

The sector network for future energies



RENEWABLE ENERGY HAMBURG AGENCY

Annual report 2022



03

Foreword

Greetings from Managing Director Jan Rispens



05

Forums

The heart of networking



08

Hydrogen segment

Structure of a hamburger hydrogen community



11

German Renewables Award

REH-Cluster presents German Renewables Award for the 10th time



15

Media

The cluster and its medial channels



18

International

REH around the globe



21

REH

WIND Energy and H2 Expo and Conference



23

Outlook

Preview of the year 2023

2022 was marked by the easing of the COVID-19 pandemic, the senseless war in Ukraine and the ensuing massive upheaval on the energy markets, as well as another extremely hot year in Europe. This year, society as a whole was faced with the realisation that climate change and dependence on fossil fuel imports leave no room for any shortcomings in the expansion of renewable energies.

For the Renewable Energies Hamburg (REH) Cluster Agency, the year was characterised by various aspects: the adoption and implementation of a new cluster strategy, a significant growth in membership and the further development of the new “hydrogen economy” cluster segment.

At the beginning of the year, the general meeting unanimously voted to adopt the comprehensive REH 2025 cluster strategy. This was developed during the pandemic using a fully digital process involving a large number of representatives from member companies and universities. This strategy is now the guiding principle for all actions and activities within the REH Cluster Agency.

We started implementing the strategy immediately after – and in some cases during – the strategy process. The new Wind, International and Sector Coupling Forums were launched. A number of highly successful digital and analogue events and workshops were held covering all the strategic



Blue Beach 2022

themes. The office team doubled in size.

In the new “hydrogen economy” segment, a network of companies and universities was created that jointly analyses and develops this new value chain. This segment dealt intensively with the as yet incomplete and partially unsuitable regulations in Germany and the EU, which need to be adapted for a market ramp-up.

We are delighted that our total membership increased to around 240 in 2021 and 2022. About 50 new members joined the new “hydrogen economy” segment in particular, as well as the sector coupling, heat pump and solar energy segments.

All in all, 2022 was a year of content-related development and transformation for REH, the significant expansion of our cluster service and highly satisfactory increase in membership. We are, of course, delighted with this and hope to implement each Strategy 2025 step together with you, our members!

Jan Risps, Managing Director REH GmbH



FORUMS

At the heart of our network: the REH forums

Sharing ideas on current issues and initiating contacts – the REH forums provide the ideal environment for networking within the REH Cluster Agency. There are currently eight REH forums on the following topics: media, financing & law, international, sector coupling, solar, heat, hydrogen and wind. A further HR Forum is planned for 2023. The International, Sector Coupling and Wind Forums celebrated their premieres in 2022.



Solar Forum

Opportunities and challenges for solar expansion on commercial sites, difficulties with PV expansion among homeowner associations and balcony power plants – the Solar Forum and its four working parties – housing sector, public property, industry & commerce (including open spaces) and private applications – addressed current issues in the revitalised solar industry in 2022.

The REH Cluster Agency has commissioned Hamburg-Innovation GmbH to conduct a study on solar potential in the Hamburg Metropolitan Area. The evaluation will be written by Hamburg University of Technology. The results of the study will be available during the first quarter of 2023 and presented at the Solar Forum.

Learn more



INTERACTIVE, RESPONSIVE AND ECO-FRIENDLY:

Read the EEHH annual report 2021 online on your smartphone, tablet or computer. Just scan the QR-code or enter the link in the browser.

<https://content.erneuerbare-energien-hamburg.de/de/jahresbericht-2022/start>



Media Forum

Video production, social media and employer branding – the Media Forum, which was established in 2011, held four meetings to discuss recent developments. While Raphaela Ebelt, Logistik Initiative, Diane Vrielmann, Vattenfall, and Joseph Piergrossi, DESY, provided insights into their companies' social media strategies, the two reporters, Kai Eckert and Daniel Hautmann, described the perfect relationship between press officer and journalist. Florian

Schöps, RenderThat, and Matthias Wolk, Real TV Group, revealed the secrets of successful video production. The newly founded HR Forum celebrated its premiere during a joint session with the Media Forum in November on the topic of employer branding.

[Learn more](#)



Financing & Law Forum

The Easter Package, Renewable Energy Act 2023 and Offshore Wind Energy Act were the focus of the first meeting of the Financing & Law Forum. Dr Ursula Prall, Becker Büttner Held, and Dr Thorsten Müller, Stiftung Umweltenergierecht, were the speakers. Two joint sessions with the Wind Forum each addressed the amended Federal Nature Conservation Act and surplus revenue absorption.



[Learn more](#)

International Forum

At the inaugural meeting of the relaunched International Forum in September, Sibyl Scharrer, International Cooperation Hydrogen, and Jingkai Shi, International Cooperation Renewable Energies, presented the results of the REH member survey conducted during the summer. Following a year-long break, the forum met at the REH member, Carneades Project Services GmbH. Attendees were interested in markets such as Sweden and Finland for wind energy and southern Europe for solar power. Future meetings will focus on different countries and forms of renewable energy.



[Learn more](#)

Sector Coupling Forum

If we want the decentralised energy transition to be a success we must adopt a cross-sector approach. But how can technologies, infrastructures and markets be meaningfully coordinated and what role can digitalisation play in this? The new Sector Coupling Forum and its steering committee members, Sarah Debor, Naturstrom, Onnen Heitmann, Hamburger Energiewerke, Bastian Pfarrherr, Stromnetz Hamburg, and Roman Fritsches-Baguhl, Averdung Ingenieure, focuses on these issues. Its first meeting discussed the compatibility of

low-voltage electricity grid infrastructure and the upcoming roll-out of heat pumps.



[Learn more](#)

Wind Forum

The Wind Forum celebrated its premiere at Patriotische Gesellschaft at the end of June, when its steering committee members, Prof Peter Dalhoff, HAW Hamburg, Norbert Dwenger, Nordex Acciona, Jens Heidorn, NET OHG, and Carina Würz, The German Offshore Wind Energy Foundation (Stiftung Offshore Windenergie), introduced themselves. At its first regular meeting, participants discussed the amended Federal Nature Conservation Act and effects of the expansion of onshore wind energy with experts, Dr Dirk Sudhaus, Fachagentur Windenergie an Land, and Karsten Brügemann, Nordex Acciona. At its third mee-

ting in cooperation with the Financing & Law Forum, surplus revenue absorption and onshore wind tenders were on the agenda. Offshore issues will be the focus in 2023.



[Learn more](#)

Heat Forum

In 2022, we experienced a huge energy crisis due to the war in Ukraine – which emphasised the importance of heat transition more than ever. Five meetings highlighted a broad range of topics and their urgency. In March, the focus was on the Wedel and Tiefstack coal-fired power plant projects until 2030. At the second meeting, attendees discussed cooperation opportunities between Hamburg's Department of the Environment, Climate, Energy and Agriculture Authority (BUKEA) and its Energy Transition Advisory Board. The agenda also included the gas crisis and its consequences for the heating market, the Wilhelmsburg integrated heating transition project and combined heat and power production. Dr Steffen Bechtel succeeded Constantin Lange as the Forum Chair, who established the new Wind Forum. There was another change of personnel on the forum's steering committee, where Sebastian Averdung, Averdung Ingenieure, who was elected Chair of the Energy Transition Advisory Board, was succeeded by Burkard Warmuth, Hamburger Energiewerke.



[Learn more](#)

HYDROGEN SEGMENT

Hydrogen community: from salt caverns to renewable timber resources



After having had to conduct events virtually during the first half of the year due to the pandemic, the face-to-face meetings from June onwards involving lively discussions and networking opportunities were extremely popular. In September, participants enthusiastically debated “Types of storage for hydrogen”. They highlighted the strengths and weaknesses of ammonia, LOHC and LH2. Their conclusion: a combination of different options will be required, as the application ultimately dictates the most sensible form of storage.

In October, we engaged in a remarkable cooperation with the Schleswig-Holstein Regional Coordination Office for the Hydrogen Economy, namely a “Special Forum” on the significance of CO2 in a renewable energy system.

Hydrogen Forum

The Hydrogen Forum met a total of seven times in 2022, including five meetings to discuss hydrogen projects and two covering technology. In September, the Hydrogen Projects Forum embarked on its first ever tour, in order to view a live project at APEX Energy’s hydrogen hub in Rostock-Laage. Thanks to the positive feedback, we aim to continue this new format next year.



[Learn more](#)



HannoverMesse 2022

Topics discussed at the other meetings:

- Certification of green hydrogen
- Differences in refuelling for eMobility and hydrogen
- Storage and compression of hydrogen based on metal hydrides
- Offshore hydrogen
 - Offshore hydrogen infrastructure: compression & storage
 - Development of an offshore H2 supply chain using LOHC technology
- Hydrogen and hydrogen derivatives – opportunities and risks
- Storage in salt caverns and transporting hydrogen via pipelines
- Significance of CO2 in a renewable energy system
 - Material and energy-related use of renewable timber resources - not just green CO2 for the fuel sector
 - Green hydrogen and defossilisation on an industrial scale

Green Hydrogen Sofa

From April 2022, we were finally able to implement this smaller meeting format again, featuring short keynote speeches by members and external speakers, with six events in total. The following topics formed the basis for lively debate:

- PEM and AEM electrolysis processes
- PwC Hydrogen Calculator
- Use of hydrogen for ground service equipment (Hamburg Airport)
- H2 logistics project (Fraunhofer CML) and new energies for rail transport (VTG AG)
- CCH2 project presentation: new materials and testing procedures associated with hydrogen applications

In addition to the rather more formal and informative forum, the Sofa repeatedly proved to be a popular evening event for intensive networking and expert debate.



The BlueBeach 2022

Gröonschnack un lopen and special events

During the summer, we held our “Gröonschnack un lopen” walk & talk format in Hamburg. REH also organised a dual fuel workshop for rail, air and waterborne transport stakeholders. A port workshop by the Federal Ministry of Education and Research and the involvement of several members in Hamburg’s hydrogen import strategy completed the programme.

PRESENTATION OF THE GERMAN RENEWABLES AWARDS 2022 IN SIX CATEGORIES

Groundbreaking projects honoured, along with the creative minds behind the energy transition



From zero-emission hydrogen ships, through local heating concepts in modern residential areas, to world-leading climate research – the winners of the German Renewables Award displayed impressive innovative skill and courage when coming up with their groundbreaking ideas. A total of 47 companies and individuals submitted entries for the prestigious industry award.

See the award ceremony here

Watch video



Project of the Year

In the Project of the Year category, the energy-efficient Heidrehmen district won the German Renewables Award 2022. Bauverein der Elbgemeinden eG works with Hamburger Energiewerke to holistically implement various energy-savings measures in Hamburg-Iserbrook as part of this concept, such as basement ceiling insulation, renovation of the local heating network, combined heat and po-

wer plants and a tenant electricity model.

Other entries in the Project of the Year category included MMG’s solar refrigeration and Green GmbH with a concept for avoiding CO2 emissions in existing properties.

Product Innovation of the Year

A split rotor bearing for the direct replacement of a wind turbine nacelle from Schaeffler AG won the Product Innovation of the Year category. Spherical roller bearings currently account for the majority of the world's wind turbine rotor bearings - approx. 455 GW of the 740 GW in operation. In older turbines, many spherical roller bearings fail to achieve the intended service life of 20 years. For the first time, this split, asymmetric spherical roller bearing allows the rotor bearing to be replaced directly in the nacelle, thereby minimising expensive, time-consuming crane capacity.

Other nominees for Product Innovation of the Year included IESS-101.90.996.20A developed by E-Stream for a sustainable energy storage solution and Olmatic Power Tracking from Olmatic GmbH that provides dynamic energy distribution and charging infrastructure in industry. A total of ten companies submitted entries.

A total of ten companies submitted entries.

Student Thesis of the Year

Patrick Kloss, Masters graduate from Helmholtz-Zentrum Hereon and University of the Federal Armed Forces Hamburg, won the German Renewables Award in the Student Thesis of the Year category with the development of a digital twin for an existing solid-state hydrogen storage system.

Other nominees included Olessya Kozlenko with an optimisation model for the layout of the KEBAP energy plant, a project in Hamburg-Altona, as part of their Masters thesis at HAW Hamburg and Patrick Schönknecht from Steinbeis (an international network of transfer enterprises) and Chemnitz University of Technology with his Masters thesis on the thermal use of water from a former mining lake to heat a holiday park. A total of seven students submitted entries for the German Renewables Award.

Hydrogen Innovation of the Year

The hydrogen infrastructure concept and maritime use of hydrogen in Cuxhaven developed by Turneo GmbH won the newest category, Hydrogen Innovation of the Year. The aim is to produce green hydrogen and then use it in coastal mobility for heavy maritime cargo – a basis for additional projects in the Elbe-Weser triangle.

In addition to Turneo GmbH, the shortlist also included Lufthansa Technik AG with its hydrogen aviation lab for the use of hydrogen in ground handling at airports and Aurubis AG with hydrogen-based production processes for copper.



Lifetime Achievement

In the Lifetime Achievement category, the jury chose to present Prof Daniela Jacob with the German Renewables Award. Prof Jacob is a meteorologist and Director of the Hamburg-based Climate Service Centre Germany (GERICS), as well as a visiting professor at Leuphana University Lüneburg. Her research focuses on regional climate modelling, the water cycle and the climate service, as well as on adapting to the impact of climate change. Prof Jacob was one of the lead authors of the IPCC's Fifth Progress Report and coordinated the 1.5°C Global Warming Special Report published in 2018.

Journalism Award

A report on the 'Smart energy city' of Wunsiedel in the Fichtel Mountains won the 2022 Journalism Award. The 'Look at this little town' (author: Yves Bellinghausen) article published in the 'brand eins' (brand one) business magazine describes how the small Franconian town managed to gradually become completely self-sufficient with renewable energy, thereby generating enthusiasm for the 'Wunsiedler approach' among experts around the world.

Other nominations in this category included Stefan Schultz and Claus Hecking with their 'New German cell' article published in spiegel.online and Sebastian Gubernator, Welt am Sonntag, with 'Gondolas of hope'. A total of 16 journalists submitted entries.



MEDIA

REH digital: the Cluster Agency and its media channels

Blog, podcast and LinkedIn – the coronavirus pandemic made it abundantly clear that media channels are now indispensable for the Cluster Agency's business. The REH Cluster Agency once again broke coverage records in 2022 and published its news beyond the borders of the Metropolitan Region of Hamburg.

Blog: background stories about Hamburg's energy transition

Be it the new "From Hamburg to the world" series featuring international projects and cooperations or 'Inside the energy transition – an exciting but unagitated energy talk' about current, controversial energy topics of public interest, posts about hydrogen projects or global relationships and cooperations – the REH Blog covered the entire range of REH Cluster Agency topics in its around 90 posts. As well as many interviews and reports by Cluster Agency members, the portfolio also included guest articles. "Together we can build the European Green Power Plant in the North Sea" by Energy Clus-

ter Denmark, a report on the Esbjerg Declaration, was the most widely read, with around 5,000 views. Followed in second place by "Latest Renewable Energy Act Amendment: a boost for renewable energies?", an assessment by REH Managing Director, Jan Rispens, with 4,800 views. Third place went to "Hamburg is simply the ultimate German offshore capital", an interview with the Managing Director of The German Offshore Wind Energy Foundation, Carina Würz, with 4,076 views.

Read more





Erneuerbare Energien bilden die Basis für den Umbau der Hamburger Energielandschaft. **Unsere Vision** ist ein System, bei dem alle Sektoren und Energieträger intelligent miteinander verknüpft sind.

Social media: LinkedIn records

The REH LinkedIn page gained 3,000 new followers in 2022, reaching approx. 7,500 by the end of the year. This allowed the Cluster Agency to establish close contacts with several federal associations and significantly increase its national visibility. Its mainly German language posts received around 500,000 views. An interview with Silke Frank, Vice President of The German Hydrogen and Fuel-Cell Association (DWV), was by far the most popular, receiving almost 10,500 views. Congratulations!



REH films

“Hamburg Hydrogen City 2030” and “Offshore wind – from Hamburg to the wider world” – the REH Cluster Agency produced two animated films on core areas of the cluster’s work in 2022. While the hydrogen film illustrated how offshore power is converted into hydrogen and subsequently used for industry and transport, the offshore film demonstrated that Hamburg is a major development location for national and international offshore wind projects. Offshore farms are now being built around the world, for example in Japan, Taiwan and the US.



Video database



LinkedIn, Deutscher Wasserstoff- und Brennstoffzellen-Verband (DWV) e.V.

Traditional media

In addition to adverts in “Erneuerbare Energien” and “Welt am Sonntag”, an interview with Jan Rispens regarding his assessment of hydrogen regulation in “DIE ZEIT” newspaper also created visibility in both specialist and general media.



‘New energy from Hamburg’ podcast

The threat of climate change, Norddeutsches RealLabor and cumbersome hydrogen regulations – the seven episodes of the REH podcast, ‘New Energy from Hamburg’ covered a huge range of topics. While the winner of the Lifetime Achievement category in the German Renewables Awards 2022, Prof Daniela Jacob, GERICS, referred to the urgency of the fight against climate change, the Bundestag Member, Andreas Rimkus, SPD, highlighted the need to amend the European Union’s Delegated Act for the successful development of a hydrogen economy. Alexander Ohff, TÜV Nord, explained how today’s offshore wind farms are digitally maintained. 19 podcast episodes are now available online.



Learn more

INTERNATIONAL

REH around the globe: international cluster relations



Denmark, Japan and the US – after more than two years impacted by the coronavirus pandemic, REH members travelled the world again in 2022, sharing ideas and experience with international partners. Sibyl Scharrer, International Cooperation Hydrogen, and Jingkai Shi, International Cooperation Renewable Energies, have been responsible for International Affairs since April.



Wir blicken über den Hamburger Tellerrand hinaus und fördern strategische **Energie-partnerschaften** mit Exportländern in Europa und der Welt.

Delegation visit to the International Partnering Forum (IPF)

The International Offshore Wind Partnering Forum, IPF for short, is the leading specialist conference for the offshore wind industry in North America. The offshore wind industry in the US has been reinvigorated ever since 2021, when the Biden Administration gave the go-ahead for the expansion target of 30 GW by 2030. In March 2022, the REH Cluster Agency was represented at the IPF in Atlantic City for the first time, together with GOI, the German-Offshore Wind Initiative, and some REH member companies, including Carneades and Schmidbauer.



Delegation visit to the US on the subject of hydrogen

“US Hydrogen Sector and the Transformation to Renewable Energy” was the name of the delegation visit in June as part of the US Department of State’s International Visitor Leadership Programme. The aim was to promote German-US exchange between political, business and scientific representatives on the subject of hydrogen. The REH Cluster Agency was also represented.

During meetings with Senate staff from individual US states, representatives of US hydrogen associations and well-known companies in Washington, DC, the delegation learned about the political framework conditions and economic prospects. In California, the itinerary primarily included visits to various research projects, e.g. the H2 Station at the California State University of Los Angeles.

European Hydrogen Week

For the third time, Hydrogen Europe, the European Commission and the Clean Hydrogen Partnership hosted European Hydrogen Week in Brussels in October. REH attended the event for the first time. In total, over 3,000 visitors, 120 exhibitors and 150 speakers shared ideas and experiences.

The conference provided a comprehensive overview of many hydrogen-related topics along the

entire hydrogen supply chain. Participants were eager to discuss current political and legislative proposals. In terms of funding, EU Commissioner Frans Timmermans announced EUR 3 billion of financing in the form of grants for large-scale projects as part of the Innovation Fund Call in November 2022. The Hydrogen Academy will begin its work in the European Year of Skills 2023.



Expansion of cooperation with European partners

According to an REH member survey, Europe – and especially Scandinavia – is one of the principal geographic markets. The REH Cluster Agency places particular emphasis on consolidating and expanding cooperation with European partners. In June, the REH Cluster Agency and Innovation Norway signed a memorandum

of understanding at the first German-Norwegian Hydrogen Forum. As a result of the Esbjerg Declaration by the four countries bordering the North Sea, six North Sea cluster organisations concluded a cooperation agreement in October to work more closely together in the areas of energy transition, innovation and technology.

WEHH

REH at Wind Energy Hamburg and H2 Expo and Conference



After a two-year coronavirus-enforced break, the Renewable Energy Hamburg Cluster Agency was delighted to have a physical presence at WindEnergy Hamburg 2022, the world's leading trade fair for onshore and offshore wind energy, featuring two large joint stands and 18 companies. A total of around 42,000 visitors from 93 countries attended the trade fair and H2 Expo and Conference premiere. 1,400 exhibitors from 37 countries presented their products and services. In addition, 18 nations were represented with their own pavilions.



International markets for offshore wind

At the International Networking Reception, REH partners presented emerging international offshore markets. Sandra Li and Aidan Campbell, UK Department of International Trade, presented the United Kingdom's ambitious expansion targets and digitalisation projects. Mike Matthews, US Representative to the German Offshore Wind Initiative, presented the Biden Administration's ambitious plans for the west and east coast of the US. Andrew Birch and Yaushiro Hattori, Energy Agency of Fukushima, rounded off the event with presentations on Japan and Fukushima.



programme: a panel discussion on hydrogen projects in northern Germany and an evening reception at the legendary Mojo Club on Hamburg's Reeperbahn for around 300 international guests.

Recruiting in the Renewables

How do you get into the renewable energies industry? On traditional recruitment Friday, four women, Linda Wagner, Siemens Gamesa Renewable Energy, Hanna Schürmann, Enlite Engineering and Consulting GmbH, Johanna Robke, Vattenfall, and Jennifer Kühn, Siemens Gamesa Renewable Energy, spoke about their professional career paths and gave students valuable tips at the Recruiting in the Renewables event.

As well as these two workshops, the REH Cluster Agency also organised an extensive supporting



Outlook

In 2023, heating and sector coupling will play an extremely important role for REH. The consistent decarbonisation of heating using small and large heat pumps and other sector coupling projects is the most important part of the energy transition. As a result of its settlement structure, the Hamburg Metropolitan Area faces particular challenges, but also many positive framework conditions – the availability of industrial waste heat, transformation of district heating, heat potential of geothermal energy and heat from rivers. These factors make this topic extremely dynamic.

The solar obligation approved by the Free and Hanseatic City of Hamburg from 2023 is not only mandatory for many residents and companies, but above all a great opportunity! Many of our network stakeholders are therefore committed to the successful implementation of this regulation. The combination of solar panels and charging infrastructure and heating in many private homes and commercial companies provides the opportunity to offset rising energy costs by means of carbon pricing.

The hydrogen economy will become more tangible in the Hamburg Metropolitan Area in 2023. Many pilot projects have been developed and approved in recent years – and are due to be implemented in 2023. REH will continue to intensively support the regulations announced by the German government and the EU.

In 2022, we – especially Germany – were forced to recognise our dependence on fossil fuel (imports) and made to realise that only the consistent expansion of renewable energies contributes to climate protection and energy resilience. In 2023, we must successfully transition from the acute crisis management of our energy supply to a structured acceleration of the energy transformation. The REH network will help to achieve this at every possible level – in projects, by means of expert reports and at a great many excellent events!



Imprint

PUBLISHER

Renewable Energy Hamburg Cluster Agency
Wexstraße 7
20355 Hamburg

Tel.: + 49 (0)40/694573-10
Fax: + 49 (0)40/694573--29
E-Mail: info@eehh.de
www.eehh.de
V.i.S.d.P.: Jan Rispens

CONTACT IN THE AUTHORITY FOR ECONOMY AND INNOVATION

Authority for Economy and Innovation
Alter Steinweg 4
20459 Hamburg

Tel: +4940115
Fax: +49 40 4279-41333
E-Mail: poststelle@bwi.hamburg.de

IMPLEMENTATION

Webmag.io