

The sector network for future energies



RENEWABLE ENERGY HAMBURG AGENCY

Annual report 2021



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Outlook

With the onset of the COVID-19 pandemic in 2020 came a severe economic slump that resulted in a massive drop in energy supply and significantly reduced climate emissions. Germany achieved its climate protection goal for 2020 of 40 percent lower greenhouse gas emissions compared to 1990 and recorded an increased share of renewable energies in the electricity sector of around 50 percent. We now know that these successes were merely transitory: as a result of the economic recovery emissions in Germany were back to their 2019 level in 2021 and the climate target was missed – symptomatic of the previous German government’s weak energy policy.

The effects of the pandemic continued to be the focus of the Renewable Energy Hamburg Agency’s efforts in 2021. Many of its planned activities were switched to a virtual format. In the summer, however, it was possible to hold a number of important events, including the tenth award ceremony for the German Renewables Award, the general meeting and the summer party, which was extremely important for a customer network that thrives on face-to-face member activities. Renewable Energy Hamburg once again reached a great many participants far beyond the Hamburg Metropolitan Region thanks to its virtual events.



Blue Beach 2021

Most of our cluster's stakeholders are part of the critical infrastructure, as they provide important products or services for the energy supply sector. Together they managed to guarantee safe and reliable supply in 2021, as well as completing new production facilities. The markets for onshore and offshore wind energy, solar energy and heating appear to have bottomed out during 2021 and are eagerly awaiting announcements from Germany's new government that reveal significantly greater ambitions for renewable energy supply and climate protection.

In early 2021, Renewable Energy Hamburg received a mandate from the City of Hamburg to develop a new hydrogen economy cluster agency segment within its existing cluster structures. We regarded this as both a great honour and an obligation. We have started to develop this new cluster agency segment with a number of initial face-to-face and digital activities. The extremely positive response we have received is very pleasing: membership has risen from around 180 in 2021 to over

210 at the beginning of 2022, primarily as a result of growth in this segment. A huge vote of confidence that we aim to repay in 2022.

2021 was a pivotal year for Renewable Energy Hamburg due to these new tasks and the general political conditions. The pandemic also remained a stiff challenge, and this difficult situation looks set to continue in 2022. We are nevertheless confident that members and industry stakeholders will again enjoy an attractive programme of activities in 2022. We look forward to lively communication with you!

Yours, Jan Rispens




Graphical log of board meeting

STRATEGY

From Offshore to Hydrogen - Development of the new Renewable Energy Hamburg strategy until 2025

Back in 2015, the Renewable Energy Hamburg Cluster Agency developed its 2020 strategy together with its members, which defined its new priorities. Ever since the cluster was established, the electricity sector and wind power have been its main priorities; new activities have since been added, namely digitalisation, solar power, heating and above all sector coupling.

In this respect, Renewable Energy Hamburg as a cluster has been subject to the same trends that have been observed throughout the energy industry due to the progressive 'greening' of the entire energy supply. What is important, however, is that the EEHH2020 strategy had already anticipated this development for the cluster and important strategic steps could therefore be taken at an early stage.



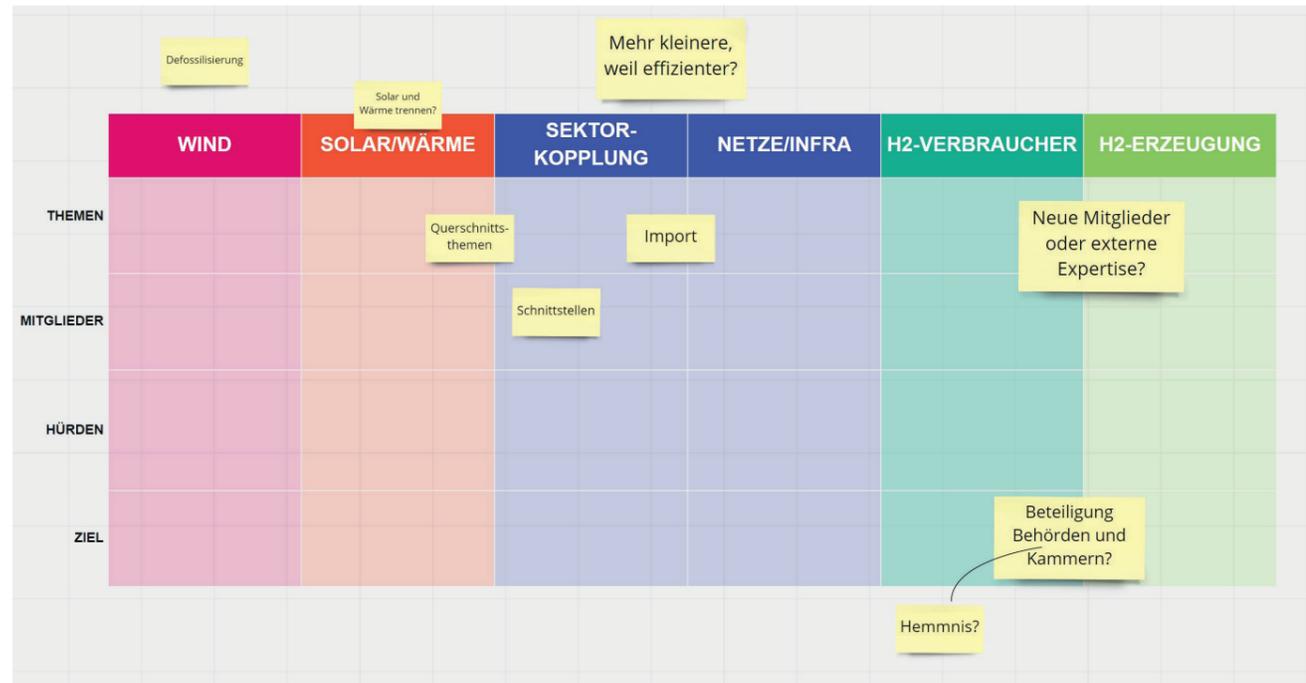
INTERACTIVE, RESPONSIVE AND ECO-FRIENDLY:

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-2021/start>

Analysis and further development of the cluster strategy were due in 2021 – with a slight delay as result of the pandemic. The Renewable Energy Hamburg Cluster Agency’s new priority, ‘hydrogen economy’, also required a new sub-strategy.

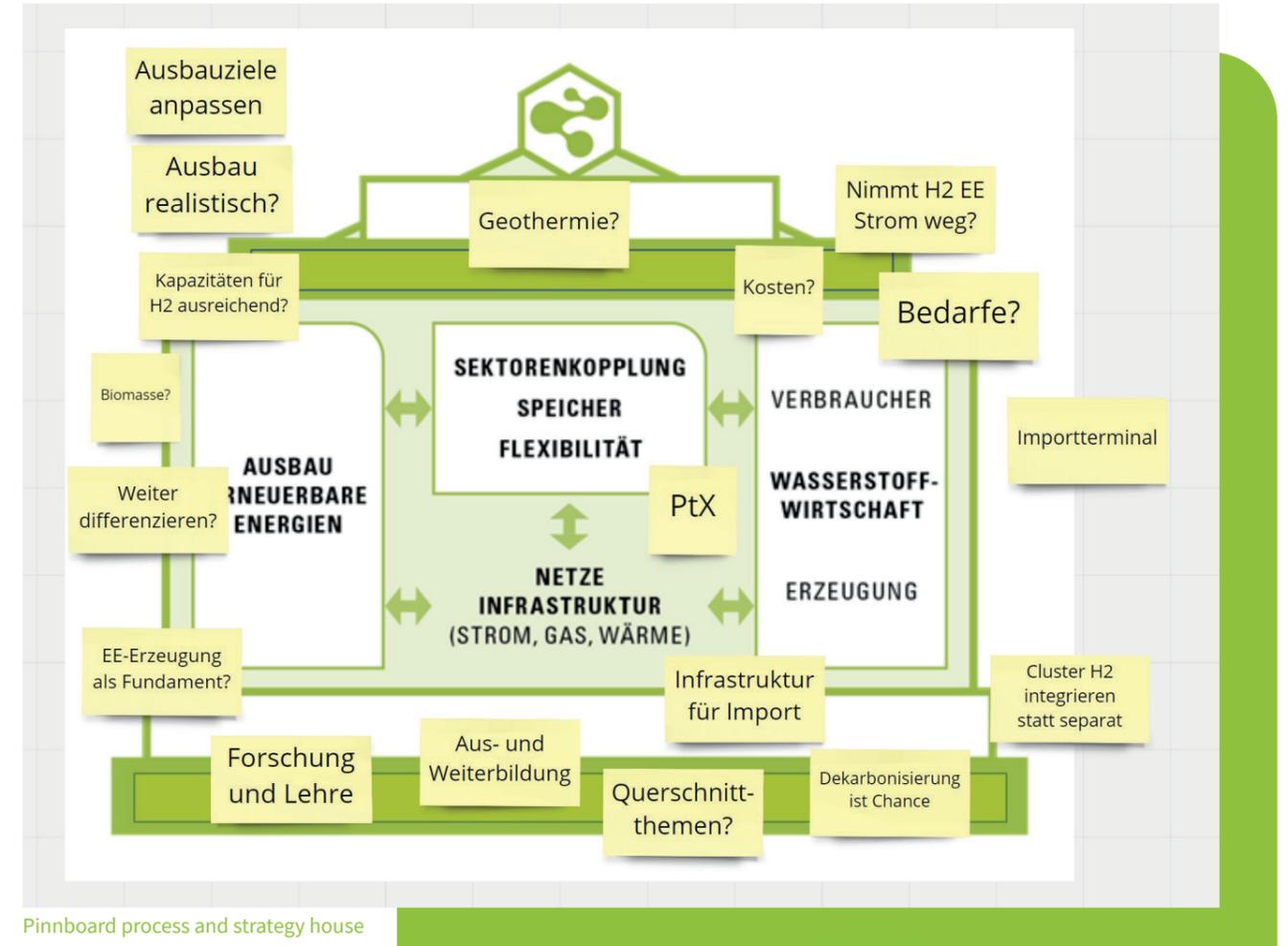
Its previous priorities of renewable energies and heating, as well as sector coupling, needed to be continued on the one hand and completely redeveloped on the other.



Pinnboard process and strategy house

Due to the pandemic, many strategic development methods and tools were completely – or partially – unavailable, as many face-to-face activities were cancelled. Back in winter 2020/2021, the Renewable Energy Hamburg committees had already decided to define the future strategic direction and use this as the framework for a completely digital strategic process – with the intense involvement of its members. A major experiment that we believe has been extremely successful. Participants used twelve virtual expert workshops to develop the details of individual parts of the strategy, based on the strategic direction. More than 100 people were involved in this strategic process. We would like to take this opportunity to thank them for their expertise!

The resulting ‘EEHH2025’ strategy is due to be presented in early 2022. It is based on the continued systematic communication of the economic mainstay of renewable energies in the Hamburg Metropolitan Region. It also includes using the systematic expansion of renewable energies in northern Germany to facilitate the market ramp-up of the hydrogen economy, which will result in the decarbonisation of major metal and chemical sites in the region. We have learned a lot about digital decision-making processes and are pleased to have developed strategic guidelines for the next five years!



Pinnboard process and strategy house

HYDROGEN SEGMENT

Establishment of a Hamburg hydrogen community



As part of their climate plan, Hamburg's politicians have committed to making the metropolitan region a pioneer for a green hydrogen economy. The establishment of an uninterrupted value chain encompassing production, transport, distribution and purchasing will require good coordination between stakeholders. The Renewable Energy Hamburg Cluster Agency is assisting politicians with these wide-ranging priorities by promoting the establishment of a community. The Renewable Energy Hamburg Cluster Agency is using existing structures to create and develop a close-knit local network.

Networking as a basis

The Renewable Energy Hamburg Cluster Agency draws on its member network, which has grown organically since 2011, to support the hydrogen economy. This lays the foundation for establishing an overarching professional community that brings

together key stakeholders from local companies as well as representatives from science and politics. The interdisciplinary topic of hydrogen, whose market ramp-up is still in its infancy, affects several of Hamburg's key industries, as well as various businesses and institutions along the value chain. It is therefore necessary to involve a number of

stakeholders beyond its own circle of members. To this end, the Renewable Energy Hamburg Cluster Agency is cooperating with Hamburg's other economic clusters and municipal companies, such as Hamburg Marketing and Hamburg Invest, as well as other local partners, while also developing new nationwide contacts.

Specialist events and exchange formats

In order to promote networking, Renewable Energy Hamburg has developed a series of new events over the past six months – including specialist and networking formats. The specialist formats give stakeholders the opportunity to learn about current (research) projects and participate in working groups dealing with specific regulatory issues. As an initial, specific outcome, the Regulatory working group has produced a position paper on the Delegated Act of the European Commission that also addresses the relevant contacts in Brussels. Networking events allow stakeholders to communicate their needs, identify common ground with other stakeholders and find project and business partners. Internal and external experts are regular guests at the newly-established *Hydrogen Forum*.



More information



Green hydrogen-sofa



Developing a common strategy

Renewable Energy Hamburg members have also been able to work intensively together on the development of a new cluster strategy for the next five years since September 2021. A variety of collaborative workshops have highlighted technical aspects and established new contacts. The strategy is a continuation of the previous cluster strategy and also sets out guidelines for the successful integration of hydrogen into the overall cluster that traditionally focuses on energy production (from wind and solar power, as well as sustainable heat). As part of this strategic process, the objectives for the Cluster Agency's work over the coming years have been agreed and initial specific actions implemented.



INTENSIVE EXCHANGE OF EXPERIENCE AND EXPERTISE
Work in the Finance & Law, Solar and Heating Forums

“Data centres as sources of heat” and “Use of urban waste heat” were the focal points of the second meeting in April. This time the speakers were **Lasse Schneppenheim** from SDIA, **Dr Ulrich Liebenthal**, Wärme Hamburg GmbH, and **Dr Jens Struckmeier**, Cloud & Heat. 38 people attended the meeting. The next meeting was held on 1 June and entitled: “Cold local heating – the use of geothermal energy”. As speakers, we welcomed **Thorsten Bock**, Stadtwerke Schleswig-Holstein, and **Thomas Opfermann**, Bauland 24 GmbH. A total of 42 people attended the meeting.

This was followed by another meeting on the subject of “Wood fuel – solid biomass in heat provision”. The speakers were **Dr Jan Grundmann**, Energy Crops GmbH, **Henrik Lund**, Aalborg Energie Technik, and **Lucía Doyle Gutierrez**, HCU. 24 people attended the meeting. The final meeting took place on 9 December. **Dr Dirk Legler**, Rechtsanwälte Günther Partnerschaftsgesellschaft, spoke about district heating directives. 20 people attended the meeting.



HUSUM Wind 2021

Heating Forum

Five *Heating Forum* meetings were held in total during 2021. The first meeting in March was devoted to “Decarbonisation of the natural gas network” and explicitly to the hydrogen strategy of Gasnetz Hamburg GmbH. The speakers were **Michael Dammann** and **Henry Koch** from Gasnetz, while REH Managing Director, **Jan Rispens**, moderated the event. 185 people attended the webinar.

Webseminar - Decarbonization of the natural gas network - hydrogen strategy of Gasnetz Hamburg GmbH



Webseminar - Decarbonization of the natural gas network - hydrogen strategy of Gasnetz Hamburg GmbH

Finance and Law Forum

Two *Finance and Law Forum* meetings were held in 2021. The first was a Renewable Energy Act 21 event. The speakers were **Thorsten Müller**, Stiftung Umweltenergie recht, and **Klaus-Peter Lehmann**, Thüga EE GmbH. The second event took place on 9 September. The agenda covered obstacles concerning endangered species and

protected habitats in the expansion of onshore wind farms. The speakers were **Dr Christian-sen** from Kompetenzzentrum Naturschutz und Energiewende (KNE) and **Jonas Klatt** from PNE AG.

More information



Solar Forum

The *Solar Forum* is divided into a general plenary and four working groups. Members of the full plenary met twice in 2021.



Working group meetings of the Solar Forum

The Housing Industry working group held two meetings that produced guidelines for photovoltaic (PV) concepts for residential buildings and dealt with overcoming PV obstacles in rented housing, among other things. The Private Applications working group set out its initial priorities at its inaugural meeting in March.

The two meetings of the Public Property working group drafted recommendations for property managers and a paper on PV expansion on public property for the Hamburg Senate.

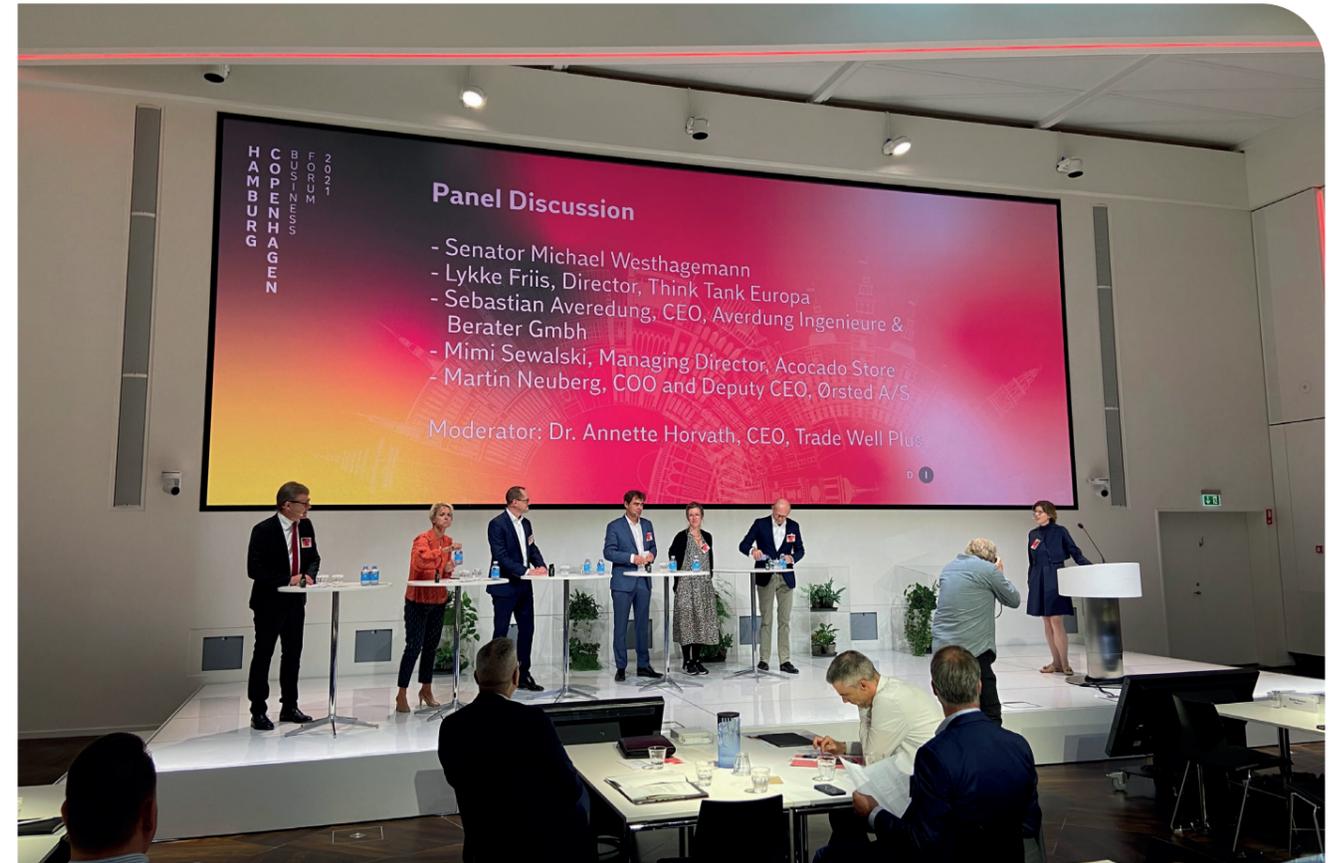
All the forums invited their members to an end-of-year cross-forum event to discuss “Innovative energy concepts in the housing industry/district development”.

Energy Research Association and Research Liaison Office

The REH Cluster Agency helped universities with their research proposals and sponsored the NEIS Conference organised by the University of the Federal Armed Forces Hamburg in September 2021. REH wrote a discussion paper on “Future heating concepts” in preparation for the 2022 North German Conference of Science Ministers.

RENEWABLE ENERGIES AROUND THE WORLD

International relations within the Renewable Energy Hamburg Cluster Agency



Discussions with Iceland Renewable Energy Cluster

Some 50 companies make up Iceland Renewable Energy Cluster, including service providers, local engineering firms and energy suppliers. Establishing local electrolysis production is top of the agenda. In March, Renewable Energy Hamburg and representatives from Hamburg-based businesses discussed additional hydrogen partnerships with colleagues from Iceland.



Visit to the Copenhagen Business Forum

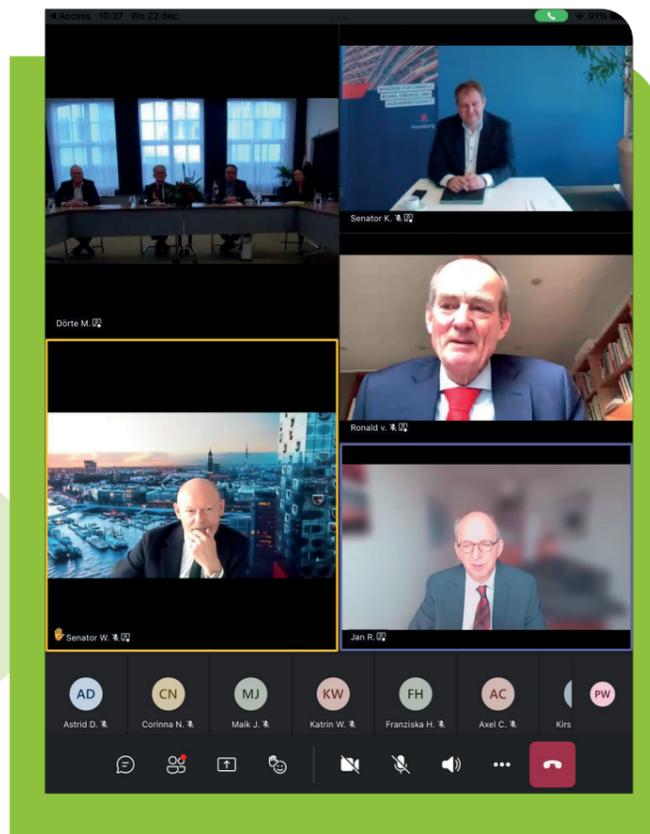
Together with the Schleswig-Holstein State Secretary, **Tobias Goldschmidt**, representatives of Hamburg's Ministry of Economic Affairs and Innovation, Hamburg Airport, Hamburg Invest, Hamburg Port Authority, Hamburg Hafen und Logistik AG and the shipping companies F. Laeisz and Vattenfall visited Senator **Michael Westhagemann**, while Renewable Energy Hamburg Managing Director, **Jan Rispens**, attended the Hamburg Copenhagen Business Forum and an exclusive round table with Danish companies in August. Hydrogen was high on the agenda. **Senator Westhagemann** emphasised the importance of a hydrogen economy in northern Europe.

Memorandum of Understanding with Groningen

Hydrogen from beginning to end – in the future, Hamburg and Groningen aim to establish to the entire hydrogen and fuel cell technology chain. This begins with offshore wind energy and continues through matching infrastructure and hydrogen applications in mobility and industry. **Koen Schuiling**, Mayor of Groningen, **Jens Kerstan**, Hamburg's Senator for the Environment and Energy, and **Michael Westhagemann**, Hamburg's Senator for Economic Affairs and Innovation, signed a Memorandum of Understanding to this effect on 22 December.

Memorandum of Understanding with Scotland

„Both partners - and above all our companies - will make better use of the economic and environmental opportunities of hydrogen technology and promote the scaling of our respective domestic green hydrogen economies,“ declared Hamburg's Senator for Business and Innovation, **Michael Westhagemann**, at the signing of the Memorandum of Understanding for Hydrogen between Scotland and the Free and Hanseatic City of Hamburg at the end of November. Scotland and Hamburg are pursuing common strategic goals for climate protection and innovation, as well as potential exports of green hydrogen from Scotland to Northern Germany.



RENEWABLE ENERGY HAMBURG CLUSTER AGENCY BRINGS TOGETHER INDUSTRY EXPERTS

Successful live and virtual events

New hydrogen events

The Renewable Energy Hamburg Cluster Agency initiated two new event formats in 2021 to provide the burgeoning hydrogen community in the Hamburg Metropolitan Region with the latest information about new activities and projects: the “green” Hydrogen Sofa and the “Grönschnack un lopen” walk & talk format. Each of these focused on networking and interaction. Renewable Energy Hamburg also provided interested audiences with information in digital format, for instance by organising a virtual Senate reception for around 250 guests in March, as well as the first “Green Hydrogen” bar camp with approx. 60 attendees.



Series of webinars in the first six months of 2021

The Renewable Energy Hamburg Cluster Agency held more than 20 informative events on current topics in the renewable energy sector, including on intelligent measuring systems, “Progress towards green steel”, as part of its “Digitalisation”, “Renewable energy projects”, “International markets” and “Sector coupling” series of webinars. They were attended by 60 people on average.

HOW 2021

On 7 April, the Renewable Energy Hamburg Cluster Agency organised the Hamburg Offshore Wind conference, together with the certification agency, DNV. The event included a panel discussion between the speakers, **Marc Becker**, CEO Offshore at Siemens Gamesa Renewable Energy, **Ingrid Nestle** from Alliance 90/The Greens, **Dr Nico Nolte** from the Federal Maritime and Hydrographic Agency, and **Sven Utermöhlen**, COO of RWE Renewables. 190 viewers watched the digital conference.



Films - by, with and about EEHH

The Renewable Energy Hamburg Agency has been producing videos in various formats and series since it was founded. There are currently articles on the winners of the German Renewables Awards 2020 and on web seminars in the series „Digital Meeting Points for Renewables Energies Hamburg“, „International“, „Offshore Trends“ and „Hydrogen“.

Video-database



Focus on diversity

Diversity was the focus of REH events for the first time. At Girls' Day in April, representatives of Global Tech One, Siemens Gamesa Renewable Energy and Vattenfall encouraged 40 school girls to take up careers in the renewable energy sector. As part of the “Empowering a Diverse and Renewable Future” cooperation event with Siemens Gamesa Renewable Energy, high-profile female managers from Vestas and Vattenfall, for example, explained their strategies for success. Around 250 participants followed the digital panel discussions.

Powerfuels Conference 2021

“Connecting powerfuels hubs – leveraging value chains for powerfuels” – was the illustrious name of the joint REH and dena conference in June. 140 guests learned more about the requirements for a successful hydrogen economy from experts, **Dr Claas Hülsen**, dnv, **Oliver-Henry Koch**, Gasnetz Hamburg, and **Dr Fabian Ziegler**, Shell Deutschland.

More Information



FROM RECORD WIND TURBINES TO HYDROGEN INNOVATIONS

REH Cluster Agency presented the German Renewables Award for the 10th time



59 candidates in six categories – the German Renewables Award set new records with its anniversary event on 11 November 2021. For the tenth time, the expert judging panel, consisting of eight experts from the renewable energy sector, selected winners whose innovations and achievements are helping to drive the energy transition.

See the award allocation in the live stream recording

Watch video



Product innovation of the year

The new Siemens Gamesa Renewable Energy **SG 14-222 DD offshore wind turbine** turns many



small ideas into one big and innovative step forward and won the

Watch video

German

Renewables

Award in the ‘Product innovation of the year’ category. These include not only the record length of the rotor blades and the up to 15 MW output, but also the combination of innovations in production, high availability, digitalisation and the latest control technology. A single wind turbine supplies energy for 18,000 European households.

Project of the year

Stadtreinigung Hamburg's winning project, "Extended Heat Utilisation Müllverwertung Borsigstraße", in the "Project of the year" category uses the targeted cooling of flue gases to improve heat recovery. Depending on demand, the MVB will feed directly into the district heating network or make the generated steam available

to the Hamburg-Tiefstack combined heat and power station. After completion of both construction phases, the total reduction in CO2 emissions will be 104,000 tonnes per year.

Watch video



Student thesis of the year

Jan Wiemer from Fraunhofer IEE and the University of Kassel won the award in the 'Student thesis of the year' category with his study on "Interactions between peak capping and overhead line monitoring in grid planning and grid operation management". As part of his Master's thesis, he developed a method that enabled the two optimisation measures to be combined for the first time, thereby

proving that a larger wind farm capacity could be connected to a heavily utilised section of the electricity grid.



Watch video



Project of the year: Prof. Dr. Rüdiger Siechau, Kay Goetze, both: Stadtreinigung HH, laudator Dr. Ursula Prall



Student thesis of the year: Jan Wiemer, Universität Kassel, laudator Rüdiger Theophil

Hydrogen innovation of the year

The regional hydrogen hub built by the APEX Group in Rostock-Laage provides complex infrastructure, covering all technical aspects as well as the economic framework conditions for the future development and operation of corresponding hydrogen energy solutions.

The jury acknowledged this achievement with the new German Renewables Award in the "Hydrogen innovation of the year" category.

Lifetime achievement award

"In the last fifty years, I have learnt that it often helps matters if you do not strive for your own success and take a step back as a person. I am very pleased that my work has been recognised by the German Renewables Award this year and consider the award as recognition for all my fellow campaigners who have brought about this incredible change. They all deserved this award just as much as me. The award encourages me to redouble my efforts for a 100% rene-

wable energy supply in all parts of the world, so that together we can achieve this goal before 2050," says **Prof Olav Hohmeyer**, award winner in the "Lifetime achievement" category.

Prof Hohmeyer started his career in 1982 at the Fraunhofer Institute for Systems and Innovation Research in Karlsruhe. From 1994 to June 1998, he was Head of Research for the Department of Environmental and Resource Economics at the Centre for European Economic Research in Mannheim. He has



Watch video

been Chair of Energy and Resource Economics at the University of Flensburg since July 1998. From 1996 to 2011, **Prof Hohmeyer** was Lead Author for the IPCC. The scientist advises the governments of Barbados and the Seychelles on the possibilities of a 100% renewable electricity supply. He was awarded the 2007 Nobel Peace Prize as a member of the UN Intergovernmental Panel on Climate Change.

Journalist prize

When the last solar module manufactured in Germany rolled off the production line in Saxony in 2018, it was the final chapter in the decline of a once flourishing industry. But the German

solar industry is now enjoying a new lease of life, writes **Andreas Molitor** in his report for the business magazine “brand eins”. Molitor named his piece “It’s do or die”, which impressed the jury with its punchy language style and classic, journalistic dramaturgy.



Watch video



Outlook

In terms of energy policy, 2022 promises to be a year of truth. Will it be possible to create new impetus for the expansion of renewable energies, physically bring sector coupling to life and gradually develop a hydrogen economy? Germany’s new government has announced a great deal in its coalition agreement that could enliven and invigorate our industry!

Breathing new life into onshore and offshore wind energy is the top priority for the REH Cluster Agency. But it will also be important to offer constructive support in the forthcoming introduction of the city’s mandatory installation requirements for photovoltaic systems. This must be done to draw on the cluster’s market experience and enable the best possible practical implementation. It

will also be important to ensure a hydrogen economy for those sectors that cannot be easily electrified, such as the metal and chemical industries and logistics.

The REH Cluster Agency enjoyed remarkable expansion in 2021 – especially due to the growth in the new hydrogen economy segment – and now has over 210 members. We are confident that this new segment has additional potential to grow and hope to continue driving this trend in 2022. The new EEHH2025 cluster strategy provides an excellent basis for the coming year, and we are looking forward to its gradual implementation!





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IMPLEMENTATION

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