

The Industry Network for Future Technologies



Renewable Energy Hamburg Cluster ANNUAL REPORT 2019

THE INDUSTRY NETWORK FOR FUTURE TECHNOLOGIES

IMPRINT

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The most important impetus for the intensive debate on climate change was provided by the many millions of young people worldwide who every Friday demonstrated against the completely inadequate protection of the climate in many countries with the “FridaysForFuture” movement.

Jan Rispens, Managing Director EEHH GmbH



ANNUAL REPORT 2019

RENEWABLE ENERGY HAMBURG CLUSTER

INTRODUCTION



> Jan Rispens, Managing Director of Renewable Energy Hamburg, at the Living Lab of Northern Connections at the Hamburg Wälderhaus

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 2019 was a year marked by an intensive discussion around the world about accelerating climate change and inadequate climate protection. In Germany and Europe, this debate was fuelled by extreme drought and heat waves. Globally, the rapid melting of ice in the Arctic in particular was responsible for giving the debate on climate protection new urgency, even though many climate forecasts had long predicted these specific types of change. But by far the most important impetus for

the intensive debate on climate change was provided by the many millions of young people worldwide who every Friday demonstrated against the completely inadequate protection of the climate in many countries with the “FridaysForFuture” movement.

In terms of energy policy, 2019 can be seen as a year of mixed results. In Germany, the slump in on-shore wind energy, which had been expected since

INTRODUCTION

the change to German Renewable Energy Act funding, was documented with the new installation of only about 900 megawatts. For offshore wind, the last wind farms have been implemented – with no new projects being realised from 2020 for a span of three years. Photovoltaics experienced a remarkable resurgence. By the end of 2019, almost 49 GW of capacity had been installed.

2019 was a year of many announcements: the phase-out of coal, the climate package, new rules for wind energy and a hydrogen strategy. None of these announcements have been adopted into law. The list of construction sites for 2020 therefore remains very long and is a major obstacle to the further development of energy supply in Germany, while globally the markets for renewable energies are developing on pace.

The Renewable Energy Hamburg Cluster continued to develop successfully: slightly increasing membership figures, fully booked major events, membership forums with new topics and various international alliances.

Against this background, we start off 2020 with courage and confidence. The Renewable Energy Hamburg Cluster also celebrates its tenth anniversary this year. We look forward to shaping the development of a sustainable energy supply together with you in the coming decade!

Jan Rispens
Managing Director
Renewable Energy Hamburg Cluster Agency



> Klaus Liedtke, member of the jury at the second journalism award of Renewable Energy Hamburg

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> Reception at the energy exhibition REIF in Fukushima in October 2019

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> Evening reception at the roof of the energy bunker during the Living Lab in June 2019

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> Living Lab in Brussels in November 2019

Northern Connections

NEW 4.0

NORTHERN GERMAN ENERGY TRANSITION 4.0



> Jan Rispens, Managing Director of Renewable Energy Hamburg, talking at the BarCamp of NEW 4.0

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Milestones for the Energy System of the Future – Northern German Energy Transition 4.0

Northern Germany is setting its course for the next phase of the energy transition: the NEW 4.0 (Norddeutsche EnergieWende 4.0) innovation alliance was launched at the end of 2016. With the start of a field test at the end of 2019, the large-scale project with over 80 sub-projects demonstrated which building blocks are necessary for a stable energy system for a future without fossil fuels.

NEW 4.0 field test

The large-scale field test marked a decisive milestone: for the first time, various individual solutions were tested simultaneously under real-world conditions. The test showed how the solutions developed can assume the system tasks of conventional power plants and how the energy system remains stable.

Industry partners tested various approaches to load transfer in order to better balance energy consump-



EEHH GmbH/Jörg Böthling

> Power to X energy plant

tion with the fluctuating generation capacity of renewable energies and to relieve the electricity grids when necessary. In order to lay the economic foundation for the energy transition, two new market platforms were created in NEW 4.0: the ENKO flexibility platform and a blockchain-based energy transaction and trading platform.

NEW 4.0 Academy

Under the umbrella of the NEW 4.0 Academy, the joint project aims at countering the shortage of skilled workers with its own certificate courses. The courses impart both basic and advanced know-how on the transformation of energy systems in the context of digitalisation and flexibilisation. Courses start at the beginning of 2020.

NEW 4.0 professional events

In April 2019, more than 80 experts gathered in Hamburg to discuss the topic of “FlexIndustry – Flexibilisation of Power Loads: Opportunities for Industry and Commerce in Hamburg and Schleswig-Holstein?”. The workshop was motivated by the 80-page study of the same name commissioned

by the Renewable Energy Hamburg Cluster and presented here. NEW 4.0 partners and external industry players met at the third Northern German Energy Transition BarCamp in August. In 18 different sessions, they discussed a variety of issues and areas of activity related to the energy transition. The last specialist workshop in 2019 was dedicated to the topic of “Specialists for the Northern German Energy Transition”.



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> Discussion during the BarCamp of NEW 4.0

NEW 4.0
 Norddeutsche EnergieWende

FROM SWEDEN TO BRAZIL HAMBURG CLUSTER ON THE INTERNATIONAL STAGE



> Break during the Living Lab at Hamburg Wälderhaus

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From Sweden to Brazil: Renewable Energy Hamburg Cluster on the International Stage

Hydrogen, wind power and heat were just a few of the many topics related to the numerous international activities of the Renewable Energy Hamburg Cluster in 2019. Renewable Energy Hamburg met representatives from countries including Belgium, Brazil, Ghana, Japan, the Netherlands, New Zealand, Sweden and Turkey.

EU project: Northern Connections

The North Sea region played a key role in the international exchange of the cluster, as it is home to the Northern Connections project (INTERREG North Sea programme), in which Renewable Energy Hamburg is one of a total of 21 project partners. During the project period from 2016 to the end of 2020, model regions in the North Sea region are to be networked with a focus on sustainable infrastructure, while

FROM SWEDEN TO BRAZIL



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> Full House at the Living Lab at Hamburg Walderhaus



Northern Connections

> Living Lab in Brussels

small and medium-sized enterprises are to be funded across national borders. This is achieved through regular practice-oriented meetings in the form of "Living Labs" and conferences. The final conference for Northern Connections will be held in Gothenburg, Sweden, in April 2020. The EU funding totals 5.3 million euros; 295,000 euros of which are allocated to the Renewable Energy Hamburg Cluster.

Northern European matchmaking

In addition to regular working meetings, four successful matchmaking events for demonstration projects in Gothenburg, Alkmaar, Brussels and Hamburg drew companies from the entire project region. In Sweden, the focus was on the goal of building and operating a school largely free of emissions; in the Netherlands, the aim was to supply a residential estate with energy using renewable gases. In Belgium and Hamburg, the events centred on the intelligent and innovative design of district heating networks in residential areas.

The Living Lab in Hamburg was organised jointly by the Renewable Energy Hamburg Cluster and the State of Schleswig-Holstein, with the support of other German partners such as HafenCity University

Hamburg and the Free and Hanseatic City of Hamburg. Before the project comes to an end in December 2020 following its eight-month extension, the seventh and – for the time being – final matchmaking event will take place in Edinburgh in January 2020 and a major concluding conference in Gothenburg in April 2020.

Maintaining and expanding worldwide contacts

To intensify their excellent contact, the Renewable Energy Hamburg Cluster and the New Energy Coalition Groningen signed a memorandum of understanding on joint cooperation in wind energy and hydrogen and became mutual members. Another highlight was the visit of a Brazilian offshore delegation in May 2019. In 2020, the Renewable Energy Hamburg Cluster will continue and expand its already existing alliances, above all with high-profile events during the fourth Wind Energy Hamburg trade fair taking place at the end of September.

RESEARCH AND INNOVATION FROM PPAS TO DISTRICT HEATING SUPPLY



> Heat storage plant Karoline

EEHH GmbH/Jörg Böhling

Research and Innovation in the Renewable Energy Hamburg Cluster 2019

Heat Forum

The Heat Forum hosted a total of three sessions. The kick-off meeting took place on the premises of Hamburg Energie at the end of January. The title of the event: “The 4th trading period for CO₂ certificates

and the pricing of CO₂ emissions in the heat sector”. Sabine Gores from Öko-Institut e.V. was the keynote speaker. The second meeting at the end of June, held at Becker Büttner Heldt, was concerned with the following topic: “Low-temperature local/district heating supply in the buildings sector”. At the third meeting held at GLS Bank in mid-November, the discussion focused on Wärme Hamburg GmbH as the municipal district heating grid operator. All sessions enjoyed strong demand with up to 60 participants.



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> Lively discussion at the BarCamp of NEW 4.0



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> Networking is one of the core activities of Renewable Energy Hamburg

Finance and Law Forum

The Finance and Law Forum also held three meetings. For the first time, all meetings were held under a motto for the year: "Marketing opportunities outside the German Renewable Energy Act". The first meeting on the topic "Current development of Power Purchase Agreements (PPAs) in Germany under legal and financing aspects" took place at GLS Bank at the beginning of February. The second meeting offered suggestions on "Marketing options for RES-E from the perspective of buyers and spot market price". The third meeting held on the premises of Hamburg Commercial Bank in November highlighted the issue of PPAs from the perspective of investors and project developers.

Activities of the Energy Research Network and the Research Contact Point

The Renewable Energy Hamburg Cluster participated in a total of three Energy Research Network meetings. In addition, the Renewable Energy Hamburg Cluster supported the individual universities with research proposals by means of letters of support, for example. The Renewable Energy Hamburg Cluster sponsored various university events, including the kick-off events of the Energy Research

Network, a BarCamp for the 7th Energy Research Programme and the NEIS Conference at the Helmut Schmidt University of the German Federal Armed Forces.



DNV GL/EEHH GmbH

> The Spanish enterprise Esteyco receives the 1st Offshore Innovation Award during the 16th Hamburg Offshore Wind Conference

In connection with the Research Contact Point, the Renewable Energy Hamburg Cluster developed a new acquisition strategy in collaboration with **Astrid Stichnoth**, the primary contact person at the Research Coordination Office at FKS, to promote research cooperation between companies and universities. In face-to-face meetings, a large number of members received suggestions for further collaboration among themselves.

2019 MEDIA CAMPAIGN RENEWABLE ENERGY HAMBURG – ACROSS MEDIA



EEHH GmbH/Ingo Böller

> Journalist Christian Hattesen is awarded with the 2nd Renewable Energy Hamburg journalism award

Renewable Energy Hamburg – Across Media

Greater awareness and acceptance are the key challenges of the renewable energy industry. By means of its fourth media campaign, the Renewable Energy Hamburg Cluster made a significant contribution to better communicating innovative and cutting-edge technological developments. Specific measures included media work at the 16th Hamburg Offshore Wind Conference (HOW) 2019, greater editorial in-

volvement of Renewable Energy Hamburg members with respect to the blog, two press trips and the awarding of the second Renewable Energy Hamburg Journalism Award.

The Renewable Energy Hamburg blog: a diversity of topics and wide reach

“Giving the energy transition a boost again (Averdung Ingenieurgesellschaft); “Sustainable sector coupling (Naturstrom AG);” and “We want to take

2019 MEDIA CAMPAIGN



> The team of Spitzner Engineers is winner of the innovation pitch during the Renewable Energy Hamburg summer party

the next step in the energy transition (HAW Hamburg) – these were just a few of the posts that Renewable Energy Hamburg members made on the blog. In addition, a large number of guest contributors and their articles helped to significantly increase the reach, with individual contributions attracting more than 3,500 views.

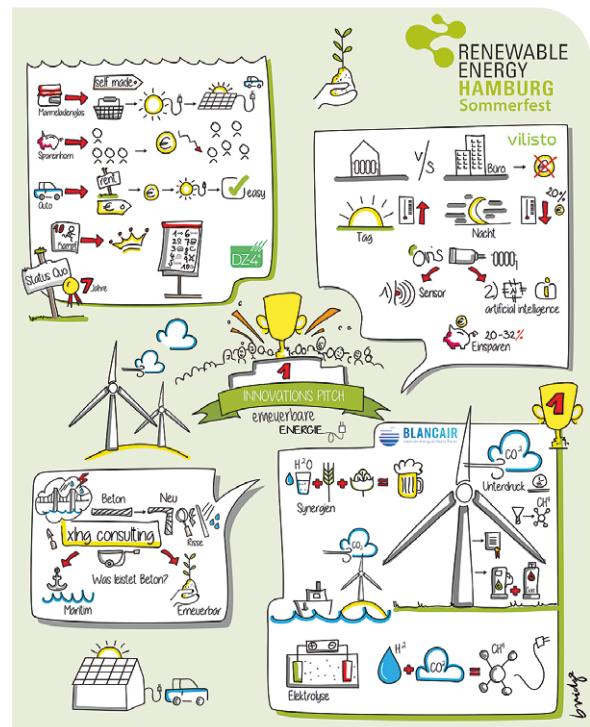
HOW 2019 with impressive media coverage

Nine teams of journalists from renowned print and online media covered and reported on the 16th Hamburg Offshore Wind Conference (HOW) 2019. Articles were published by Bloomberg, Energie & Management and RTL Nord, among other outlets. To make the conference presentations available to interested readers at a later date, the Renewable Energy Hamburg Cluster had a digital retrospective prepared for the first time.

Press trips to renewable energy hotspots

In order to introduce journalists to renewable energy projects first hand, the Renewable Energy Hamburg Cluster invited them to take part on two press trips – one in Hamburg and the other in Schleswig-Holstein. In Hamburg, ten representatives of the media visited the Enercity Oberhafenquartier energy centre, the Curslack battery storage facility and the NET OHG wind farm in Neuengamme. The Schles-

wig-Holstein tour with 12 journalists covered the Jardelund energy storage facility, the wind farm with hydrogen filling station in Ellhöft, the Greentec Campus and the Fraunhofer ISIT. Articles were published in Energie & Management, the Hamburger Abendblatt and RTL Nord, for example. The press trips contribute to an intensification and deepening of reporting on issues relating to energy. This is extremely important due to the increasing complexity of energy supply.



> Graphic Recording at the 4th Renewable Energy Hamburg summer party

SWR journalist Christian Hattesen honoured with second Renewable Energy Hamburg Journalism Award

“Die Klimaretter vom Hunsrück” (The Climate Saviours of Hunsrück) is the impressive portrait of a committed community that helped SWR journalist **Christian Hattesen** win the second Renewable Energy Hamburg Journalism Award. With a total of 17 entries, the new category in the German Renewables Awards saw an increase of nearly 100%.

ACTIVITIES IN JAPAN IN THE LAND OF THE RISING SUN



> Hamburg evening reception at the REIF exhibition in Fukushima

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In the Land of the Rising Sun: The Renewable Energy Hamburg Cluster's Activities in Japan

In 2019, there was a clear focus on Japan in the Renewable Energy Hamburg Cluster's international sphere. Japan, and more specifically the Japanese prefecture of Fukushima, has a unique symbolic character for the development of renewable energies. It was the three-fold disaster involving the earthquake, tsunami and nuclear accident in Fukushima

that changed German energy policy forever, bringing about a rapid nuclear phase-out in Germany.

Promotion of hydrogen technologies in Japan

The events of March 2011 have left their mark in Japan in particular. Although Japan has not yet completely turned its back on nuclear energy, the development and promotion of a variety of renewable energy sources and energy storage technologies is being actively pursued. Particularly in the case of

ACTIVITIES IN JAPAN



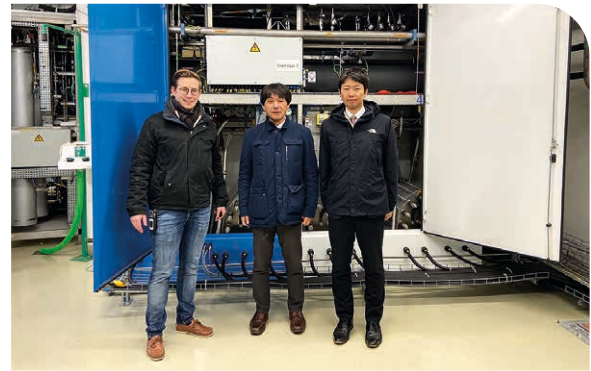
> Jan Rispen, managing director of Renewable Energy Hamburg, reports on the German energy transition in Fukushima

hydrogen, Japan has a pioneering role worldwide and aims to present its hydrogen-based vision of a green future at the Summer Olympics being held in Tokyo in the summer of 2020.

However, producing hydrogen in a climate-friendly manner requires a large amount of green electricity. Due to Japan's geographical location, electricity from offshore wind farms is particularly suitable for this purpose. In view of the difficult situation of the wind energy industry in Germany, many companies have discovered the market potential in Japan and Fukushima and are keeping a lookout for favourable business opportunities. The Free and Hanseatic City of Hamburg and the Renewable Energy Hamburg Cluster actively supported these companies during a delegation trip to Japan for the World Smart Energy Week Tokyo trade fair held in February 2019.

Cooperation with Fukushima Prefecture

Official cooperation between the Renewable Energy Hamburg Cluster and Energy Agency Fukushima has existed since 2018. In October 2019, the Governor of Fukushima Prefecture, **Masao Uchibori**, and the First Mayor of the Free and Hanseatic City of Hamburg, **Dr Peter Tschentscher**, officially sealed the cooperation agreement at Hamburg City Hall.



> Japanese delegation visiting Hamburg


Another highlight of the Renewable Energy Hamburg Cluster's activities in Japan was its participation in the Renewable Energy Industrial Fair 2019 in Koriyama, Fukushima, where the cluster had a joint stand with six member companies. During this visit to Japan, the Renewable Energy Hamburg Cluster also strengthened its relations with the Japanese development organization NEDO (New Energy and Industrial Technology Development Organization) at a workshop in Kawa-saki. Return visits by NEDO, Energy Agency Fukushima, Fukushima Prefecture and the University of Kitakyushu in Hamburg rounded off the cluster's activities in Japan in 2019.



> German-Japanese networking in Fukushima

Also in 2020, the intensification of successful cooperation with a variety of partners in Japan is on the agenda, including at the leading international Wind Energy Hamburg trade fair being held in September 2020.

OUTLOOK FOR 2020

 The Renewable Energy Hamburg Cluster is celebrating its 10-year anniversary in 2020! This is an opportunity to reflect on the past and the achievements of the cluster. But more importantly, we want to use 2020 to analyse the energy supply situation nationally and internationally and to shape the next steps in energy supply.

Sector coupling remains the priority issue. We are confronted with historically evolved regulations for electricity, heat and mobility, which mean that sector coupling projects are in most cases still economically unviable. We are working to ensure that the technical solutions that are already feasible today are implemented and serve as lighthouses showing the way forward. We are also committed to the environmentally and economically responsible further development of the regulatory framework for energy markets.

On the one hand, this is necessary to stabilise electricity generation with its high proportion of fluctuating renewable energies; on the other, heat supply and mobility can only “go green” with the use of clean electricity. Together with our members, we will vigorously pursue this goal.

The “Norddeutsche EnergieWende – NEW 4.0” (Northern German Energy Transition 4.0) consortium will be wrapping up project work at the end of 2020. A large number of demonstrators will illustrate how a partial flexibilisation of energy demand in industry and commerce will make an important contribution to stabilising the energy grids in Hamburg and Schleswig-Holstein. As a partner in the NEW 4.0 consortium, we look forward to publicising the “fruits” of this project in professional circles both nationally and internationally!



> Wind to Gas inaugurates its electrolyser in Brunsbüttel

NEW 4.0

Last but not least, we are pleased to continue to offer our well-known events “Treffpunkt Erneuerbare Energien (TEE)” (Renewable Energies Meeting Place), the “Hamburg Offshore Wind Conference (HOW)”; the presentation of our “German Renewables Awards” and our forums at a high level in our anniversary year. But of course, we will also be properly celebrating our “decennial” with you. Mark the evening of 10th June in your diary now!

 **10 JAHRE**
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ENERGY
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