that concern them. For this issue, we spoke to the Executive Vice-President of the European Commission Frans Timmermans.

**Mr Timmermans, tell us about how you became interested in hydrogen as a solution for Europe's energy transition?**

Renewable hydrogen helps to solve a lot of complex questions in our energy transition. Because we'll need to decarbonise our economy, store excess energy, provide backup for seasonal variations, and preserve Europe's industrial competitiveness, all at the same time. Hydrogen is also a great opportunity for developing countries because it's not tied to fossil fuels that happen to be in the ground or not. The previous industrial revolution was very much about having access to fossil fuels and thanks to hydrogen, the current industrial revolution can have a much broader geographic impact – and a fairer one as well. Every country with enough wind and sun can attract investments and build up a hydrogen industry, creating jobs for their youth and develop industrial value chains. There's especially great potential across Africa, provided that we overcome the challenge of access and cost of capital.

**How do you assess the progress of the last 3 years in developing Europe's hydrogen market? What have been the major challenges?**

We've come very far in a very short time. We adopted our strategy in 2020 after I launched the idea during my hearing at the European Parliament. At the time, many considered it too ambitious. Today, the EU project pipeline is already beyond 40GW of electrolyser capacity. This is also why we proposed to speed up with REPowerEU: frontload some of the hydrogen investments so that we can phase out our dependence on Russian fossil fuels, especially in hard-to-electrify industrial sectors.

The EU is now the first and only major market to have ambitious hydrogen targets, solid funding schemes, as well as a comprehensive policy framework for hydrogen production, consumption



and infrastructure development. We are currently analysing the first hydrogen infrastructure project proposals and working to connect the dots between where large-scale hydrogen production and hydrogen offtake are most likely to emerge first.

Later this year, the EU Hydrogen Bank will start supporting domestic production of renewable hydrogen. We've set clear definitions for producers of renewable hydrogen in the revised Renewable Energy Directive. I'll admit that the work on the Delegated Act was challenging, but the time we took to finalise this proposal was actually needed for everyone in the market to sharpen and communicate their arguments. European companies are now working with US authorities on the exact same points, including temporal and geographic correlation. Projects benefiting from IRA-support will also need to use a solid methodology to calculate their footprint when they source electricity from the grid.

The last piece we need are the rules for a hydrogen market and I trust that the Council and the European Parliament will soon be ready to start dialogues. Functioning markets are really important because hydrogen off-takers have to be able to source hydrogen at the right scale and at the right price. Both low-carbon and renewable hydrogen will play a role here. For gas-based hydrogen we do need to keep in mind that Europe depends to a large degree on the global gas market and that we are price takers. At the end of the day European industries need sufficient volumes and competitive prices and for that we need markets, infrastructure and investments in production advancing in parallel. Here too, the European Hydrogen Bank auctions can help to create vetted price points and increase transparency about production costs and consumers' willingness to pay.

**In the face of growing international competition, how important is it to protect Europe's leading position in hydrogen technology?**

Europe has a strong starting position. We are among the world leaders in electrolyser manufacturing and in renewable hydrogen production. Of course, we are not alone in this race. Both China and the USA want to increase their market shares, so we need to consolidate Europe's lead and build on our competitive advantages as the world moves to mass production.

That won't be easy, but there's ample reason to have confidence. Across the EU, over 36 billion euros of public support to hydrogen projects are in the pipeline, including through the Recovery and Resilience Fund. With REPowerEU and the Net Zero Industry Act we just expanded the opportunities for European hydrogen industry even more. The most recent large-scale call under the Innovation Fund has seen many applications from electrolyser manufacturers, hydrogen production and off-take.

Moreover, the Hydrogen Bank will provide fixed premium support in EUR/kg of hydrogen to producers in the EU. The first pilot auction will run before the end of the year. The Hydrogen Bank can be a real game changer. It sends a strong signal to investors that the EU is building a single point of entry for hydrogen production investments. The more Member States pool their resources together under the Innovation Fund and the Hydrogen Bank, the stronger this effect will be.

But a compelling investment environment is not only about subsidies; it is also about skills,

long-term regulatory certainty, and ensuring a competitive economy. That's one of the reasons why we opted for public auctions under the Hydrogen Bank. A global subsidy race is not a good deal for taxpayers anywhere.

**Where do you hope to see hydrogen in 10 years' time?**

In our long-term strategy for climate neutrality we expect to consume 50 million tonnes of hydrogen in 2050. By 2030, this could already be up to 20 million tonnes per year of renewable hydrogen. Getting to this figure in the next decade is possible if we frontload investments in renewable hydrogen production, hydrogen infrastructure, and off-take in new demand sectors such as steel manufacturing. Doing so will also ensure Europe weans itself off Russian fossil fuels well before 2030.

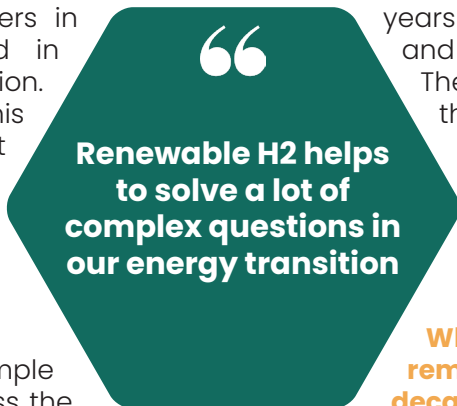
We already have the EU-level tools to deliver those investments: the Hydrogen Bank, the Innovation Fund and the Connecting Europe Facility. But to reach the full potential in the next 10 years we need to pool resources more and simplify the funding environment.

The more funding we can channel through European tools, the more attractive the EU will be on global markets. If we use the power of the single market, we can put Europe at the centre of the global hydrogen industry.

**What are the biggest challenges remaining to achieving Europe's decarbonisation goals?**

We need to make sure that we keep European industry and citizens on board. That comes down to how we shape and implement policy, but it will also be very important that the job opportunities inherent in this transition will materialize. That's why it's crucial to maintain our global lead in hydrogen and to expand clean tech manufacturing in the EU.

I also believe that we should avoid pitting technologies against each other. The challenge is big enough for all decarbonisation technologies to play a role; electricity as well as gases such as hydrogen and biomethane. This is what an integrated energy market and an integrated energy system is all about. We need to think in a more holistic way. That's the only way in which we can deliver the most affordable, secure and sustainable energy services for European citizens, SMEs and industry alike. ●



# Member spotlight:

# Johnson Matthey

As part of The Hydrogen Europe Quarterly, in each issue our member spotlight covers one of Hydrogen Europe's members and its activities and ambitions in hydrogen. FTSE-listed British multinational Johnson Matthey has been on the forefront of the chemicals and metals sectors for much of its 200 year history. Now, its hydrogen technologies business is set to play a key role in the innovation of the industry. We spoke to Mark Wilson, the company's Chief Executive of Hydrogen Technologies, about its exciting partnerships and challenged for the future.



**To begin, can you describe Johnson Matthey's relationship with hydrogen? How long has it been a part of your business? What opportunities does it offer your company?**

Johnson Matthey (JM) has a long-standing relationship with hydrogen. In fact, we worked with NASA on the Apollo space programme in the 1950s. We supplied the electrocatalysts for the fuel cells used in the first manned moon landing. More than 50 years on from the moon landing, the world has changed but we continue to use our science to develop solutions that have an impact at a global scale.

JM's offering in hydrogen is extensive and founded on our core competencies in platinum group metal (PGM) chemistry and catalysis - it is at the heart of who we are and why we've been

successful so far. Our award-winning low carbon hydrogen technology helps make clean hydrogen from natural gas while capturing more than 95% of the associated CO<sub>2</sub>. Crucially, it's available at scale today and is already being incorporated into the UK's flagship HyNet North West hydrogen project.

In our Hydrogen Technologies (HT) business, we're making catalyst coated membranes a key component that defines the performance of fuel cells and electrolyzers. We are applying JM's world class PGM chemistry and catalysis capabilities to develop next generation products - increasing power density and durability - whilst also reducing cost through industrialised manufacturing and more effective use of PGMs. And as the leading secondary refiner of PGMs, we can enable customers to recover the scarce

PGMs from components, with the objective of providing a closed loop solution.

**Tell us about your partnerships with Plug Power, and what other big partnerships do you have planned in the hydrogen/electrolyser space?**

Our partnership with Plug Power is truly exciting and transformational. Plug is a leading provider of hydrogen solutions in the US and around the world and they have chosen us to be their main external supplier of catalyst coated membrane and membrane electrode assembly (MEAs). We will be providing a substantial portion of Plug's demand for these components going into both electrolysers and fuel cells. This is an incredibly important validation of our technology and our ability to deliver for our customers.

But this isn't just about JM – it's an important step for the hydrogen market. It is a great example of how collaboration, leveraging all participants' strengths to the maximum, can be instrumental for the energy transition to be successful.

In terms of other partnerships, strategic relationships with customers are critical to our goal of becoming a market leader – in Europe, we have a strong relationship with Enapter, a pioneer and commercial leader in AEM electrolysis and we recently announced we have extended our partnership with SFC Energy to develop and supply PEM components to support SFC Energy's growth in hydrogen fuel cells. We are engaged in multiple other exciting conversations – so watch this space!

**How do you assess the current landscape for hydrogen investments in the markets where you are active (ie, US and EU, but curious to know if there is notable movement anywhere else)?**

Hydrogen is a global market. JM has a presence in the key regions where hydrogen has growing momentum – the UK and Europe, North America, and Asia. We are seeing increased demand and growing investment from our customers in these three regions, and beyond these markets in countries such as Chile, Saudi Arabia, and Australia, where major investments are being made.

Momentum is clearly building in the hydrogen industry globally. As with all technologies, some geographies are moving at a different pace to others or taking a slightly different approach, and whatever the circumstances we are preparing to support the future growth of our customers. We are already active with our customers and investing in all three of these regions.

Last year, in the UK, we announced our £80m investment in Royston and we've also acquired a small site in the North of England. At Royston, the site could be expanded in the future, almost tripling potential capacity, to produce both fuel cell and electrolyser components. Both sites will enable us to serve the rapid growth in demand predicted in the UK and the EU, enabling the energy transition.

In North America, as part of our partnership with Plug Power, we are co-investing in what is expected to be the largest catalyst coated membrane manufacturing facility in the world, which is due to begin production in 2025.

In addition to existing operations in China, we are working with local strategic players to scale-up our presence. For example, last August, JM signed a Memorandum of Understanding (MoU) with Sinopec Capital, the largest oil and petrochemical products supplier and second largest oil and gas producer in China. The agreement aims to explore joint possibilities across low carbon hydrogen, electrolysers, fuel cells, other decarbonisation technologies and a circular economy in China.

**What are the biggest challenges affecting your hydrogen business(es) today?**

Moving quickly, scaling effectively, and driving costs down are the biggest challenge facing the hydrogen industry. There are inherent risks in doing so and managing risk effectively is critical

But our history and the work we've done over

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**It is widely acknowledged that we will not achieve net zero without hydrogen**”



**Mark Wilson**  
Chief Executive of  
Hydrogen Technologies  
Johnson Matthey



the last 20 years mean that we are equipped to address these challenges. From the R&D and our technical capabilities, our growing capability to serve our customers around the world and, finally, as the largest refiner of secondary PGMs, we offer our customers security of supply. This puts us in a good place to succeed and I'm confident about the journey ahead.

### What excites you most about the potential of hydrogen?

It is widely acknowledged that we will not achieve net zero without hydrogen. It is critical to the success of the energy transition given its potential as an energy store and carrier, ability to be transformed into sustainable chemicals and fuels, and potential for use in hard-to-abate sectors.

I'm also excited by the rapid pace of the market development. This is partly being driven by global bodies and governments across the world promoting the right policies and regulatory framework which in turn is encouraging investment in hydrogen. There is significant momentum building as a result. Industry needs to grasp this opportunity and invest quickly, but wisely, to scale up the value chain and deliver the economies that go with that increased scale.

### What is your advice to European legislators on creating a hydrogen market?

The US Inflation Reduction Act has completely reframed the debate around what hydrogen policies should look like and governments around the world are considering their response. Companies are acting fast to secure investment and get spades in the ground. Whilst there is plenty of capital available, companies investing in hydrogen and its supply chain need crystal clear guidance, certainty, and confidence. Governments need to move fast with this and be ambitious – clarity & certainty are the keys to unlocking significant investment. ●





# REGIONAL MEMBER SPOTLIGHT:

## Bavaria

**For each issue of the Hydrogen Europe Quarterly, we speak to a EU region striving to position itself as key hydrogen contributors. For this issue, we spoke to Stefan Dürr, head of tech and innovation at Hydrogen Centre Bavaria, about the first element and the opportunity it offers for a just transition.**

*The German state of Bavaria is home to some of the country's largest innovators and companies, many of which view hydrogen as a valuable new component in their value chain.*

In May 2019, at an event in Nuremberg, the then state minister of economic affairs, regional development and energy, Hubert Aiwanger, met with Dr Veronika Grimm, professor of economics and Head of the Chair of Economic Theory at Friedrich-Alexander-Universität Erlangen-Nürnberg (FAU). The topic of conversation quickly shifted to hydrogen, and this meeting formed the basis for the inauguration four months later, in September, of Hydrogen Centre Bavaria (H2B). A third protagonist, Professor Peter Wasserscheid, an award-winning chemist and professor for chemical reaction engineering at the University of Erlangen-Nuremberg, also joined the fray to provide a more technical perspective. The three founders' purpose was to establish, as quickly as possible, a proper hydrogen strategy for Bavaria.

The 18 founding members included some of Bavaria's proudest international exports, from technological stalwarts Siemens and Bosch to automotive giants BMW and Audi. The focus is on bringing hydrogen to Bavaria for these global companies to have a foothold – and more – in the burgeoning sector.

"Bringing energy to Bavaria is a big issue as we don't have the best renewable resources," explained Stefan Dürr, head of technology and innovation at H2B.

"So, apart from technology development and regional ecosystems, a lot of projects are connected to importing green energy and green hydrogen to Bavaria – we have technology ready."

Like the rest of Europe, hydrogen was not a priority for Bavaria until three or four years ago but, following the trajectory of the wider bloc and the

German national decision makers, Bavaria's state government is focused on seizing the opportunity.

"We are not politicians, but we want to get the idea out," said Dürr, who also pointed out the importance of regional associations in driving the conversation forward by assessing needs at a more localised level and communicating it to the national and international administrations. Many other states in federal Germany have also launched their own hydrogen associations and strategies and, while they would have different competencies due to their positioning or local industrial base, all of them see the potential of this versatile molecule.

It certainly helps Bavaria to have successful and active companies in their midst for which to target the attention. Early hydrogen-related projects in Bavaria are largely focused on mobility, from bus fleets to fuel cell cars and even hydrogen trains like the one Siemens is developing, with the

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**For Europe, hydrogen and renewables are a chance to have a just transition**”



**Stefan Dürr**

Head of Tech & Innovation at Hydrogen Centre Bavaria

company targeting next year as a start date for a trial run between Augsburg and Füssen. Dürr emphasised the importance of mobility projects in terms of convincing the population of hydrogen's viability and usefulness for their everyday lives – particularly when they see the advantages it offers, from increased range and shorter refuelling times in road transport to quieter trains.

H2B, like all European hydrogen stakeholders, has been keeping a keen eye on European legislative developments, particularly the hotly anticipated European Hydrogen Bank.

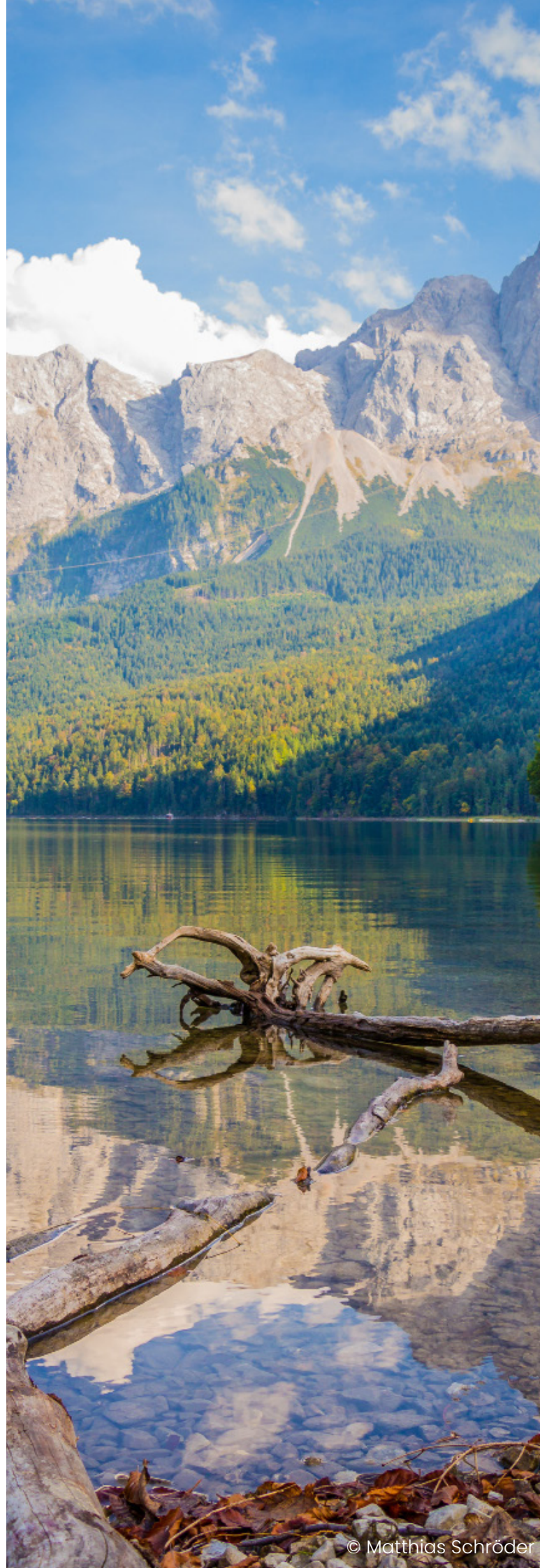
"It's a good idea," said Dürr, "it's modelled on H2Global [the German support scheme] and the current and growing interest in that shows it."

He also commended the Alternative Fuels Infrastructure Regulation (AFIR) in the context of hydrogen-mobility ambitions but cautioned that the work had only just begun. Much work is still needed, especially when it comes to the development of global certification, cross-border taxes, and general global harmonisation on standards.

"Hydrogen is an international topic and works only if we think internationally, not just European," he explained.

"For Europe, hydrogen and renewables are a chance to have this just transition, and I hope it's not just a buzzword," he added, sharing the views and hopes of many who see in these technologies a pathway to genuine decarbonisation, to energy security, and to a more sustainable future.

This is certainly the view of H2B, with Dürr commenting that, in Bavaria, hydrogen may even play a larger role than other regions because "we are targeting climate neutrality by 2040 – a full decade earlier than the EU. The association, the state government, and the state's leading companies appear fully aligned to exploit the potential of hydrogen to achieve this." ●





# NATIONAL MEMBER SPOTLIGHT: Hydrogen Poland

For each issue of the Hydrogen Europe Quarterly, we speak to national hydrogen associations of countries focused on becoming major contributors to the global market. For this issue, we spoke to Pawel Piotrowicz, chairman of the board at Hydrogen Poland, about the Eastern European country's role in the new energy revolution.

**To begin, can you tell us the history of the Polish hydrogen association? What inspired its creation? Who were the key visionaries?**

Hydrogen Poland was established in September 2020 by Krzysztof Kochanowski, managing director of Polish Chamber of Energy Storage (PIME), myself (Polish branch of TÜV SÜD hydrogen and energy expert), Beata Superson-Polowiec (energy market lawyer and regulatory expert) and Tomoho Umeda (Polish entrepreneur with Japanese ancestry, long-time promotor of hydrogen technologies). The idea of the association emerged because of the energy transition triggered by the EU's Green New Deal publication in December 2019, that was virtually missed by the Polish Government still stuck dealing with the COVID pandemic. It didn't even notice the EU Hydrogen Strategy publication. The founders of Hydrogen Poland decided to use this opportunity left in the Polish public debate to establish a dedicated, professional institution that will integrate the market, serve with expertise, and participate in the debate according to the best international standards in this regard, set by such organizations as Hydrogen Europe.

**How would you describe the hydrogen landscape in Poland right now? What is the pipeline of projects like? Which companies are leading the charge?**

There are several angles from which to perceive the Polish hydrogen landscape. First, the most commonly cited is Poland's strong position in conventional hydrogen, with the second largest capacity in Europe of one million tons per year, that can be a useful tool for developing early-bird projects for green hydrogen. However, most advanced projects are not developed by Polish utilities or oil & gas companies like in Western Europe. This is partly because they lack the vision and partly because they consider hydrogen, especially green hydrogen, as a threat to their core business activities.

There are several sectors in which hydrogen projects seem promising as of now: energy, heating, heavy duty mobility, and research & development in new applications i.e. fiberoptics production. Poland, with little over 20% of renewables share in its electricity supply, has a massive challenge ahead on its decarbonisation path. For some, it may be frustrating, but it is also a window of opportunity for the development of a different architecture than is followed by the mainstream – a dispersed, local hydrogen market. Frankly, it is also mirroring the current state of affairs, as hydrogen production is most effective on-site in the end-user premises. This makes the regulatory environment even more important, because local governments cannot assume these risks so carelessly as can large corporate groups. We are still waiting for a state aid scheme for clean hydrogen production.



**Pawel Piotrowicz**

Chairman of the board at Hydrogen Poland

### How is Hydrogen Poland affecting the conversation in Poland and in Europe?

First of all, we are campaigning for actual wisdom and knowledge-based sector development, rather than making hydrogen a political hostage. The better informed the stakeholder, policymaker, and public, the better and more resilient the social contract around hydrogen. This is really crucial to understand: hydrogen will not succeed without subsidy, but will be able to eventually, which renewable technologies have already demonstrated. It will cost taxpayer money, there is no denying that. Yet, investing in the right technologies that have an actual decarbonisation impact is key to establishing a lasting tool for redirecting this support from the fossil industry. We are inexhaustible in building awareness of hydrogen's potential in different sectors, the synergies it creates with renewables, and the options it gives to local society. It is worth mentioning that Poland is a heavily industrialized country, with substantial part of its production industry in EU supply chains. That success story is built on a competitive and skilled workforce. However, the energy transition and greenhouse gas reduction obligations are still not identified as a serious risk or existential threat for companies that won't adapt quickly enough to remain in supply chains.

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**We are campaigning for actual wisdom and knowledge-based sector development rather than making hydrogen a political hostage**”

### How do you assess the recent legislative progress at the national and European level for unlocking the hydrogen economy?

The national level assessment can be only described as poor, as the draft amendment of the Energy Law Act that was introduced by the Ministry of Climate last Autumn was a vivid sign of policymakers not doing their homework. This was an attempt at introducing hydrogen into the Polish legal system in a way suggesting that it is supposed to be the direct replacement of natural gas, which is an obvious flaw. The positive outcome is that the regulator found out during public consultation how many gaps the draft act had and decided to suspend this attempt in this parliamentary term. This is a good sign. The lack of a regulatory bedrock is an obstacle hampering hydrogen rollout, but it is better to have a proper regulation than to have a regulation that simply makes the market a dead end for investors, suppliers and users.

EU legislation is of better quality, at least there are signs of serious attention being paid to hydrogen matters, to mention RED (including intensive debate of RFNBO Delegated Act), AFIR, ETS reform, and CBAM. However, there are also signs of misunderstanding by policymakers at

the EU level about the role of hydrogen and the technological development of different parts of the value chain. The hydrogen gas package that is being thoroughly reviewed from what it was in the beginning is an example of how the gas lobby tried to steer the decarbonisation with hydrogen directly through their infrastructure and assets.

REPower EU is a massive acceleration of renewables role in EU economy and is a great support for hydrogen. But again, it assumes imports of clean hydrogen, that is not the case today because of a lack of proper long distance hydrogen logistics tools and large-scale storage options. Of course, there are green ammonia or green methanol options, but let's be serious, those are multibillion investments that take years to deploy just the upstream, not to mention downstream capability. So, the general climate for hydrogen seems better than ever, but it is time to examine the recent legislative proposals and targets from the available technologies perspective, for the very best of hydrogen technologies – to roll them out at the pace we all hope for.

### What will be the major challenges to your members in the coming months and years in terms of getting projects completed in Poland?

Proper legislation as a bedrock on which all capital-intensive investments are built is absolutely crucial. It requires not only the definitions but also sensible eye on designing the system of support that should reflect the technology's potential, not the dreams, no matter how beautiful they are.

Next is the renewable energy development challenge. To meet those targets included in recent RED recast, the pace at which renewables should be developed is not only unprecedented but also impossible to manage with the current assumption, that the electricity system will fulfill its role. REPower EU sets 600GW of PV power target installed by 2030 in EU. This is 10 times the total capacity of Poland's energy system today, and bear in mind that Poland is a fairly industrialized country, with a significant role of energy intensive industries. This architecture we see today is close to its limits of handling the intermittency, fluxes and inertia that renewables come with (just from the 11GW of PV we already have). This means that understanding hydrogen's role in decarbonization should be definitely more global than it is now. It is not a separate sector, nor an individual technology, it is closely correlated with energy storage systems including battery energy storage, their role in energy systems and renewable energy. In Poland we still believe that what is happening right now is somehow gradual

transformation, not the total shift from what we know – “transition”.

This is the major challenge ahead. Policymakers, businesses and the public should understand the size of the change that is coming with the 2030 and 2050 milestones.

### Where will the hydrogen market be in 10 years in Poland, in Europe?

It is far too distant to speculate on. Even for us as Hydrogen Poland, true believers of hydrogen’s potential and the advantages it presents. We even don’t know yet if it will be the actual fuel for industry as there are many signs that ammonia can be a much more efficient, carbon dioxide zero-emission fuel, not just the carrier of hydrogen as many perceive it today. If it will happen then Poland, which is the largest ammonia producer in the EU, has great potential to offer. We have more than 100 years of ammonia production history in Poland, of course with natural gas as a hydrogen feedstock. But we have for example the largest ammonia storage tank in the world, for many years operating flawlessly. This is just the first example in line.

In hydrogen competition, Poland is starting from a completely different level than our western neighbors. Our economy relies much more heavily on fossil fuels. So, our progress will be quite spectacular.

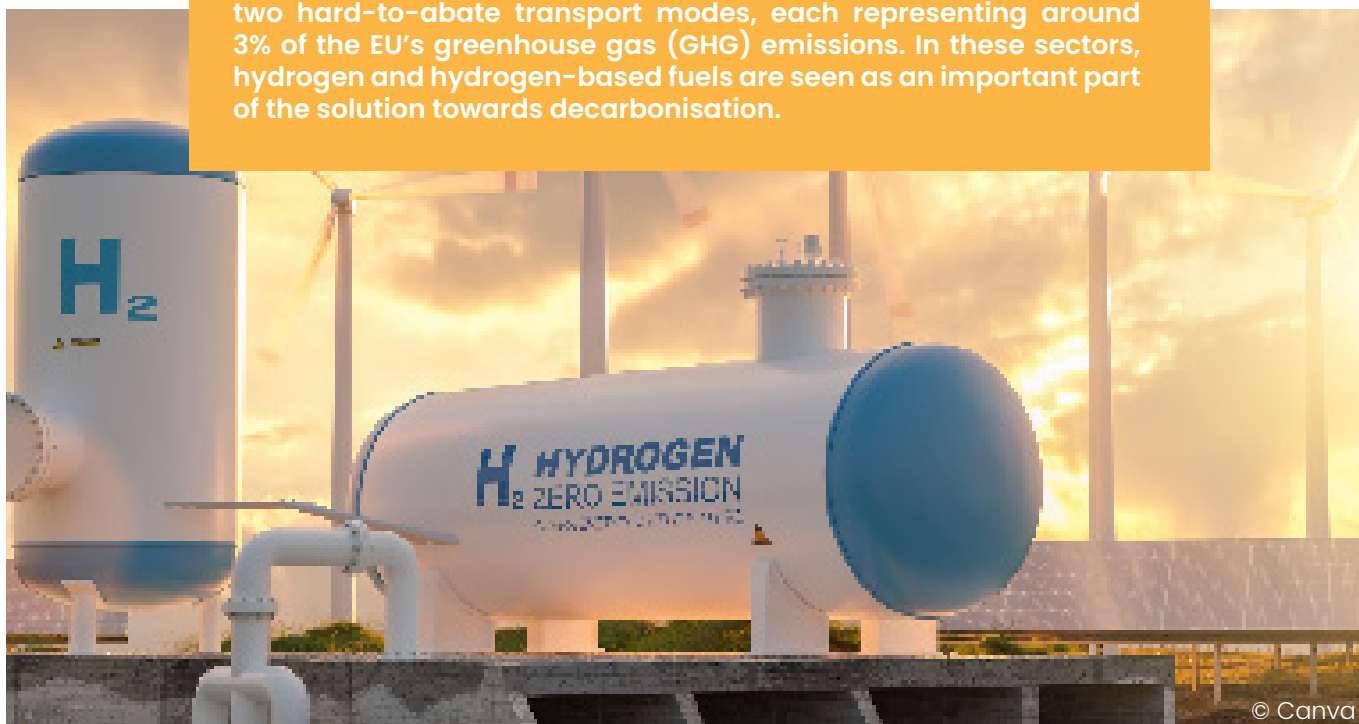
I must necessarily mention our own (Hydrogen Poland) initiative, which is called the 3Seas Hydrogen Council. It brings together hydrogen associations from such countries as Lithuania, Estonia, Poland, Slovakia, the Czech Republic, Hungary, Slovenia and Ukraine. The agreement will be officially signed on 16 May at the H2Poland conference in Poznan. Of course, we are not closing and are open to new members. Our goals are joint cross-border projects, exchange of experience, promotion of products and services of our associations’ members and, above all, one common voice of Central and Eastern Europe in matters of European regulation of the hydrogen sector and financial support programs. Progress and change are happening extremely fast. In summary, in 10 years Europe will be completely different. Discussions will be on completely different topics. Hydrogen will become an important part of the energy and fuel systems. Who knows? Maybe we will be discussing completely new energy sources, new energy carriers? Let me just remind you that quite recently, 10–20 years ago, “hydrogen cars” were treated as science fiction.

I believe, also, that in ten years Poland’s economy will already be largely green. This also depends on us, although not directly. And we want it very much. ●



# Ramping up e-fuels in maritime transport and aviation

As the the Fit for 55 Package negotiations are approaching the finish line, so too are the interinstitutional discussions on FuelEU Maritime and ReFuelEU Aviation. The two 'sister' regulations aim to ensure sufficient demand for sustainable fuels towards 2030 in these two hard-to-abate transport modes, each representing around 3% of the EU's greenhouse gas (GHG) emissions. In these sectors, hydrogen and hydrogen-based fuels are seen as an important part of the solution towards decarbonisation.



The FuelEU Maritime proposal was the first of the two to get a provisional agreement in triologue, on the night of the 22nd of March 2023. Here, the European Commission aimed to limit the carbon intensity of energy used on ships, therefore supporting – if indirectly – the uptake of sustainable maritime fuels. Despite the Commission's desire to be 'fuel agnostic' and let shipping companies choose their own path to reach the GHG reduction targets, the European Parliament proposed a sub-quota for renewable fuels of non-biological origin (RFNBOs) to ensure the use of at least 2% of renewable fuels in shipping by 2030.

The agreement reached in late March successfully establishes a middle ground among institutions: the GHG intensity reduction pathway is gradually increased to meet the ambitions of Parliament towards an 80% reduction by 2050. On

the delicate question of the RFNBO subquota, a compromise was found in the form of a 'sunrise clause': if the Commission reports less than 1% RFNBOs in the fuel mix by 2031, a target of 2% of renewable fuel usage will be set for 2034. RFNBO use is also incentivized through a multiplier tool: until 2035, RFNBOs will count twofold towards the GHG reduction target.

These provisions, which weren't part of the original Commission proposal, are welcomed by Hydrogen Europe and set a clear incentive towards the use of RFNBOs to ensure the decarbonisation of the sector. This will lead to an uptake of demand for hydrogen-based e-fuels, as ammonia or methanol. However, if the supply of e-fuels is low enough to be considered a market failure, the Commission could abandon the RFNBO subquota altogether. Hydrogen Europe will closely follow

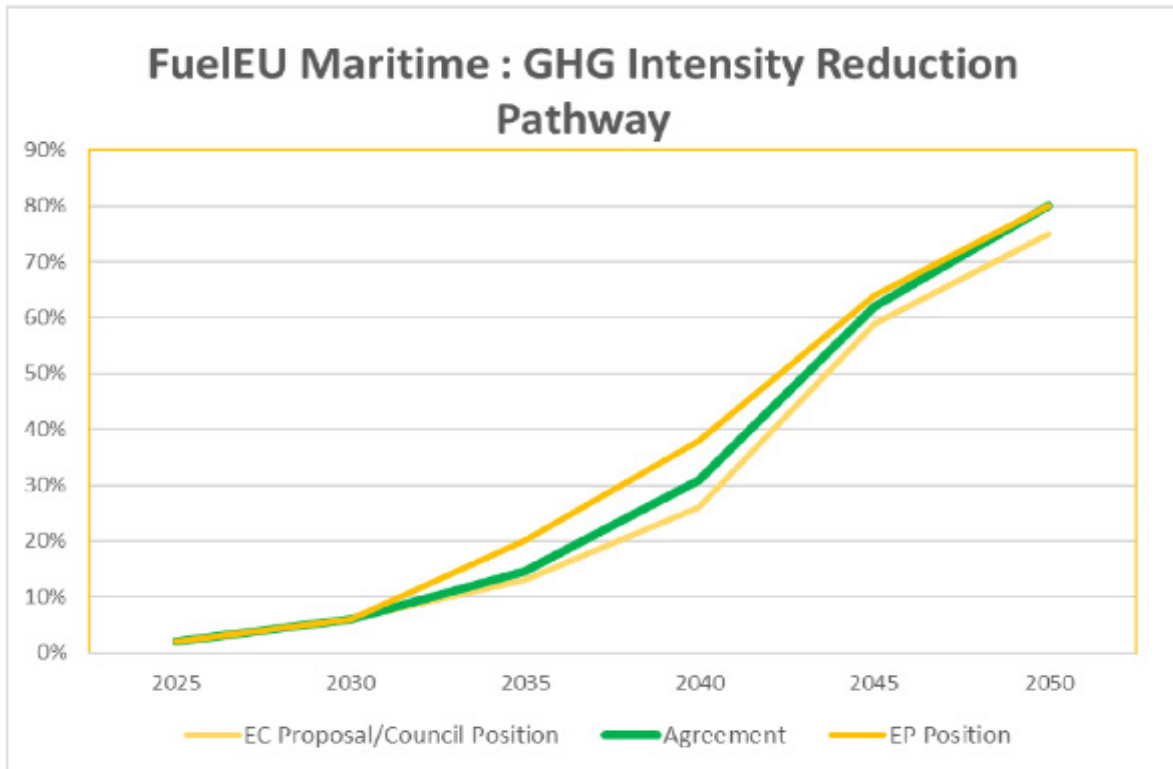


Figure 1. Comparison graph between the initial position of the 3 co-legislators on GHG intensity limit of energy used on-board by a ship and the final agreement on FuelEU Maritime. Hydrogen Europe, 2023

this potential loophole and make sure the market study foreseen by the Commission for the 31st August 2024 will accurately count the supply of RFNBOs, which is expected to ramp up in the coming months already – as shown by Maersk’s recently publicised aim to deliver 2 million tons of green e-fuel per year by 2030.

### By sea and by air

ReFuel EU Aviation was one of the last Fit for 55 files to reach an interinstitutional agreement, despite having started dialogues several months before FuelEU Maritime.

Contrary to the latter, ReFuelEU Aviation’s proposal sets a clear mandate on fuel suppliers for increasing shares of sustainable aviation fuels (SAFs) as well as sub-targets for synthetic fuels to be supplied at EU airports. A main point of debate across institutions arose from the definition of these SAFs, and the level of the mandate for minimum shares of SAFs and synthetic fuels.

Following inconclusive dialogue discussions last December, talks were deadlocked, and debates continued only at technical level for several months, awaiting progress on related files such as the REDII revision. An agreement was finally reached on the 25th of April 2023, setting minimum mandates for SAFs to be supplied to

operators at EU airports, from 2% in 2025 up to 70% by 2050. Dedicated mandates for synthetic – ie, hydrogen-based – aviation fuels were also introduced and even increased compared to the Commission’s original proposal: this mandate can be reached using renewable hydrogen as a drop-in fuel but a specific clause will also allow low-carbon synthetic fuels to be counted towards the target.

This historic agreement, the first-of-a-kind mandate for green aviation fuel, will allow SAF projects to be deployed at a larger scale, adding certainty on the definition of those fuels for investors and suppliers, and establishing a European supply-chain for these sustainable fuels. Projects will also be ramped up through SAF allowances decided within the emissions trading scheme (ETS) aviation file and will benefit from revenues generated from fines for non-compliance which will be earmarked to support R&I projects and large-scale deployment of SAFs production sites. With expected project development of synthetic fuels to reach more than 1.8million tons by 2030, ReFuelEU Aviation will help de-risk current investments and increase production goals from fuel suppliers.



|             | EC Proposal                                  | Council Position                             | EP Position                                   | Final Agreement   |
|-------------|--|--|---|---|
| <b>2025</b> | <b>2% SAF</b>                                | <b>2% SAF</b>                                | <b>2% SAF</b><br><b>0,04% synthetic fuels</b> | <b>2% SAF</b>   |
| <b>2030</b> | <b>6% SAF</b><br><b>0,7% synthetic fuels</b> | <b>8% SAF</b><br><b>0,7% synthetic fuels</b> | <b>6% SAF</b><br><b>2% synthetic fuels</b>    | <b>6% SAF</b><br><b>2030-31 : 1,2% synthetic fuels</b><br><b>2032-34 : 2% synthetic fuels</b> |
| <b>2035</b> | <b>20% SAF</b><br><b>5% synthetic fuels</b>  | <b>20% SAF</b><br><b>5% synthetic fuels</b>  | <b>20% SAF</b><br><b>5% synthetic fuels</b>   | <b>20% SAF</b><br><b>5% synthetic fuels</b>   |
| <b>2040</b> | <b>32% SAF</b><br><b>8% synthetic fuels</b>  | <b>32% SAF</b><br><b>8% synthetic fuels</b>  | <b>37% SAF</b><br><b>13% synthetic fuels</b>  | <b>34% SAF</b><br><b>10% synthetic fuels</b>  |
| <b>2045</b> | <b>38% SAF</b><br><b>11% synthetic fuels</b> | <b>38% SAF</b><br><b>11% synthetic fuels</b> | <b>54% SAF</b><br><b>27% synthetic fuels</b>  | <b>42% SAF</b><br><b>15% synthetic fuels</b>  |
| <b>2050</b> | <b>63% SAF</b><br><b>28% synthetic fuels</b> | <b>63% SAF</b><br><b>28% synthetic fuels</b> | <b>65% SAF</b><br><b>50% synthetic fuels</b>  | <b>70% SAF</b><br><b>35% synthetic fuels</b>  |

Figure 1. Comparison graph between the initial position of the 3 co-legislators on GHG intensity limit of energy used on-board by a ship and the final agreement on FuelEU Maritime. Hydrogen Europe, 2023

Aside from these two crucial pieces of legislations, the Commission last year set up the Renewable Low Carbon Fuels Alliance (RLCFA) to tackle the lack of availability and affordability of these future fuels for air and maritime transport. The alliance brings together 200 members from across the whole value chain to discuss the main challenges and hurdles in boosting production of sustainable fuels for these two modes of transport. Once the legislative framework will be finalized, RLCFA will be able to work with certainty on availability of feedstock, SAFs and sustainable maritime fuels projects as well as de-risk investments for these projects from the public and private sector. With the parallel finalization of RED and AFIR revisions from the Fit for 55 Package, the whole ecosystem for production, demand and distribution of alternative fuels and hydrogen-derivatives in transport will be able to develop.

Aviation and maritime both have a crucial impact on our societies and global economy, and their activities are still expected to grow in the coming years along with their global GHG emissions. Ensuring a significant use of sustainable aviation and maritime fuels aside while keeping them affordable and accessible is a big challenge that needs to be overcome for the EU's climate ambitions to be achieved. ●

*By Clémence Brodier, Policy Officer at Hydrogen Europe*

# Big expectations on the Hydrogen Bank to kickstart the hydrogen economy

The hydrogen sector needs concrete public support along with a coherent regulatory framework until it can achieve full-scale competitiveness. Years ago, the EU provided incentives and an enabling regulatory framework for the upscale of wind and solar technologies, making them the sound business case they are today. The same needs to happen with hydrogen.

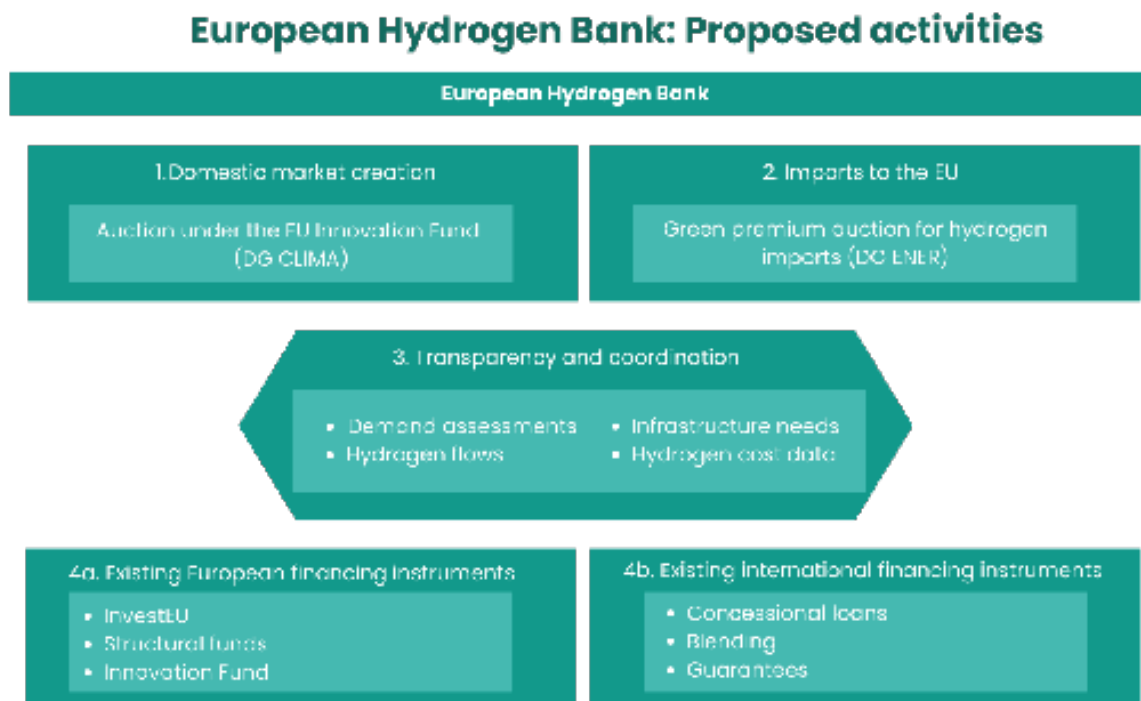


Figure 1. The four pillars of activities related to the European Hydrogen Bank

The hydrogen industry is enthusiastic about the creation of the Hydrogen Bank, as recently presented by the European Commission. It will be a major funding scheme to ramp up the hydrogen value chain, supporting the ambitious European targets under REPowerEU: 20 million tons of renewable hydrogen consumed in the EU, half of which will be produced domestically, and the other half imported.

More recently, the European Commission presented a communication on the Hydrogen Bank along with the announcements of the Net-Zero Industry Act (NZIA) and the Critical Raw Materials Act (CRMA). The Hydrogen Bank will

be composed of 2 pillars – one for domestic production, one for international imports. It will begin with an €800 million pilot auction for domestic production of renewable hydrogen later this year. The Commission has also proposed an interesting solution for Member States to make use of project ranking in the EU auction for their own national support schemes. Regarding imports, lawmakers are currently assessing the creation of a green premiums scheme, to which 3rd-country suppliers or EU off-takers contracting with 3rd-country producers could apply.

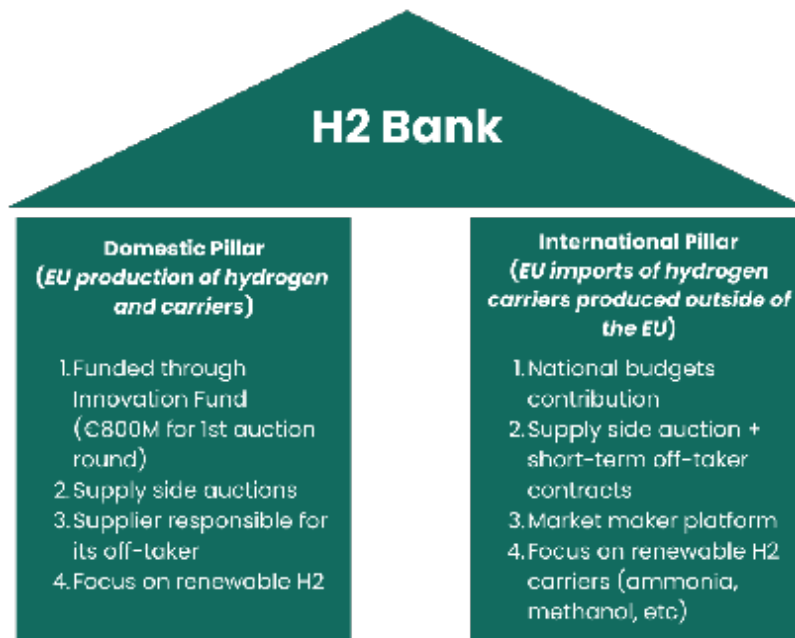


Figure 2. European Commission's concept of a Hydrogen Bank.  
Source: Hydrogen Europe based on information so far provided at various stakeholder meetings. January 2023

**The Hydrogen Bank's domestic pillar** is the most advanced part of the overall instrument. With a focus on renewable hydrogen supply, the most competitive producers (determined under a competitive bidding process at EU level) will receive a fixed premium based on its output (per kilogram of hydrogen). The simplicity of the mechanism will provide a strong signal to the sector and investors. However, competing solely based on price could be detrimental to the competitiveness of the European electrolyser supply chain, as was seen in the solar PV sector where a focus on price points saw EU developers outsource their manufacturing, thus undermining the competitiveness of EU manufacturers. Introducing non-price criteria such as overall emissions savings and European job creation, already widely deployed in the offshore wind sector, is therefore a no-regret measure but that should be further evaluated.

The domestic pillar will be funded through the revenues from the Innovation Fund, which is regulated under the EU's Emission Trading Scheme (ETS). The ETS focuses on reducing emissions in a technology neutral way and so the revenues generated from its allowance should be used to support all type of low-carbon hydrogen, and not just renewables as planned by the European Commission. However, considering that different technologies have very different cost profiles, creating specific windows for renewable and low-carbon hydrogen respectively would avoid any unfair competition.

**The budget dedicated to the scheme also needs to be up to the challenge it aims to address.**

A theoretical €3 billion total allocation for the domestic pillar, at a support level of €3/kgH<sub>2</sub> for 15

years, would only support the annual production of not even 70,000 tonnes of hydrogen. This is less than what a single average EU steel plant would need to decarbonise its processes and represents less than 1% of the European target to produce 10Mtons of renewable hydrogen. Since then, the Commission announced it will allocate €800 million for the first call this year and no longer refers to the €3 billion figure. While this initial figure is acceptable for a pilot auction, the total budget must be far more substantial to provide sufficient industry support.

The Commission seems to reject the possibility to cumulate the received fixed premium with other state aid granted to the same project (e.g., IPCEIs). Although the rationale is understandable on the mid to long term, it will prevent, in the first waves, the participation to the Hydrogen Bank of the most mature and competitive EU hydrogen projects under development which generally have already benefited from some kind of State support.

**Imports.** On the international side, there is unprecedented opportunity for the EU to engage in designing the global hydrogen economy of the future. It is mutually beneficial for the EU and partner countries to collaborate here: securing sustainable and safe supply of lean hydrogen to the producing countries and EU, developing skills and employment opportunities, all the while contributing to all-important net-zero ambitions.

As presented in the March communication, the European Commission is still considering several options in terms of support mechanisms, and according to the feasibility and the timing of their implementation, is proposing a two-speed

approach to hydrogen imports. For fast-track financing of hydrogen imports, a green premium scheme (similar to fixed premium under the domestic pillar, through auctions) is under assessment, which will be capable of providing financial support to foreign hydrogen producers while ensuring long-term contracts of hydrogen supply at a fixed price for EU off-takers.

If a swift implementation of this scheme is likely, a major downside of the proposal would be the difficulty in gathering the needed EU financial resources and providing the legal basis for allowing EU money streams outside of the Union. In this scenario, the upcoming Sovereignty Fund, to be discussed during the review of the multi annual financial framework (in summer 2023), could play a role.

On the other hand, the European Commission is proposing more long-term initiatives to enable international purchases of hydrogen, through the establishment of EU governance structures, e.g., the Team Europe initiative or the proposal of AggregateEU for EU joint purchases of hydrogen worldwide. If successful, this approach could solve the budget issue by relying on national contributions, possibly complemented by EU top-ups. However, its implementation could take several years, potentially delaying mass imports of hydrogen and derivatives to the EU. And, in this scenario, we are not taking into consideration downturns related to the required infrastructure for such deliveries.

As a second option, the European Commission is also considering building on the experience that some European mechanisms have already developed, such as the German H2Global model. This scheme could aggregate interested partners resources, both public and private, by purchasing hydrogen or derivatives on international markets and then redistributing the products to the targeted Member State(s) that provided the budget. This solution has potential but would also require some time to implement as a new legal entity capable of acting as an EU market platform would need time to be created.

The European Commission is now consulting stakeholders on the published Terms and Conditions for the first call for domestic production support, planned for Q4 this year. As elaborated further within Hydrogen Europe's recent position paper<sup>1</sup>, the Hydrogen Bank should be a funding tool to support the ramping up of robust hydrogen production capacities in the EU and create value for the whole EU hydrogen value chain.

In parallel, it should facilitate imports as much as possible to interested Member States by striking a compromise between the need for fast implementation and for safe and sustainable supply. ●

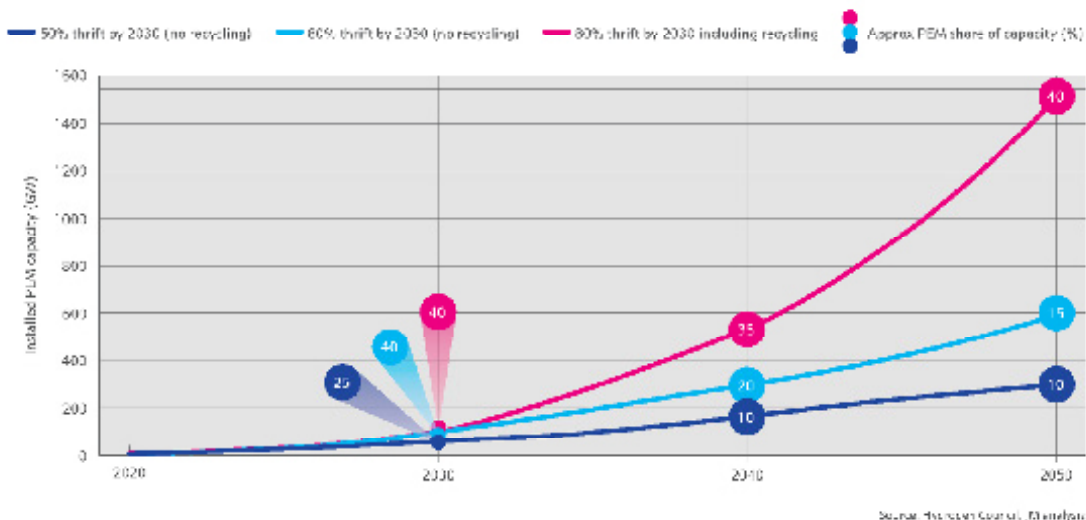
*By Bastien Bonnet-Cantalloube, Senior Policy Officer, and Luca Marsili, Policy Officer at Hydrogen Europe*



<sup>1</sup> [https://hydrogeneurope.eu/wp-content/uploads/2023/03/2023.03\\_Hydrogen-Bank\\_H2Europe\\_paper.pdf](https://hydrogeneurope.eu/wp-content/uploads/2023/03/2023.03_Hydrogen-Bank_H2Europe_paper.pdf)

# Securing raw materials for the hydrogen economy: The Critical Raw Materials regulation proposal

The impact of thrifting and recycling on PEM capacity, based on 1.5 tonnes p.a. iridium supply



It is well known that a number of various critical raw materials are essential for the energy transition, including the scaling up of the hydrogen economy. To secure the materials needed, the European Commission published in March 2023 the first proposal of the Critical Raw Materials regulation.

Among the main initiatives in the proposal, benchmarks are set to guide and track progress on domestic extraction (at least 10% of EU annual consumption), processing (at least 40% of EU annual consumption), recycling (at least 15% of EU annual consumption), and imports (no more than 65% EU annual consumption of any single strategic material from a single third country) of strategic raw materials.

These so-called 'strategic' materials are critical

raw materials which contribute to strategic areas for the green and digital transition and to the defence and aerospace agendas that are at risk of supply shortages due to expected demand growth. To achieve these benchmarks, all critical raw materials projects in the EU will benefit from streamlined permitting processes while selected 'strategic' materials projects will also benefit from easier access to finance.

## What is in it for hydrogen?

Lack of clarity on whether extraction, processing, and recycling benchmarks are defined – for each individual material or for all strategic materials together – prevents us from properly assessing the impact on materials used in smaller amounts

(e.g., Platinum Group Metals<sup>1</sup>) and the extent to which projects will benefit from the 'strategic projects' status and from increased demand for materials extracted and processed in the EU, as well as recycled ones. The ambiguity of the benchmarks makes it almost impossible to assess if they are feasible and ambitious enough. Besides that, recycling, a key supply source for critical materials for the hydrogen industry, is not so prominent in the proposal. With the exception of some measures specifically designed to improve the circularity of critical raw materials in permanent magnets, stipulating that magnets should now indicate e.g., the recycled content of its critical raw materials, there are no direct measures to boost recycling activities. This might be connected to the fact that the methodology to identify 'strategic' materials, a centrepiece concept guiding the measures in the regulation, focuses solely on primary supply (reserves) to scale up production. Although mining is often the most important source of supply, this assessment neglects that a significant share of supply of many strategic materials already comes from recycling, and there is generally a great potential to increase secondary supply in the coming years.

For example, it is estimated that about 23% of current platinum production comes from recycling<sup>2</sup>, but only about 54% (EOL-RR<sup>3</sup>) of platinum-containing waste in the EU is recycled<sup>4</sup>. In the automotive industry, which is already a great contributor of recycled platinum, only 50–60% of the PGMs are recycled<sup>5</sup>. The gradual replacement of internal combustion engine (ICE) vehicles by alternative drivetrains would offer a significant opportunity to even further increase domestic platinum supply by improving ICE's recycling rates – far exceeding the potential to mine it domestically. As significant losses occur in the collection process of scraps, the full EU supply potential from recycling will only be unlocked if collection infrastructure is improved. For the longer-term, a recycling process for the new applications, including in the hydrogen sector e.g., FCEVs, should also be established.

Other than recycling, another example of an area which is overlooked in the proposal is

1 The Platinum Group Metals (PGMs) are platinum, palladium, rhodium, iridium, osmium, and ruthenium.

2 23% refers only to open-loop recycling that accounts only for processes where the original purchaser does not retain ownership of the metal. Closed-loop recycling, where the purchaser retains ownership of the metal and typically uses it again in a new product, is also an essential part of PGMs supply but it is often excluded from market figures as it is difficult to track it.

3 End-of-life recycling rates (EOL-RR) indicate the efficiency of recycling, determined by collection and recovery efficiencies across applications.

4 <https://hydrogeneurope.eu/clean-hydrogen-monitor-2022/>

5 Ibid.

the demand side. A recent Johnson Matthey publication<sup>6</sup> sheds new light on the iridium supply challenge with thrifting (reducing metal use) and the establishment of recycling processes for future applications. For example, if 20% of annual iridium mined production is available to be used in PEM electrolysis (around 1.5 tonnes per year), a reduction of the use of the metal by 50% (200 kg/GW) would make the existing iridium supply sufficient to produce around 48.5 GW of new PEM electrolyzers by 2030. An 80% reduction would enable almost 81 GW by 2030.

To put it into context, if just over 100 GW of PEM electrolyzers were produced, that would mean that PEM technologies alone could produce enough hydrogen to achieve the EU target of 10 million tonnes of hydrogen produced in the EU by 2030. Once these materials are in circulation, capacity can increase even further by establishing a closed-loop recycling process. Holding the same assumption for 2030 (1.5 tonnes of annual primary supply), an 80% rate of thrifting and recycling could enable the production of over 1,500 GW by 2050. However, this potential may only be unlocked with additional, effective measures designed to reduce material use and to establish future recycling flows. Such measures should be more prominent in the proposed Critical Raw Materials regulation.

### What is next?

Improvements in recycling infrastructure are left to Member States, which are required to develop national programmes within 3 years after the date the regulation enters into force. Among the many goals, the programmes should improve the collection of CRMs-containing waste, the recycled material content in products by e.g., introducing it as an award criterion in public procurement, and materials efficiency<sup>7</sup>. However, EU-wide binding targets for the collection and recyclability of each individual material, and take-back systems to repair, re-use and recycle clean technologies, could speed up recycling activities and materials efficiency, and thereby the resilience of European supply chains. ●

*By Priscilla Ferrari de Carvalho, Intelligence Analyst at Hydrogen Europe.*

6 <https://matthey.com/documents/161599/0/JM+Iridium+White+Paper.pdf/db45aebc-8182-2fcl-548a-a3072a4e6423?t=1669022842596>

7 Materials efficiency generally refers to obtaining the same output using less materials or lower grades of raw materials.

# Clean Ammonia for the Future Energy System

Hydrogen Europe recently published a deep-dive report entitled *Clean Ammonia in the Future Energy System*. The report presents the results of a techno-economic analysis on different decarbonisation pathways for the production of ammonia and addresses new emerging applications for this key hydrogen carrier. In this article, we highlight some of the important sector dynamics and key results from the analysis.



© Justin Jin for Hydrogen Europe

Ammonia is already a global commodity of strategic importance. It is traditionally known for its important role in the chemical industry as a building block for the synthesis of nitrogen fertilisers, which makes it a key element in global food security. In fact, ammonia supports food production for around half of the global population. In the EU-27 and UK alone, there is a combined annual ammonia production capacity of 17.7 million tonnes (Mt).

With around 2.5 Mt of hydrogen being used as feedstock to produce ammonia every year in Europe, the sector accounts for almost a third of current hydrogen production and consumption. Yet, the role of ammonia is likely to increase in the upcoming years as its properties as a hydrogen carrier and energy vector are further explored, making room for new emerging applications.

Ammonia has recently been in the spotlight as a potential enabler for the 10 Mt hydrogen import target put forward by the EU as part of the RePowerEU initiative. As a hydrogen derivative that already sees international trade of around 20 Mt annually, 17-18 Mt by ships, one of the advantages of this carrier in particular is that the logistics infrastructure needed for its efficient and safe handling is already largely in place. Although this infrastructure would have to be significantly expanded, existing LPG storage and transport infrastructure could also be relatively easily repurposed due to similar storage requirements.

At the end-use perspective, ammonia can either be cracked back to hydrogen or used directly – both as a feedstock in the chemical industry and as a fuel for the maritime sector or for power generation where it can also provide a much-

needed energy storage potential.

However, in order to realise its role in the energy transition, the ammonia production process must be CO<sub>2</sub>-free. Today ammonia production is responsible for direct emissions of around 0.5 Gigatonnes (Gt) of CO<sub>2</sub> per year, globally. In Europe, the average ammonia plant emits 1.9 tonnes of CO<sub>2</sub> per tonne of ammonia produced, and 90% of that comes from the hydrogen production process alone. Use of low-carbon or renewable hydrogen is therefore key for the decarbonisation of the whole sector.

One of the ways to reduce emissions is the Carbon Capture and Storage (CCS) technology

in substantial lifecycle greenhouse gas (GHG) emissions – especially if LNG or Russian gas is used as feedstock. Unless natural gas is at least partially replaced by biomethane, blue ammonia is not a solution for the complete elimination of CO<sub>2</sub> emissions from the process.

One way of reaching an almost zero-emission solution for ammonia production is through the supply of renewable hydrogen, also commonly referred to as green ammonia. In fully electrified ammonia production, based on hydrogen produced via water electrolysis, the hydrogen supply costs would be, by far, the dominant cost item. At recent high natural gas prices in Europe (110 EUR/MWh) and CO<sub>2</sub> emission costs (75 EUR/t)

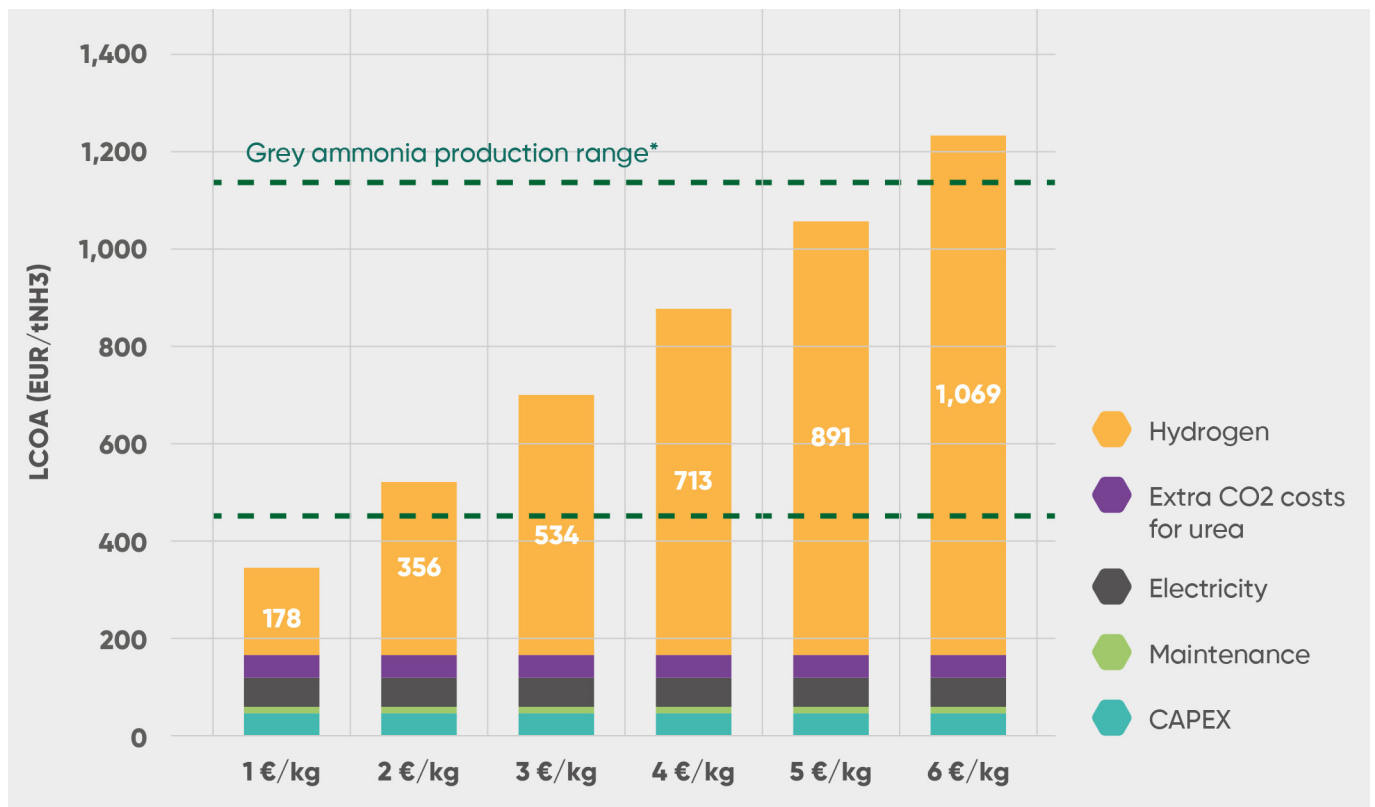


Figure 1: LCOA for green ammonia depending on renewable hydrogen supply costs. Source: Clean Ammonia for the Future Energy System, Hydrogen Europe

– preferably in combination with Autothermal Reforming technology to maximize the CO<sub>2</sub> capture rate. We estimate that, even taking into account increased electricity consumption, lost steam export, as well as added costs of captured CO<sub>2</sub> transportation and permanent storage of 30 EUR/tCO<sub>2</sub>, at current natural gas prices, the CO<sub>2</sub> break-even price for blue ammonia is around 51 EUR/tCO<sub>2</sub>. This shows that blue ammonia can already be cost-competitive today. However, it's highly dependent on the cost of CO<sub>2</sub> transportation and storage. In locations that are far away from potential CO<sub>2</sub> storage sites, these costs can increase significantly. Moreover, even with high CO<sub>2</sub> capture rates since natural gas would still be used as a feedstock then indirect emissions related to its supply can still result

using low carbon or renewable electricity instead of natural gas for ammonia production would be profitable in the EU even at a relatively high hydrogen supply cost of 5.4 EUR/kg.

However, with such high production costs, ammonia production in the EU would not be competitive with imported ammonia from low-cost gas regions. As natural gas prices fall back to around 50 EUR/MWh, the break-even point for renewable hydrogen supply cost falls to around 3.0 EUR/kg. This however needs to cover not only the production of hydrogen, but also its transportation, distribution, and storage costs, which can be quite challenging in many regions in Europe.



Numerous recent European policy initiatives provide a solid building block for the decarbonisation of the sector. Ambitious binding targets are being put forward for the use of renewable hydrogen in industry, carbon-tax rules are becoming more stringent and financial incentives are being created to promote the trade of green molecules. However, overly restrictive additionality and temporal correlation burdens remain a huge challenge for cost-competitiveness of green ammonia, especially given the inherent industrial need of keeping the synthesis loop process running at a minimum load of hydrogen input.

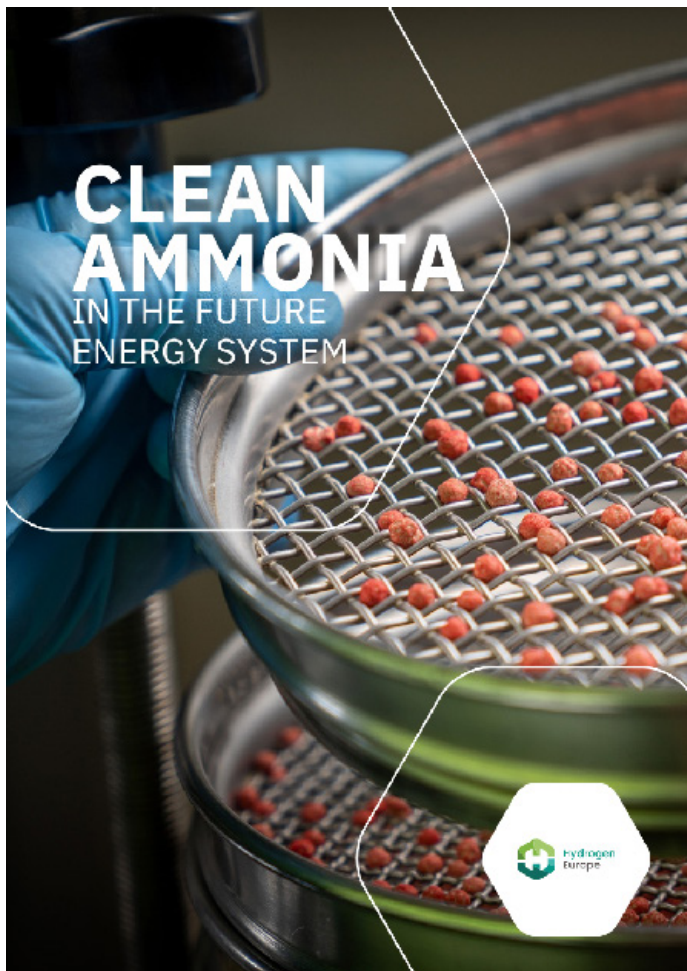
Moreover, the current policy initiatives focus primarily on the upstream part of the ammonia value chain – with the downstream part often neglected. Development of favourable policies for the value chain segments that will consume renewable ammonia, such as the maritime, the power sector and fertilisers segments, would go a long way in accelerating the energy transition

of the sector.

A more in-depth analysis of the topics mentioned in this article can be found in the full report of the sector.

A more in-depth analysis of the topics mentioned in this article can be found in the full report. ●

*By Grzegorz Pawelec, Director of Intelligence at Hydrogen Europe, and Joana Fonseca, Intelligence Senior Analyst at Hydrogen Europe.*



**Scan the QR code to download the Clean Ammonia Report**



Find out more about Hydrogen Europe's publications at [www.hydrogeneurope.eu](http://www.hydrogeneurope.eu)

# Events Overview

## European Sustainability Energy Week

20–22 June 2023,

Hybrid: Brussels and online

Hydrogen Europe is delighted to invite you to join our two sessions organised as part of the official programme of the European Sustainability Week:

### Skills as the green engine for regional hydrogen ecosystems

Tuesday, 20 June 2023  
14:30 – 16:00

Hybrid: Brussels and online



Hydrogen is one of the priority areas of the European Green Deal and EU's efforts to reach climate-neutrality by 2050 and ensure energy security. Furthermore, REPowerEU Plan and the Hydrogen Accelerator have further raised the EU's renewable hydrogen target to 20 million tons of domestic production and imports annually by 2030.

Meeting these ambitious targets will require the EU to significantly upscale its hydrogen economy. In doing so, the European regions play a significant role. They are crucial for the deployment of hydrogen technologies. They bring together various stakeholders and provide conditions to build the regional hydrogen ecosystems. Regions also support the design and rollout of training and education programmes aimed at reskilling and upskilling workers to meet the needs of the growing hydrogen economy. Recently the preparedness of the European workforce has moved up in the EU's policy agenda as it become clear that the future success of the sector hinders on the availability of an educated and skilled workforce as well as on retaining and attracting talent.

Our panellists will aim to identify hydrogen skills needs and trends whether we are talking about building up the capacities of local government to speed up investments and permitting or

preparing the European workforce to deliver the implementation of hydrogen projects. Representatives from the European institutions, regional and local governments, industry and education and training providers will exchange on the ongoing EU initiatives and funding options at EU, national and regional level to address the skills shortage.

This session is co-organised by Hydrogen Europe, European Committee of the Regions, S3 H2 Valleys Platform and Hydrogen Europe Research.

**For more information and to register, please visit [www.eusew.eu](http://www.eusew.eu)**

## Bringing H2 to industry. The right infrastructure to unlock industry's decarbonisation potential

Thursday 22 June,  
14:00 – 15:30  
Hybrid: Brussels and online



Hydrogen is one of the priority areas identified in the European Green Deal and REPowerEU which outline the path for Europe to reach climate-neutrality by 2050 and ensure energy independence from Russia. Furthermore, the Hydrogen Accelerator sets out a strategy to double the previous EU renewable hydrogen target to 10 million tons of annual domestic production, plus an additional 10 million tons of annual hydrogen imports by 2030, a significant part of which will come as ammonia.

The policy targets reflect the idea that hydrogen will be a catalyst of Europe's energy transition and one of the strongest candidates for helping hard to abate sectors to decarbonise, such as the European heavy industry. From ceramics and glass to steelmaking and fertilisers, the term 'industry' encompasses a wide variety of consumers, each with specific characteristics and needs.

This panel will look into the hydrogen economy from the perspective of the industrial consumer and try to answer a fundamental question: how do we get the hydrogen to the final industrial consumer and how is the legislative framework concretely enabling this?

Our panellists will discuss and examine the current status of hydrogen infrastructure and what are the main requirements for industrial consumers to be able to uptake clean hydrogen. In addition, they will debate on the role of industrial hubs in kickstarting the market and breaking the chicken

and egg dilemma while they will touch upon the development of skills needed from both industry and infrastructure companies in order to prepare the workforce of the future. Last but not least, they will interact with the audience on the elements missing to make the legislative framework effective & supportive to speed up the process.

This session is co-organised by Hydrogen Europe the EUROFER, FertilizersEurope

**For more information and to register, please visit [www.eusew.eu](http://www.eusew.eu)**

## Hydrogen Europe General Assembly

Tuesday, 27 June 2023  
Online



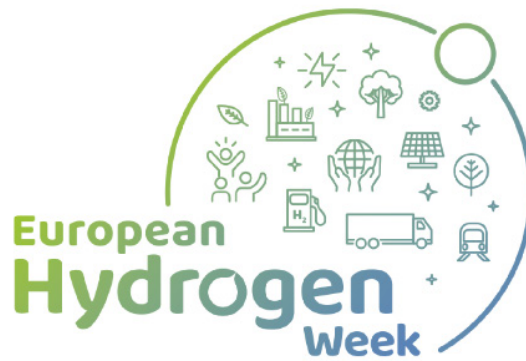
Hydrogen Europe General Assembly takes place twice per year online. More information regarding the agenda, registration link and next steps will be shared with members on Members Only Area closer to the day.

## Hydrogen Europe Summer Market Drinks Reception

Tuesday, 27 June between  
18:30 – 22:00, Brussels,  
Belgium



Hydrogen Europe's Summer Market takes place in Brussels, Belgium, face-to-face, and invitees have the opportunity to come together with members and stakeholders of the hydrogen sector, in a great networking atmosphere. It is a great opportunity with great food and drinks, set in a beautiful Summer Market ambiance! Kindly note that this event is reserved for the Hydrogen Europe Members and invited guests.

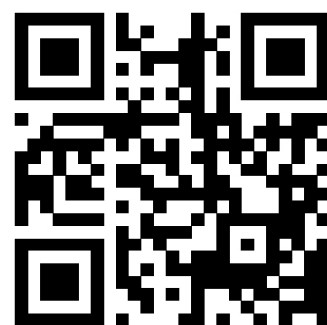


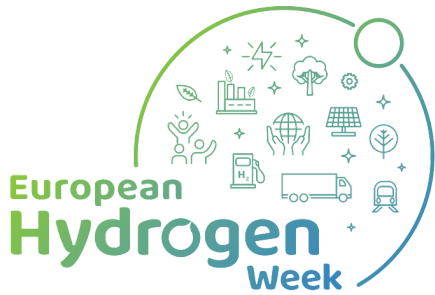
## 20–24 November 2023 Brussels, Belgium

The EU Hydrogen Week 2023 will have **multiple conference streams, over 25 sessions** and **200 expected speakers** that will deep dive into all things hydrogen – from industry trends, challenges and opportunities to innovation, new technology, and more. Participants will be able to navigate thought-provoking sessions, as well as take part in captivating and interactive demonstrations on our exhibition floor and get a taste of what the future clean energy system will look like – with plenty of time for unmatched networking with like-minded individuals.

**Scan the QR code  
to discover, learn, network  
and be inspired!**

[www.euhydrogenweek.eu](http://www.euhydrogenweek.eu)





**20 - 24 November 2023**  
**Brussels, Belgium**  
[euhydrogenweek.eu](http://euhydrogenweek.eu)



# What to expect in 2023?



**Over 8000  
sqm**



**High-Level  
Policy Conference**



**B2B Forum**



**Networking  
Evenings**



**6000  
Visitors**



**Trade show**



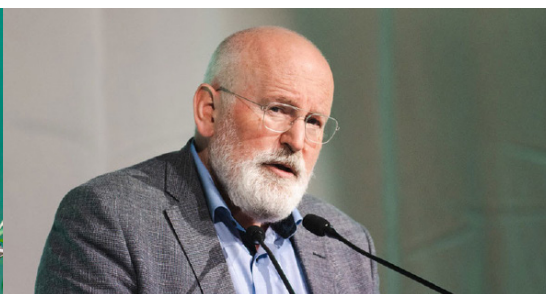
**Side events  
& B2B meetings**



**Startups**



**Showcases &  
Demos**



# Become an exhibitor



**INCREASED VISIBILITY**  
Raise your organisation's visibility to a large audience of potential customers.



**BRAND BUILDING**  
Exploit the chance to build your brand recognition and establish your business as a leader in the industry.



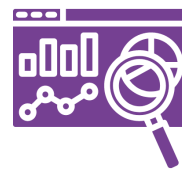
**LEAD GENERATION**  
Don't miss the opportunity to generate leads by meeting interested attendees.



**SALES**  
Our exhibition can provide a platform for sales, allowing organisations to showcase and sell their products or services directly to interested clients.



**NETWORKING**  
network and building relationships with other organisations and industry professionals.



**MARKET RESEARCH**  
Fairs can provide valuable insights into consumer preferences and industry trends, helping businesses to stay competitive and adapt to changing market conditions.

**Check out how to become an exhibitor at:**  
[euhydrogenweek.eu/become-an-exhibitor/](http://euhydrogenweek.eu/become-an-exhibitor/)



# A warm welcome to all our new Hydrogen Europe members



## AKFEN RENEWABLE ENERGY

Akfen Yenilenebilir Enerji makes great contribution to Turkish economy with its modernized power plants built in the richest regions of Turkey in terms of natural resources. The company portfolio includes hydroelectric power plants solar power plants wind power plants, with a total of capacity of 700 MW renewable energy. We have been interested in setting up a chain of hydrogen production facilities and management, as well as forming a cooperation with businesses to distribute hydrogen across Turkey to EU and Middle Eastern nations.



**CONTACT**

[info@akfen.com.tr](mailto:info@akfen.com.tr)



## ACCIONAPLUG S.L.

ACCIONAPLUG, Joint Venture between ACCIONA Energía and Plug Power in Iberia, integrates in a unique platform the expertise of two leaders in their markets. ACCIONAPLUG provides an integrated solution: develops, operates, and maintains green hydrogen projects from renewable power development, construction and operation to hydrogen production, liquefaction, distribution, and dispensing.



**CONTACT**

[accionaplug@acciona.com](mailto:accionaplug@acciona.com)



## Agencia de Investigación e Innovación de Castilla-La Mancha

Castilla-La Mancha looks to the future with a commitment to sustainability and green and digital transitions. It's a leader region in wind and photovoltaic renewable energy installations. It promotes the development of the hydrogen industry at all stages of the value chain. It hosts the national hydrogen center for research.



**CONTACT**

[innocam@jccm.es](mailto:innocam@jccm.es)





## AnyWire Oy

AnyWire is an app that allows people and companies to pay for sustainable fuel via the phone. We contribute to the hydrogen infrastructure by making the payments comfortable and easy and by implementing a map with hydrogen stations that will contain up-to-date information for drivers and upcoming booking option.



**CONTACT**

[info@anywire.tech](mailto:info@anywire.tech)



## APS – Administração dos Portos de Sines e do Algarve, SA

APS, S.A. is the company responsible for the management of the ports of Sines, Faro and Portimão, thus assuring economic exploitation, maintenance and development of the facilities, aiming at fulfilling the port authority responsibilities endowed to the company. The Port of Sines has been developing several projects that provide not only an increase in annual handling capacity, but also the production of technological tools associated with the decarbonization of the sector and the production of green hydrogen, which meet the EU's goals.



**CONTACT**

[geral@apsinesalgarve.pt](mailto:geral@apsinesalgarve.pt)



## ARTELYS SAS

Artelys is a consultancy and software edition company specialised in applying advanced quantitative techniques to deliver actionable recommendations. Our services range from building multi-energy transition pathways, performing cost-benefit analysis (e.g. H2 storage, P2X, impact of market design), and optimising the operational management of assets such as electrolyzers and storage.



**CONTACT**

[info@artelys.com](mailto:info@artelys.com)



## Biedrība "Zaļo un Viedo Tehnoloģiju Klasteris"

Green-Tech Cluster Latvia is an organization developed for cross-sectoral cooperation bringing together companies, educational and research institutions, as well as other organizations that are active in the green and smart technologies. We are fostering green hydrogen agenda in Latvia and enabling collaboration of stakeholders via open forum Latvian Hydrogen Alliance.



### CONTACT

[info@greentechlatvia.eu](mailto:info@greentechlatvia.eu)



## BluEnergy Revolution Società Cooperativa

BER is an innovation oriented engineering company specialized in customized hydrogen focused services (integration, consulting and innovation, Products design and realization), and developing the innovative technological solutions for the next energy transition via different type of engineering services as well as developing and prototyping hydrogen technologies and products according to customers' needs and wishes, guiding them from the conceptual phase to the installation one.



### CONTACT

[admin@bluenrev.com](mailto:admin@bluenrev.com)



## Compañía Española de Petróleos

Compañía Española de Petróleos (CEPSA) is a global and integrated energy and diversified company operating across the entire oil, chemical and gas value chain. We are a leading international company committed to sustainable mobility and energy with strong technical expertise. The new strategy Positive Motion aims to become a leader in sustainable mobility and energy in Spain and Portugal, and a benchmark in energy transition. With this strategy, the company will focus on the needs of its customers, who face their own challenges in decarbonizing their activities.



### CONTACT

[relaciones.institucionales@cepsa.com](mailto:relaciones.institucionales@cepsa.com)



## Confederation of Danish Industry

Hydrogen, and Power-to-X (production of green hydrogen derivatives) are key in reaching European energy self-sufficiency and staying on track for 1,5 degrees. It has widespread societal potential, and that's why, as the largest business organization in Denmark, Confederation of Danish Industry, is devoted to making this industry succeed. Through Hydrogen Europe we will solely support the push for more green hydrogen.

 **CONTACT**  
di@di.dk



## DFDS AS

DFDS has since its foundation in 1866 built a unique infrastructure of ferry routes connecting European countries with each other as well as with Turkey. We mostly transport freight units on the routes in addition to around 5 million passengers in normal years.

 **CONTACT**  
maben@dfds.com



## DP Energy Ireland

DP Energy is one of Ireland's leading developers of renewable energy projects. Headquartered in Buttevant in North Cork and operating across the world, the company is committed to using the most sustainable and environmentally responsible methods possible in all their energy developments. With a global reputation spanning over 30 years, DP Energy develops, constructs, and has operated renewable energy assets worldwide. DP Energy is investigating power to X solutions as potential new routes to market for its immediate pipeline of renewable energy projects. Power to X is seen as a key growth area for the energy sector in the coming decade and DP will use its considerable renewable energy expertise in this exciting new industry.

 **CONTACT**  
info@dpenergy.com



## EUNICE GREEN ENERGY SA

EUNICE is a Green Tech & Energy Solution Integrator and Electricity Provider focused exclusively on RES. The activities of EUNICE cover the whole spectrum of the energy value chain, including the development and operation of green smart-grids and H<sub>2</sub> projects, and manufacturing of high-tech RES and e-Mobility products and services.

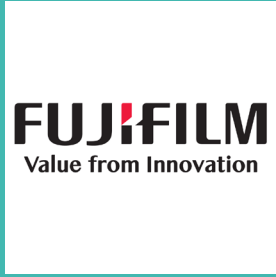
 **CONTACT**  
info@eunice-group.com



## FEN Research GmbH

FEN Research is the Green Energy Center Europe's non-profit research and development organization focusing on systemic process research. Within its research center HyWest "Power to Green Hydrogen", FEN Research leads / is partner of regional, national, and European hydrogen projects, such as HyWest, HyDrone, HyBus, H2Alpin, MOST-H2, HySelect & TRIERES.

 **CONTACT**  
info@fen-research.org



## Fujifilm Europe GmbH

Fujifilm operates over 50 group companies and branches in Europe and employs more than 6000 people in R&D, manufacturing, sales and service, with FUJIFILM Europe GmbH (Ratingen, Germany) operating as the strategic headquarters for the region. Throughout Europe, Fujifilm entities serve a range of industries including medical technology, biopharmaceuticals, electronic materials, industrial products, chemicals, graphic systems, optical devices, data storage and all aspects of photography.

 **CONTACT**  
webmaster\_feg@fujifilm.com



## GERG (Groupe Européen de Recherche Gazière)

GERG was established in 1961, when the gas industry across the European Community decided to join forces to promote research and innovation in the gas supply chain. The European Gas Research Group, GERG, along with its member organisations, work with the European energy community to develop innovative solutions which place our gas infrastructure at the heart of the energy system, now and in the future.



### CONTACT

[contact@gerg.eu](mailto:contact@gerg.eu)



## Grant Garant s. r. o.

We specialize in providing consulting services for the formulation, preparation and administration of international research and innovative scientific projects as well as projects funded by the EU Structural funds, which focus on innovation and R&D. We have gained experience by cooperation with R&D leaders and the European Commission staff.



### CONTACT

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## H2BOAT srl

We're a startup focused on the development of the energy pack for marine applications. We certify for marine approval components and systems, for leisure boats and commercial ships, from design to integration. Our role is to decarbonize the marine sector through the use of hydrogen technologies.



### CONTACT

[info@h2boat.it](mailto:info@h2boat.it)



## HUMDA Hungarian Mobility Development Agency Plc

HUMDA Hungarian Mobility Development Agency Plc. was founded by the Government of Hungary with the mission to promote carbon-free transport and to continuously increase the number of zero-emission vehicles in Hungary. HUMDA is dedicated to green mobility, electromobility, the Green Bus Programme and the implementation of the National Hydrogen Strategy.

 **CONTACT**  
[info@humda.hu](mailto:info@humda.hu)



## Hydrogenpro ASA

HydrogenPro is a technology company and an OEM for high pressure alkaline electrolyser and supplies large scale green hydrogen plants, all ISO 9001, ISO 45001 and ISO 14001 certified. The Company was founded in 2013 by individuals with background from the electrolysis industry which was established in Telemark, Norway by Norsk Hydro in 1927. We are an experienced engineering team of leading industry experts, drawing upon unparalleled experience and expertise in the hydrogen and renewable energy industry.

 **CONTACT**  
[info@hydrogen-pro.com](mailto:info@hydrogen-pro.com)



## LEA LandesEnergieAgentur Hessen GmbH

Hesse is a state in the centre of Germany. The capital city is Wiesbaden, and the largest urban area is Frankfurt, which is also a principal financial centre for Europe. With an area of 21,114.73 km<sup>2</sup> and a population of over six million, it is also part of Germany's second-largest metropolitan area (Frankfurt Rhine-Main). Hesse has a huge variety of landscapes and culture: whether you're seeking half-timbered villages, vibrant international cities, or wide-open natural landscapes.

 **CONTACT**  
[lea@lea-hessen.de](mailto:lea@lea-hessen.de)



## LETOMEC SRL

LETOMEC aims to prevent hydrogen embrittlement issue to enhance a safe energy transition. We provide HELIOS devices for real-time hydrogen embrittlement risk monitoring of structures, offer test services to evaluate materials' behavior in hydrogen environment and develop innovative technologies for green hydrogen production. New partnerships for R&D activities are welcome!



### CONTACT

[amministrazione@letomec.com](mailto:amministrazione@letomec.com)



## MARINN – Maritimni inovacijski klaster

MARINN Cluster is dedicated to promoting innovation, research and development in the maritime industry. MARINN aims to connect and support companies, research institutions and public authorities to drive the growth of the maritime sector in Croatia and beyond. Our focus areas include clean propulsion with emphasis on hydrogen and autonomy.



### CONTACT

[eufunds@gitone.hr](mailto:eufunds@gitone.hr)



## Materials Mates Italia srl

Materials Mates Italia srl was founded in 2006 to supply instruments and test systems in the energy field. Specialized in high power, multichannel Electrochemical Impedance Spectroscopy, MMI supplied laboratories and companies worldwide with system for evaluation and predictive maintenance on fuel cells and electrolyzers.



### CONTACT

[info@mmates.it](mailto:info@mmates.it)



## Moravian-Silesian Region

“The Moravian-Silesian Region is third biggest of the 14 regions of the Czech Republic (1.2 million inhabitants). The Region shares its borders with Poland and with Slovakia in the east. Due to the concentration of heavy industry, Region was an important industrial heart of the Czech Republic. Since the end of hard coal mining, the business structure has gradually changed. Now the Region is changing its face and transforming into a region of new technologies and clean energy.”



### CONTACT

[posta@msk.cz](mailto:posta@msk.cz)



## North-West University

The Department of Science and Technology of South Africa developed the National Hydrogen and Fuel Cells Technologies (HFCT) Research, Development, and Innovation (RDI) Strategy. The National Strategy was branded Hydrogen South Africa (HySA). HySA Infrastructure Centre of Competence is co-hosted by North-West University and CSIR. The centre is an African leader in the research and development of water electrolyser components such as CCMs (catalyst coated membranes) and stacks, Electrochemical Hydrogen Compression, as well as LOHC (liquid organic hydrogen carriers) dehydrogenation technologies and pyrolysis of methane.



### CONTACT

[21333874@nwu.ac.za](mailto:21333874@nwu.ac.za)



## Norwegian Hydrogen AS

Norwegian Hydrogen AS is a green hydrogen company with activities across the entire Nordic region. The company is focusing on both the production and distribution of green hydrogen to both mobility and industry, with refueling established as a dedicated business unit.



### CONTACT

[marielle@nh2.no](mailto:marielle@nh2.no)





## ProEuropean Trading GmbH

ProEuropean Trading GmbH is a European project management company at the leading edge of innovation & technology in the green energy sector. The company plays a key role in integrating the latest technological advances in the generation and distribution of green hydrogen energy and implementing them into power generation projects. The company is led by an experienced team of corporate executives from project management, banking, finance, audit, and technology, with a track record in successfully managing energy projects.



### CONTACT

[info@proeuropean.eu](mailto:info@proeuropean.eu)



## Sasol Germany GmbH

Sasol is one of the world's largest producers of hydrogen and synthetic fuels through the leveraging of the Fischer-Tropsch (FT) technology. The aim is to transition the production to renewable feedstocks to produce green hydrogen and its derivatives like ammonia and also synthetic aviation fuel (SAF).



### CONTACT

[info@de.sasol.com](mailto:info@de.sasol.com)



## Sonnedix España Management S.L.U

We are a Renewable Energy Producer (REP) with over a decade-long trajectory of sustainable growth. Sonnedix develops, builds, and operates renewable energy projects for the long-term, with a focus on providing green, affordable electricity to our customers, and acting as a true social citizen there where it operates.



### CONTACT

[miguel.garcia@sonnedix.com](mailto:miguel.garcia@sonnedix.com)

## STAM SRL



STAM is an engineering and technology consulting SME with a staff of over 50 full-time employees and a team of senior consultants. STAM is involved in the EU Clean Hydrogen Alliance and actively participates to the activities of H2IT, the Italian Hydrogen Association, as entry point to closely follow the activities of Hydrogen Europe. In this framework, STAM has contributed to the development of the strategic document developed by H2IT to set the strategic priorities for stationary hydrogen applications in the built environment.



### CONTACT

[stam@stamtech.com](mailto:stam@stamtech.com)

## STELLANTIS



Stellantis is one of the world's leading low-emission automotive and mobility companies. In addition to Light Commercial Vehicles, battery-powered, from 2022 it will offer vehicles with fuel cells, manufactured in Europe for the Peugeot, Citroën, and Opel brands and in the future for the FIAT brand.



### CONTACT

[jean.wibaut@stellantis.com](mailto:jean.wibaut@stellantis.com)

## Verenigde Tankrederij BV



Verenigde Tankrederij BV ("VT") is a significant Rotterdam-based shipowner since 1932 operating over 50 vessels globally. As a bunker supplier and fleet operator VT is directly contributing to the maritime industry and as such feels the responsibility to invest in alternative fuels, not only to be able to provide these, but also for the consumption of our own fleet. We turn over approximately EUR 90M per year and are growing to the pace of our ambitions, looking to establish a position in key global bunker hubs and regions.



### CONTACT

[info@vtgroup.nl](mailto:info@vtgroup.nl)



## Wiener Stadtwerke

Wiener Stadtwerke GmbH is the most important infrastructure service provider in the Greater Vienna metropolitan area. It is wholly owned by the City of Vienna. The Group includes Austria's largest energy provider, Wien Energie, and largest combined network provider, Wiener Netze in addition to Vienna's main public transport provider Wiener Linien.



### CONTACT

[amy.radlberger@wienenergie.at](mailto:amy.radlberger@wienenergie.at)



## Yokogawa Europe B.V.

Yokogawa provides advanced solutions in the areas of measurement, control, and information, enabling the transition to autonomous operations. We are transforming Europe to a new, data-driven and digitally-native energy system, powered by renewables; forging a more efficient path to net zero and energy security.



### CONTACT

[info@nl.yokogawa.com](mailto:info@nl.yokogawa.com)



## Frv x Global services

We at FRV aim to be at the forefront of the transition of the global energy transition, while setting the highest standards of quality, technical innovation and commitment to our service delivery, from planning to operations of assets for single and portfolios of customers, suppliers and investors.



### CONTACT

[cayetano.hernandez@frv.com](mailto:cayetano.hernandez@frv.com)

# Job market

## Electrolyzer Structural Engineer- HyLYZER 1000 Cummins

Full time - Oevel, Belgium

### Description:

- Responsible for leading the daily activities of a production team including managing team leaders / members, housekeeping, and meeting production targets.
- Works cross functionally to recommend and engage in improving safety, productivity, quality, and efficiency of operations.
- Serves as group lead on projects and work assignments.
- Provides guidance and feedback on a regular base for team members in accomplishing tasks and goals; sets expectations and clarifies responsibilities.
- Coaches and mentors team members to encourage them give their best effort every day.
- Coordinating advising your team the go to's for solving electrical, mechanical, automation process related questions.

**Deadline:** 31 March 2023

**Apply here:** <https://cummins.jobs/>



## Senior Communications Officer Hydrogen Europe

Full time - Brussels, Belgium

### Description:

- Draft, proofread and edit content for Hydrogen Europe's various materials, including newsletters, publications, and social media.
- Ensure proper implementation of communication and dissemination tasks within the EU projects in which Hydrogen Europe is a partner.
- Work on several projects at once, keeping on top of often tight deadlines.
- Work with the Communications Director and the communications team to ensure suitable delivery on timelines and deliverables.
- Support the design of compelling visual materials for Hydrogen Europe communications activities, including reports, brochures, social media cards, etc.
- Support the promotion of all Hydrogen Europe events.
- Contribute to other Hydrogen Europe communications activities.

**Deadline:** 30 June 2023

**Apply here:** <https://hydrogeneurope.eu/job-market/>



## Contract Manager BOSS Energy Consulting

Full time - Remote, Germany

### Description:

- Supporting front-end commercial and contractual tenders.
- Managing contracts for significant international projects with a commercial and contractual focus.
- Organising and directing project stakeholders to gather pertinent data.
- You will take part in various projects and bid management teams with significant involvement during all project phases, from early contract strategy to managing the bid management process, contract negotiations, and project and contract follow-up.
- You'll promote agreement between sales reps and clients on commercial and contractual concerns, and you'll adopt best practices where necessary.
- You will proactively offer guidance on the contractual processes related to the project, regarding claims, modifications, communication, and notice.
- You will manage variation orders, disputes, and claims.
- You will communicate with our Legal department about all legal issues and potential legal problems in the projects.
- You will assist project purchasing with the establishment and negotiation of complex subcontracts and strategic procurements during project execution.

**Deadline:** 31 May 2023

**Apply here:** Charlie Plant - Hydrogen Recruitment Consultant - [charlie.plant@boss-energy.co.uk](mailto:charlie.plant@boss-energy.co.uk)



## Lab technician Membranes

AGFA

Full time - Mortsels, Belgium

### Description:

- You work in a multidisciplinary team in an R&D environment where you develop and evaluate membranes in consultation with the project leader.
- You draft and execute test plans, both in a lab, pilot and production environment and you assist in shifting processes to other production facilities.
- You process, interpret and report the results of your tests and formulate a proposal for further steps in development.
- You actively follow up on developments in your research area.
- You search for and apply new evaluation methods to evaluate the quality of products. You make safety and efficiency your priority.
- You can independently write a work procedure that forms the basis of the manufacturing instruction. Based on this prescription, a quality dossier and a safety study, you introduce new formulas in manufacturing.
- You establish and maintain the necessary contacts with the R&D labs, engineering, production, application, and innovation.
- You work according to the applicable safety and ISO procedures and report in the databases provided for this purpose.

**Deadline:** 31 May 2023

**Apply here:** <https://hydrogeneurope.eu/job-market/>



### Development Project Manager

AGFA

Full time - Mortsel, Belgium

#### Description:

- You are responsible for the upscaling of new Zirfon membranes for which concepts were developed by your R&D colleague. You take into account the constraints for formulations in terms of legislation, safety, sustainability, health and environment, third party patent rights and cost.
- You independently develop membrane materials based on the unique Agfa technology platform or current technology according to the R&D procedure.
- You translate functional requirements into technical specifications. You plan and initiate experiments, formulate, execute and interpret.
- You closely follow all steps of the production process and make a process description for transfer to production.
- You ensure quality production by proactively addressing quality issues in consultation with PFM, production, engineering, business, research and application.
- You work project-wise following the stage-gate development process and organize project meetings with a multidisciplinary team to discuss project progress.
- You regularly report the status and further planning of research work in technical forums and project meetings.
- You safeguard safety and health aspects within your work area.
- You follow the state of the art regarding your research area and contribute to the patent portfolio through new patent proposals and experimental patent application support.

**Deadline:** 30 June 2023

**Apply here:** <https://careers.agfa.com/job-invite/46455/>



### Development Project Manager

AGFA

Full time - Mortsel, Belgium

#### Description:

- Lead and develop the buying team, including supplier development, to optimize procurement processes and standard work, and achieve performance metrics such as cost reduction and on-time delivery.
- Identify and pursue opportunities for supplier performance improvement and cost reduction, managing cost models for suppliers.
- Develop and maintain metrics for monitoring supply chain processes, implement corrective actions, and drive continuous improvement throughout the supply chain.
- Develop and manage risk mitigation plans for assigned product categories, proactively addressing obsolescence risks.
- Ensure suppliers have current approved and released specifications and drawings revisions.
- Participate in new product introduction efforts and qualify new suppliers as needed, collaborating with cross-functional teams including Manufacturing, Finance, Engineering, Quality, and Shipping/Receiving.
- Maintain all purchasing data in the ERP system..

**Deadline:** 31 May 2023

**Apply here:** Send your CV to Kyle Tormey at [kyle.tormey@boss-energy.co.uk](mailto:kyle.tormey@boss-energy.co.uk)



### Research Project Manager

AGFA

Full time - Mortsel, Belgium

#### Description:

- You investigate the questions from business and application and independently develop new membranes that meet their demands. You take into account the limitations for formulations in terms of legislation, safety, sustainability, health and environment, patent rights of third parties and cost. You independently develop membrane materials based on the unique Agfa technology platform.
- You are project responsible for the various already ongoing subsidized projects, reporting progress and writing reports on a regular basis. You ensure the successful completion of current projects and the start-up of new projects.
- You manage the portfolio of research projects in accordance with the predetermined time, cost and product performance.
- You translate functional requirements into technical specifications. You plan and initiate experiments, formulate, execute and interpret.
- You establish and maintain necessary contacts with various labs, engineering, manufacturing, purchasing, business, application, potential customers and research centers.
- You work project-based and report on a regular basis the status and further planning of research work in technical forums and project meetings.
- You secure safety and health aspects within your work area.
- You follow the state of the art related to your research area and contribute to the patent portfolio through new patent proposals and experimental patent application support.
- You implement relevant, efficient and safe testing methods.

**Deadline:** 30 June 2023

**Apply here:** <https://careers.agfa.com/job-invite/46454/>



### Intern, Communications

Hydrogen Europe

Full time - Brussels, Belgium

#### Description:

- Supporting the work of the Communications team,
- Support in the delivery of the communications and dissemination packages of EU projects in which Hydrogen Europe is involved in,
- Support in the preparation of presentations for meetings and in drafting reports,
- Support in the management and production of content for social media and newsletters,
- Updating and maintaining websites,
- Together with the other team members, come up with fresh, innovative ideas for both formats and contents of communication tools,
- Ad hoc support of the Operations Team.

**Deadline:** 31 May 2023

**Apply here:** <https://hydrogeneurope.eu/job-market/>



### Sr. Process Engineer

Cummins

Full time - Oevel, Belgium

#### Description:

- Input and lead the negotiation with different stakeholders to communicate the component and subsystem design intent through a Design Review package to the Product Preceding Technology, (PPT), Value Package Introduction (VPI), or Value Package Change Request (VPCR) team requiring a such holistic assessment of various design concepts.
- Lead the design decision making in the areas of component and subsystem design concept selection, concept optimization, and design specifications that impact customers targeted to be served by a given Product Preceding Technology, (PPT), Value Package Introduction (VPI), or Value Package Change Request (VPCR) initiative.
- Apply and lead the execution of processes such as Critical Design Decisions, System Design and Validation Consideration Checklist, Design Review and tools such as iDFMEA, DVA, GD&T, CREO, ANSYS Workbench required to enable high quality subsystem-level design decision making and design refinement.
- Provide independent leadership of smaller business impact projects or ownership of complex components, products, systems or services with greater elements of ambiguity over the senior or lead engineer level and with full accountability to the project team.
- Deliver independent execution of established and emerging work processes and systems, while still developing technology or product knowledge.
- Lead the development and improvement of work processes and systems across a functional discipline area within a business unit site.
- Coordinate and direct work amongst technicians and temporary student employees, assists in the transfer of knowledge to lesser experienced engineers through either indirect (scope of influence) or direct management of a small, local group of engineers.
- Provide support and guidance to influence technical direction within a project team and continues to develop proficiency in the competency areas critical to success in the role.
- Operates as a recognized specialist in a discipline or product area within the immediate team.

**Deadline:** 31 May 2023

**Apply here:** [https://cummins.jobs/oevel-bel/sr-process-engineer-hybrid/CA0329164F06421FACEC94C208CDD9B6/job/?utm\\_campaign=search\\_opportunities\\_button&utm\\_medium=Other&utm\\_source=cummins.com%22target%3D%22\\_blank%22](https://cummins.jobs/oevel-bel/sr-process-engineer-hybrid/CA0329164F06421FACEC94C208CDD9B6/job/?utm_campaign=search_opportunities_button&utm_medium=Other&utm_source=cummins.com%22target%3D%22_blank%22)



### Technical Sales Manager

BOSS Energy Consulting

Full time - Oevel, UK

#### Description:

- As a Technical Sales Manager you will be responsible for developing the industrial and commercial market and building a sales pipeline either through your own channels or developing partner channels, you will be developing mature sales leads for our partners, provide sales phase project support and be the key link between customer and partner.
  - Having a deep partner understanding you will be responsible for projects from inception to contract signing; then accompany the project through to operation working closely with the project team to ensure a successful partner journey by providing technical & commercial consulting as well as project support. You will be expected to integrate and work closely with the UK based project management and service teams as well as the central German teams.
  - You will be required to deeply explore the commercial entanglements and ideally bring a network within that industry. Knowledge about building energy systems as well as the power market and power generation behind the meter is beneficial.
- In conjunction with this you will be expected to attend or speak at exhibitions and conferences while working alongside governmental and marketing to aid and steer both the key messaging and ensure a positive legislative future for Fuel Cells.
- Customer success: being the go-to commercial expert and first customer contact, building a sales pipeline and generating mature leads for the partner network. Influencing customers energy strategies to include fuel cells.
  - Business success: be accepting of new business model processes and strategy and support the development of the go to market strategy
- Influence: be comfortable developing key strategic sales messaging from market feedback and presenting this to customers.
- Sales Management: Able to effectively coordinate and manage partner sales to ensure success in close cooperation with technical project management
  - Energy landscape: Stay up-to date with the changing energy landscape and legislation for datacentres and feed this back into the business strategy.
  - Exhibitions and Conferences: Evaluate and attend exhibitions and conferences that will create a positive and influential sales environment for fuel cells.

**Deadline:** 31 May 2023

**Apply here:** Send your CV to Kyle Tormey at [kyle.tormey@boss-energy.co.uk](mailto:kyle.tormey@boss-energy.co.uk)





**Not yet a member?**  
**Scan the QR code to Join Us**





#02

# THE HYDROGEN EUROPE QUARTERLY